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ABSTRACT

Numerous scholars have attempted to explain which factors allow for organizational ambidexterity. Strategic planning, as a possible antecedent, has not been considered so far. This is surprising because strategic planning is among the most widely used strategic decision-making tools in management practice and one of the most extensively studied concepts in management research. In addition, prior research has demonstrated the potential of strategic planning to impact innovation-related outcomes—both positively and negatively. Here, we investigate the association between strategic planning and organizational ambidexterity using a survey of 217 senior executives. We highlight the importance of considering *how* executives use strategic planning. Our results support the hypothesis that strategic planning's positive or negative association with organizational ambidexterity is contingent on other organizational factors. Our findings reveal that strategic planning is only positively associated with organizational ambidexterity when leaders' innovation orientation is extraordinarily high. We further contextualize this interaction effect by considering the environmental uncertainty perceived by the top management. This work contributes to the literature by examining the antecedents of organizational ambidexterity.

Keywords

Organizational ambidexterity; enabling/coercive strategic planning; exploration/exploitation; contingency perspective

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INTRODUCTION

Organizational ambidexterity—a firm's ability to simultaneously explore and exploit—is believed to be a crucial differentiator between organizational success and failure (cf. O'Reilly and Tushman, 2008). Within the last decade, scholars have demonstrated the positive effect of organizational ambidexterity on short-term and long-term firm performance (e.g., Cao, Gedajlovic, and Zhang, 2009; He and Wong, 2004; Junni, Sarala, Taras, and Tarba, 2013). The promise of organizational ambidexterity is that a firm that is able to simultaneously pursue both exploration and exploitation will gain and sustain flexibility and efficiency over time (Benner and Tushman, 2003). In contrast, firms that either only focus on exploration or exploitation risk becoming trapped in suboptimal equilibria, endangering their long-term organizational survival (Levinthal and March, 1993). And getting trapped is all too easy: Exploration and exploitation are self-reinforcing processes that tend to crowd one another out (March, 1991; Raisch, 2008). In particular, the undermining effect of exploitation on exploration has been demonstrated by numerous studies across different fields that use notions such as the success trap (Levinthal and March, 1993), the capability-rigidity paradox (Atuahene-Gima, 2005), the passion-discipline paradox (Andriopoulos and Lewis, 2010), and—predominantly in the field of organizational ambidexterity—the tyranny of success (Tushman and O'Reilly, 1997).

Because countering the tyranny of success is essential, there is a still-emerging stream of inquiry that aims to identify the antecedents and barriers of organizational ambidexterity. Ambidexterity scholars have recognized environmental, organizational, and managerial antecedents such as environmental dynamism (Sidhu, Commandeur, and Volberda, 2007), founding team composition (Beckman, 2006), and ambidextrous human resource management

systems (Garaus et al., 2016). Although this body of knowledge on the role of antecedents is growing, questions concerning potential drivers of organizational ambidexterity and contingency effects have remained open, and scholars continue to call for additional research (e.g., Raisch and Birkinshaw, 2008; Lavie, Stettner, and Tushman, 2010; Turner, Swart, and Maylor, 2013). In particular, more in-depth analyses are essential for a better understanding of the antecedents of organizational ambidexterity (cf. Filippini, Güttel, and Nosella, 2012; Gurtner and Reinhardt, 2016). In a similar vein, Nosella, Cantarello, and Filippini (2012, 459) concluded in their bibliographic study on organizational ambidexterity that the field would profit from "[s]hifting the attention from macro to the micro [and studying] a single organizational process." Processes for deciding on resource allocation—such as strategic planning, the process focal to this paper—merit further investigation (Güttel and Konlechner, 2009) because these processes concern inherent tradeoffs between exploration and exploitation (Lavie et al., 2010) and therefore lie at the heart of the ambidexterity concept (cf. March, 1991).

A literature review by Simsek, Heavey, Veiga, and Souder (2009), however, reveals that the influence of strategic planning on organizational ambidexterity has barely been investigated in the extant literature. Given the fundamental importance of strategic planning (Rudd, Greenley, Beatson, and Lings, 2008) and in light of the fact that strategic planning ranks among the most widely applied management tools in organizations (Rigby and Bilodeau, 2011; Wolf and Floyd, 2017), this is somewhat puzzling (Whittington, Cailluet and Yakis-Douglas, 2011).

Moreover, in light of the tensions in extant research as to whether strategic planning supports or endangers innovation activities (e.g., Craig, 1995; Damanpour, 1991), it is worth examining strategic planning within the context of organizational ambidexterity. Drawing on the work of Adler and Borys (1996), who consider strategic planning to be enabling or coercive depending on *how* it is used by senior management, and research on senior managers' cognitive tendencies for supporting innovation, we posit that the nature of the association between strategic planning

and organizational ambidexterity depends on leaders' innovation orientation (LIO). We propose that when leaders are oriented towards innovation, strategic planning will not create detrimental effects on exploration by constraining employees' search behavior, but will rather provide support and guidance for an otherwise complex and unstructured task.

The purpose of this paper is therefore to develop and test a research model that considers the moderation effect of LIO on the association between strategic planning and organizational ambidexterity. Furthermore, we also consider the role of perceived environmental uncertainty (PEU) in the nexus of strategic planning-LIO/organizational ambidexterity.

Drawing on survey data, our results support a positive moderation effect, i.e., strategic planning is positively associated with an organization's ambidexterity when its leaders display an extraordinarily high innovation orientation. In a second step, we find evidence for the association of PEU with the complementarity between strategic planning and LIO. We accordingly provide a more granular understanding of the factors associated with the development of organizational ambidexterity (Gurtner and Reinhardt, 2016; Raisch and Birkinshaw, 2008) and reply to a still widely unanswered call for research on how "different antecedents interact and complement one another in a firm's pursuit of organizational ambidexterity" (Raisch and Birkinshaw, 2008, 399).

Beyond contributing insights into the antecedents of organizational ambidexterity—the main goal of this paper—our results also inform the literature on strategic planning. By examining the interplay of strategic planning and LIO, our paper adds to an emerging research stream that moves away from purely focusing on the *extent of the use* of strategic planning to *how* it is used (Arend, Zhao, Song, and Im, 2017; Vilà and Canales, 2008) and therefore contributes to an understanding of the *practice* of successful strategic planning (Wolf and Floyd, 2017).

THEORY AND HYPOTHESES

After more than two decades during which "organizational ambidexterity" has been a burgeoning area of research, ambiguity still remains about its definition (e.g., Birkinshaw and Gupta, 2013; Mihalache and Mihalache, 2016). Because "ambidexterity" has been used as an "umbrella term" (Turner et al., 2013), it has been applied to contexts that have little to do with Tushman and O'Reilly's original conception (1996; 1997). O'Reilly and Tushman (2013, 331) even warned about ambidexterity becoming "a management Rorschach test in which one sees whatever one wants as researcher." Following the consensus that emerged in the consolidation phase of the field in the last few years, we define organizational ambidexterity as the ability to manage the tension between exploration and exploitation throughout the organization (e.g., Kassotaki, Paroutis, and Morrell, 2018; Lin and Ho, 2016; Zimmermann, Raisch, and Birkinshaw, 2015).

The value of organizational ambidexterity lies in a company's ability to pursue exploration and exploitation at the same time (Lin and Ho, 2016); it is associated with firm growth and performance (see Junni et al. (2013) for a meta-analysis). The primary argument of the organizational ambidexterity-performance link is that too much exploitation results in a "success trap"—an overt focus on current capabilities that hinders organizations from adapting to changing environments (Levinthal and March, 1993). Because of a firm's past success with its current capabilities, it keeps exploiting these strengths, starving exploration out, which can lead to poor performance in the long run (Schreyögg and Sydow, 2010). In contrast, too much exploration can lead to a large number of underdeveloped innovations that may not contribute to a firm's revenue (Junni et al., 2013). When revenue streams run dry, the resources necessary to properly develop innovations will similarly evaporate, leading to a "failure trap"—a vicious cycle of searching for new ideas that will unavoidably be immature and need to be replaced with ideas that are even less developed as fewer resources are left (Levinthal and March, 1993).

Given these self-reinforcing and potentially self-destructive tendencies of exploration and exploitation, the simultaneous pursuit of exploration and exploitation is difficult for organizations (March, 1991) and necessitates an ongoing and pro-active management of the tension between exploration and exploitation to avoid the "common pitfalls" that exploitation drives out exploration or vice versa (Gupta, Smith, and Shalley, 2006; Raisch, 2008).

Using the dynamic capability view (Teece, 2007) as a theoretical lens, O'Reilly and Tushman (2008) have clearly established the actions of organizations' leaders to be at the heart of an organization's ability to be ambidextrous. They describe that leaders scan the organizational environment, develop strategic objectives, and decide on resource allocations. Recent literature linking organizational ambidexterity to dynamic capabilities literature has emphasized the key role of strategic leaders in orchestrating resources between the development of both, new and existing capabilities (cf. O'Reilly and Tushman, 2013).

With this shift to conceptualizing organizational ambidexterity as a dynamic capability, literature on the antecedents of organizational ambidexterity has co-evolved. The focus is increasingly shifting from investigating structural and contextual arrangements to achieve exploration-exploitation balance (the "static perspective on ambidexterity") to understanding how and via which mechanisms leaders manage the tension (the "dynamic perspective") (cf. Lavie et al., 2010; Raisch, Birkinshaw, Probst, and Tushman, 2009). Scholars have called for investigations of exploratory and exploitative strategic objectives and the allocation of resources for attaining high levels of exploration and exploitation in detail (e.g., Güttel and Konlechner, 2009; Lavie et al., 2010; O'Reilly and Tushman, 2008).

One of the most frequently used processes in managerial practice to set strategic objectives and allocate resources is strategic planning (Rigby and Bilodeau, 2011). Strategic planning describes a formal process that necessitates an explicit procedure to define strategic objectives, generate strategies for attaining those objectives, and develop a clear system to monitor the

results (Armstrong, 1982; Elbanna and Elsharnouby, 2018). Strategic planning is an organizational decision-making process of high strategic importance because it defines the means and ends of an organization, describes competitive threats and opportunities, and controls and implements action (Ansoff, 1991).

Because strategic planning and organizational ambidexterity have developed cumulatively within but not across their respective bodies of literature, we will review and integrate works from both research streams. Insights from combining the two largely unrelated lines of research inform the development of our hypotheses.

Strategic Planning and Organizational Ambidexterity

An ongoing debate exists among researchers with regard to the effects of strategic planning on innovation activities. A line of research has pointed out that strategic planning negatively influences innovation activities (cf. Arend et al., 2017). Two explanations for this detrimental effect have been suggested: First, strategic planning aims to determine innovative activities that are by their very nature not amenable to precise planning *ex ante* (Moorman and Miner, 1998). It puts constraints on employees' creativity and inhibits the implementation of out-of-the-box ideas (Schoonhoven, 1984). Second, it has been argued that strategic planning is an inflexible process unable to adapt to unexpected developments during the innovation process (Eisenhardt and Tabrizi, 1995). It even limits the recognition and seizure of new opportunities and is therefore likely to lead to irrelevant and incomplete innovation (Nickerson and Zenger, 2004).

However, other studies report a positive effect of strategic planning on innovation activities. For instance, strategic planning has been associated with faster new-product-development cycles (Griffin, 1997), lower failure rates (Brown and Eisenhardt, 1995), fewer time-consuming mistakes, and uncoordinated, wasteful activities (Cooper and Kleinschmidt, 1986).

The primary arguments why strategic planning can positively influence innovation activities are the same as the ones presented above: Strategic planning is a variation-reducing, strict process. It may give employees guidance and scaffold their activities when individuals are faced with the high levels of uncertainty and ambiguity that innovation processes often involve (Davila, 2005). The absence or lack of strategic planning might lead to employees losing sight of a firm's goals and engaging in undesirable behavior, which could ultimately result in employee activities becoming uncoordinated and conflictual (Davila, 2005). Avoiding this situation is of great importance in innovation processes because they involve a particularly high amount of reciprocal task interdependence between sub-units (Tushman, 1977).

Research on the effect of strategic planning on innovation is clearly divided, but the previous literature also suggests that strategic planning is very likely to bring about consequences—either positive or negative—for organizational ambidexterity.

Recently, Adler and Borys' (1996) differentiation of two different forms of strategic planning—coercive and enabling—has been revisited to explain the contradictory findings on the association between strategic planning and firm innovation. While coercive strategic planning "substitutes rules for employee motivation in order to increase efficiencies," enabling strategic planning guides employees and gives them structure while at the same time encouraging risk-taking (Arend et al., 2017, 1742).

When reintroducing this differentiation, Song, Im, van der Bij, and Song, (2015) also argue that enabling strategic planning is dependent on organizational factors. Thus, applying strategic planning that is unsupported by other mechanisms is very likely to negatively affect exploration activities. This reasoning is consistent with the classic works of March and colleagues, who already highlighted that relying on standardized procedures, routines, and fact-based problem-solving undermines experimentation and ad-hoc problem-solving (cf. March, 1991).

Subsequent ambidexterity research has clearly demonstrated that the application of fact-based and rigid management approaches (e.g., process management) leads to a bias towards exploitation (Benner and Tushman, 2003). Because the outcomes of exploitation are more certain and more proximate in time than those of exploration (March, 1991), the outcomes of exploitation can be planned and measured more easily (He and Wong, 2004).

Organizations employing strategic planning without other mechanisms are more likely to channel budgets away from exploration and to focus on exploitation (Miller and Cardinal, 1994; Sirén and Kohtamäki, 2016), making it less likely that ambidexterity is achieved. Therefore, it can be concluded that strategic planning implies applying a mechanistic, efficiency-oriented logic that, in the absence of suitable complementary firm-level choice variables, is most likely to occur in its coercive form. Moreover, strategic planning in its coercive form will limit the generation of new knowledge that truly explorative tasks require and instead build on familiar knowledge. Therefore, we hypothesize:

H1: Strategic planning is negatively associated with organizational ambidexterity.

Contingent View on the Effect of Strategic Planning on Organizational Ambidexterity

Drawing on work by Adler and Borys (1996), Arend et al. (2017) argue that the effect of strategic planning on innovativeness depends on firm-level factors that influence employees' perceptions of how enabling this process is. If these firm-level factors are applied in the right way, they create a perception of enabling strategic planning among employees and therefore contribute to decreasing the costs of strategic planning while increasing its benefits. We suggest that LIO—which the literature has theorized to be associated with decisions on resource allocations (e.g., Clauss and Spieth, 2016; Simpson Siguaw, and Enz, 2006; Varadarajan, 2017)—is such an enabling factor.

Nested on the top-management level (Kortmann, 2015), LIO is considered to be one of the "most important strategic orientations" to achieve long-term success (cf. Zhou, Gao, Yang, and Zhou, 2005). Although the field is still to reach an undisputed definition of LIO, most scholars agree that a set of beliefs on the role of learning and innovation forges the core of LIO (e.g., Hurley and Holt, 1998; Narver, Slater, and MacLachlan, 2004; Stock and Zacharias, 2011). Reflected in leaders' cognitive and behavioral tendencies to support learning and innovation, it determines the degree of newness that is encouraged by leaders (Siguaw, Simpson, and Enz, 2006; Stock, Totzauer, and Zacharias; 2014; Talke Salomo, and Kock, 2011). Consequently, LIO is not only expressed by leaders' behavior, but also in how they encourage employees to think independently, develop new ideas, and engage in exploratory thinking processes (Chen, Tang, Jin, Xie, and Li, 2014; Zhou et al., 2005).

LIO introduces flexibility into strategic planning, which is thought to be the key to successful strategic planning (Rudd et al., 2008). Leaders' innovation orientation will safeguard employees from a constraining perception of strategic planning that purely relies on an exploitation logic and makes employees aware that exploration is equally important. In doing so, LIO curbs the negative effects of strategic planning, increases a firm's ability to adapt and respond to changes in its external environment, and enhances a firm's adaptive learning components (Sirén and Kohtamäki, 2016). In other words, LIO counteracts the negative effects of strategic planning with regard to organizational ambidexterity.

At the same time, strategic planning also increases the effectiveness of LIO. When strategic objectives are not clear, organizations with high levels of LIO run the risk of overemphasizing variation-enhancing activities such as experimentation and search, while losing sight of innovation costs and efficiencies (Kortmann, 2015; Simpson et al., 2006). Employees will not appreciate the autonomy resulting from the lack of guidance either, but rather perceive the organization as chaotic (Davila, 2005; Simsek, 2009). Strategic planning can set boundaries to

these potential negative effects by curbing excess exploration and ensuring that time-consuming mistakes and wasteful activities are avoided (Moorman and Miner, 1998).

Given that LIO addresses weaknesses in strategic planning with regard to the pursuit of organizational ambidexterity and vice versa, we suggest that there is a complementary, yet paradoxical relationship between strategic planning and LIO balancing variation-enhancement and -reduction (e.g., Siggelkow, 2002). Therefore, we propose the following hypothesis:

H2: Leaders' innovation orientation positively moderates the relationship between strategic planning and organizational ambidexterity.

The Role of Perceived Environmental Uncertainty in the Nexus of Strategic Planning-Leaders' Innovation Orientation/Organizational Ambidexterity

PEU can be defined as the felt inability to entirely understand how the external environment may evolve, how these changes impact means-ends relationships, and whether actions taken may be successful (Bstieler, 2005). PEU has long been acknowledged as an important contextual factor in literature on ambidexterity (e.g., Lavie et al., 2010; Lubatkin, Simsek, Ling, and Veiga, 2006; Mom, van den Bosch, and Volberda, 2009) and is also related with strategic planning (e.g., Brews and Purohit, 2007; Fahey, King, and Narayanan, 1981) and LIO (e.g., Real, Roldán, and Leal, 2016; Stock and Zacharias, 2011). Hence, it can be assumed that the hypothesized moderating effect of LIO on the relationship between strategic planning and organizational ambidexterity will be influenced by the level of PEU. Considering low and high levels of PEU, we will argue why combining strategic planning and innovation orientation will be more effective in terms of organizational ambidexterity when the level of PEU is high.

Considering first the low PEU case, the organizational environment will change in expectable ways and the organization will be able to predict how these changes will affect means-end relationships relatively accurately (Gul and Chia, 1994). As a result, the flexibility

LIO adds for reacting to unexpected changes is not necessary; LIO does not need to curb the negative effects of strategic planning. Likewise, strategic planning will not increase the effectiveness of LIO because objectives will be clear and the likelihood that the organization is perceived as chaotic (Davila, 2005; Simsek, 2009) is very low.

In contrast, in high PEU settings firms feel unable to comprehensively foresee how the environment might change, how such changes might affect means-ends relationships, and whether their planned courses of action may still be appropriate (Bstieler, 2005). Just following the traditional view that uncertainty is a phenomenon best dealt with through its reduction (Bourgeois, 1985) is dangerous. Following the reasoning in the seminal paper by Tushman and O'Reilly (1996), it can be assumed that the same tools leaders with identical mindsets use to strategize in a stable context (e.g., cement mills) lead to fundamentally different outcomes in an organizational environment that is likely to change (e.g., microcomputers).

Ambidexterity research has clearly demonstrated that instead of trying to resolve the predictability-uncertainty tension by focusing on predictive outcomes only, organizations should rather accept and manage the paradoxical relationship of predictability and uncertainty through paradoxical management practices (e.g., Andriopoulos and Lewis, 2010; Papachroni, Heracleous, and Paroutis, 2016). Complementing strategic planning with a strong LIO can be seen as such a way of paradoxically managing the predictability-uncertainty tension, which will allow an organization to develop the responsiveness to environmental changes needed in high PEU settings (Moers, 2006).

Therefore, we hypothesize:

H3: The positive moderation effect of leader's innovation orientation on the relationship between strategic planning and organizational ambidexterity is more pronounced for firms facing higher (rather than lower) levels of perceived environmental uncertainty.

Our three hypotheses are summarized in a conceptual model shown in Figure 1.

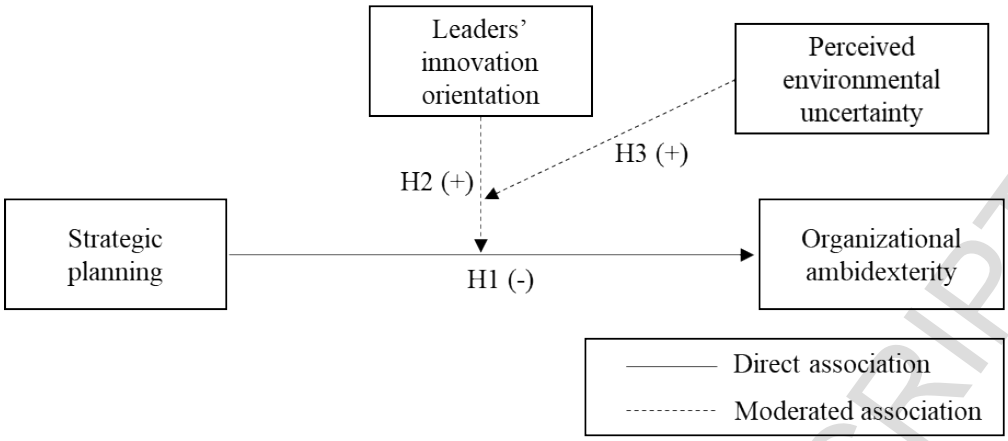

Fig. 1. Conceptual model.

METHODS

Sample

The sample was selected from the population of all firms registered in the Austrian corporate register. The selection was guided by criteria regarding size, location, and industry. The sample was limited to firms that are headquartered in Austria and have at least 200 employees. Public and non-profit organizations were excluded. Based on these criteria, 1,406 companies with full contact information remained in our sample. The survey instrument was sent to the CEOs of these companies by mail. Three weeks after delivery, any CEOs who had not responded were contacted again by means of a reminder letter. Within one month, we had received 217 completed questionnaires, resulting in a response rate of 15.43%[1]. We took additional measures to address concerns of non-response bias in two ways.

Consistent with work by Armstrong and Overton (1977), we investigated differences between early- and late-responding companies to test for the presence of non-response bias. We used analysis of variance to determine whether mean differences in any of the items used

[1] The response rate can be considered typical for ambidexterity studies surveying CEOs (e.g., Agostini, Nosella, and Fillipini, 2016; He and Wong, 2004; Wang and Rafiq, 2014) and even a bit higher compared to the 10–12% response rate described as typical by Hambrick, Geletkanycz, and Fredrickson (1993) for surveys of executives.

in this study existed between these two types of companies. Our results revealed no significant differences between early- and late-responding companies on any items used. Therefore, non-response bias does not appear to pose a threat to the validity of our results.

We also compared how well the responding companies represent the total population given our sampling criteria of size and industry. A comparison of the responding and non-responding firms with regard to revenues and number of employees did not yield any significant differences. A broad range of industries are included in our sample (number of firms in brackets): agriculture, forestry, hunting, and fishing (6); manufacturing (86); finance, insurance, and real estate (23); health, education, social services (2); mining and construction (11); transportation, communication, utilities (22); retail, hotel, restaurant (34); business services (21); and other (12). In terms of industry composition, a Chi-squared test shows that the respondent firms do not differ significantly from the target population. Hence, we are confident that our sample is representative of the target population.

Data Collection

We used a survey as our primary data-collection instrument. We relied on established constructs whenever possible. Given potential language barriers among our targeted respondents, the English constructs were translated into German. To ensure validity, we had an independent academic back-translate the German version. The two English versions did not exhibit any substantial differences from one another. The questionnaire consisted almost exclusively of closed-ended questions. If not indicated otherwise, a 7-point Likert scale was used that was anchored from 1 (*does not apply*) to 7 (*applies fully*). Extensive pre-tests with both, researchers and practitioners were carried out in order to ensure the validity of our questionnaire. These pre-tests resulted in minor changes with regard to wording and layout.

The survey data were complemented with objective performance data from the Austrian corporate register. Due to limitations in the public availability of objective performance data, our sample sized was reduced to 178 usable responses.[2]

Measures

Following previous research (e.g., Cao et al., 2009; He and Wong, 2004), we multiplied exploration and exploitation to arrive at our measure for organizational ambidexterity. To operationalize exploration and exploitation, we used the measures suggested by He and Wong (2004). While exploitation deals with incremental innovation (improvement of existing product quality, improvement of production flexibility, and reduction of production cost), exploration covers radical innovation (extension of product range, entry into new markets, and entry into new technology fields; He and Wong, 2004). To corroborate our measure for organizational ambidexterity, we collected publicly available performance data for our respondents to calculate their return on assets. Consistent with the ambidexterity hypothesis (Levinthal and March, 1993; March, 1991), we investigated whether there was a significant and positive relationship between organizational ambidexterity and performance. Following Lubatkin et al. (2006), we used one-year lagged performance data. Furthermore, in order to control for prior performance effects we also gathered data on prior performance. Corroborating prior literature, we found a significant and positive effect of organizational ambidexterity on performance ($\beta = .001$, p-value $< .10$, one-tailed). Despite the limitations of perceptual measures (Ambos and Birkinshaw, 2010), we feel confident that our operationalization captures the theoretical construct of organizational ambidexterity appropriately.

[2] We address this issue in the Results section and demonstrate that our findings are not driven by omitting the firms for which objective performance data were not available.

Our measure of strategic planning is based on work by Eddleston, Kellermanns, and Sarathy (2008) and was operationalized using three items that describe the extent to which firms (1) know what to do to reach their business goals; (2) have a clear strategy for achieving their business goals; and (3) have a clear plan for how to implement their business model.

For assessing LIO, we drew on a measure similar to prior studies (e.g., Hurley and Holt, 1998; Kortmann, 2015; Stock and Zacharias, 2011) consisting of two items: (1) fostering a culture of development and innovation and (2) supporting fast learning and new ways of doing things.

PEU was operationalized as uncertainty due to demand, technological, competitive, supplier, as well as legal changes (Moers, 2006).

In a pretest, we asked academics and executives for their feedback on the questionnaire. Based on this review process, we made several small changes to ensure that the questionnaire's wording was easily comprehensible and that we measured the constructs parsimoniously.

We also controlled for factors that might influence organizational ambidexterity. Drawing on prior research (cf. Cao et al., 2009; He and Wong, 2004; Simsek et al., 2009, Wang and Rafiq, 2014), we introduced several organizational-level variables as covariates (sources of measurements in brackets): technological capability (Terziovski, 2010), firm size measured as the natural logarithm of the number of employees, prior performance measured as return on assets in 2010, and the natural logarithm of firm age (He and Wong, 2004). In order to account for organizational context, we also controlled for industry affiliation. For industry affiliation, we used industry-specific dummy variables, with manufacturing serving as the baseline category. We also controlled for market orientation (Zhou, Li, Zhou, and Su, 2008), which has been theorized to be a potential influencer by previous ambidexterity studies (Gibson and Birkinshaw, 2004). Details of the measures are listed in Table 1.

Table 1
Measures and validation.

Variable	Item	Factor loadings
Exploration	Objectives for undertaking innovation projects within the last 3 years:	
Eigenvalue 1.941;	... extend product range.	.814
% of var. explained (64.720);	... open up new markets.	.828
α = .727; CR = .838;	... enter new technology fields.	.770
AVE = .634		
Exploitation	Objectives for undertaking innovation projects within the last 3 years:	
Eigenvalue 1.967;	... improve existing product quality.	.788
% of var. explained (65.570);	... improve production flexibility.	.851
α = .737; CR = .840;	... reduce production cost.	.789
AVE = .639		
Strategic planning	In our company we ...	
Eigenvalue 2.435;	... know what we need to do to reach our business goals.	.863
% of var. explained (81.170);	... have a clear strategy for achieving our business goals.	.913
α = .884; CR = .928;	... have a clear plan how to implement our business model.	.926
AVE = .812		
Leaders' innovation orientation	It is of the utmost importance for our executives to ...	
Eigenvalue 1.628;	... support fast learning and new ways of doing things.	.902
% of var. explained (81.400);	... foster a culture of development and innovation.	.902
α = .771; CR = .894;		
AVE = .808		
Perceived environmental uncertainty	How do you assess the predictability of changes in the following areas?	
Eigenvalue 1.988;	Behavior and buying patterns of customers	.585
% of var. explained (39.760);	Technological developments in our company's primary industry	.728
α = .610; CR = .730;	Behavior/strategies of competitors	.739
AVE = .367	Behavior/strategies of suppliers	.623
	Legal and/or political developments	.426
Technological capability	Compared with our competitors, we have better technologies.	.734
Eigenvalue 3.226;	We consider the use of technology to be a driver of business growth.	.817
% of var. explained (64.530);	Technological objectives guide the evaluation of new ideas.	.775
α = .862; CR = .900;	Employees search for information and new ideas and technologies.	.831
AVE = .643	Employees work towards specific technological goals or objectives.	.853
Market orientation	In our company we put special emphasis on …	
Eigenvalue 1.931;	... regularly communicating the preferences of our customers to all parts of our firm.	.834
% of var. explained (64.360);		
α = .722; CR = .840;	... frequently discussing market developments with our employees.	.830
AVE = .638	... making sure that all parts of our firm cooperate in order to make sure that the demands of our target market are satisfied.	.739

Reliability and Convergent Validity

With the exception of performance, firm size, and firm age, all other variables were measured using multiple items that represent latent constructs. Construct reliability was assessed on the basis of Cronbach's alpha. The data in Table 1 reveal that, with the exception of PEU, all values exceed the suggested benchmark of .70 (Cronbach, 1971).

To test for convergent validity of our constructs, we ran a factor analysis. With the exception of PEU, all loadings reported in Table 1 exceed the threshold value of .70 (Nunnally, 1978). Moreover, composite reliability (CR) was above the critical value of .70 (Hulland, 1999). Finally, apart from PEU, the average variance extracted exceeded the cut-off point of .50

(Fornell and Larcker, 1981). Therefore, we conclude that, aside from PEU, our measures display good composite reliability and convergent validity. In the case of PEU, the measurement properties are consistent with previous literature using this construct (e.g., Grabner and Speckbacher, 2016; Grabner, 2014).

Discriminant Validity

To rule out that the constructs exploration, exploitation, and LIO are part of the same larger construct, we conducted an exploratory factor analysis including all items used to measure the three constructs. Three factors with Eigenvalues exceeding 1 emerge from the analysis. Furthermore, the items load on their respective constructs and cross-loadings do not exceed a value of .30. To further corroborate the discriminant validity among exploration, exploitation and LIO, we performed a hierarchical model comparison using confirmatory factor analysis (Anderson and Gerbing, 1982). Following work by Choi, Lee, and Yoo (2010), we estimated three different comparison models: (1) a null model, (2) a single-factor model where all eight items load on a single factor, and (3) a three-factor model with any correlation between the factors fixed to one. Comparing the differences in Chi-squared statistics indicates that the three underlying factors are different from one another and that the correlations between them are statistically different from unity (Choi et al., 2010; Pedhazur and Schmelkin, 1991). Overall, the results indicate that exploration, exploitation, and LIO are distinct constructs. For a detailed discriminant validity analysis for strategic planning and LIO please refer to Appendix B.

Common Method Bias

Another potential problem that can occur with our survey design is common method bias (Podsakoff, MacKenzie, Lee, and Podsakoff, 2003). We applied both procedural and statistical remedies to control for common method bias (Podsakoff et al., 2003; Podsakoff, MacKenzie,

and Podsakoff, 2012). In terms of procedural measures we conducted a pre-test of the survey instrument to reduce ambiguity in the items used (Futterer, Schmidt, and Heidenreich, 2018). Moreover, we guaranteed complete anonymity of our respondents and emphasized to them that there were no right or wrong answers (Chang, van Witteloostuijn, and Eden, 2010). Furthermore, we paid special attention to the psychological separation of predictor and criterion measures in the questionnaire by means of a cover story (to reduce the salience of the linkage between our independent and dependent variables) (Podsakoff et al., 2012). Chang et al. (2010) indicate that interaction/moderation effects are less susceptible to common method bias because these relationships are unlikely to be part of respondents' cognitive maps. In a similar vein, Siemsen, Roth, and Oliveira (2010, 469) demonstrate that the presence of common method variance can only deflate interaction/moderation effects and hence arrive at the conclusion that "finding significant interaction effects despite the influence of CMV [note: common method variance] in the data should be taken as strong evidence that an interaction effect exists."

With respect to statistical procedures, we used three different approaches to gauge the presence of common method bias in our dataset. First, we applied Harman's single-factor test (Podsakoff et al., 2003) and conducted an exploratory factor analysis using the 24 survey items. The un-rotated solution yielded seven factors with Eigenvalues exceeding 1. The first factor explains 29.33% of the total variance, which is well below the suggested threshold level of 50% (Saebi, Lien, and Foss, 2017). However, Podsakoff et al. (2003) point at weaknesses of this approach as the number of variables included increases. For this reason, we followed the recommendations of Podsakoff et al. (2012) and also applied both the unmeasured latent method factor technique and the marker variable method (Gao, Shu, Jiang, Gao, and Page, 2017). To assess the potential effects of common method bias, we added an additional latent method factor to our structural model. We then allowed all the manifest variables to load on

both their theoretical constructs as well as on the latent method factor to assess the amount of variance in the measurement model that is caused by measuring all of the items using the same survey instrument (Zaefarian, Forkmann, Mitręga, and Henneberg, 2017). The results of this procedure indicated that the model fit was improved. However, the variance explained by the newly added latent variable amounted to .091, which is below the recommended cutoff value of .50 (Gao et al., 2017; Hair, Anderson, Tatham, and Black, 1998; Podsakoff et al., 2003).

Finally, we also included "crisis effects[3]" as a marker variable that was unrelated to our substantive variables of interest (Podsakoff et al., 2012). The marker variable was not significantly related to any of the variables in the model. Furthermore, the partial correlations between the substantive variables of interest remained statistically significant while controlling for the marker variable (Podsakoff et al., 2012; Williams, Hartman, and Cavazotte, 2010). Finally, the average path coefficient between the latent marker variable and the constructs of the study amounted to .05, which is below the common threshold of .30 (Futterer et al., 2018). All in all, these tests suggest that there is little threat from common method bias in our study.

Social Desirability Bias

To reduce the social desirability bias, we followed the data-collection recommendations of Krumpal (2013). To avoid distortions caused by the presence of researchers, the survey instrument was self-administered. Moreover, respondents were given confidentiality and data protection assurances in the cover letter. Furthermore, they were informed that no correct or incorrect answers existed (Jiang, Yang, Pei, and Wang, 2016). This approach is consistent with the protocols of prior survey studies (e.g., Bjornali, Knockaert, and Erikson, 2016; Grewatsch

[3] The variable *crisis effects* is measured using the following two items (1) "*The recent economic crisis caused permanent changes in our internal control systems (e.g., budgeting, reporting, risk management)*" and (2) "*The recent economic crisis was a threat to our company's existence.*" The construct displays acceptable measurement properties (α = .58; factor loadings of both items .84) and is not related to the other constructs.

and Kleindienst, 2018). Finally, we also investigated the presence of social desirability bias by investigating the effect of organizational performance on one-year, time-lagged, publicly available performance data for our sample firms. Corroborating prior research (e.g., Lubatkin et al., 2006), we find a positive and significant effect. This result suggests that social desirability bias should be no threat to the validity of our results.

Statistical Method

In addition to the aforementioned control variables, we include the main effects for strategic planning and LIO as well as the product term that we obtained by multiplying strategic planning and LIO in our regression specification. Before creating the product term, we mean-centered both strategic planning and LIO to better interpret the main effects and to reduce the potential bias of multicollinearity (Aiken and West, 1991; Jaccard, Turrisi, and Wan, 1990). Consistent with Hartmann and Moers (1999), who point out that mean-centering variables reduces the correlation between main terms and the product term, our variation influence factors (VIFs) all fall below the threshold value of 5 after mean-centering. The largest VIF has a value of 1.910, and therefore our results suggest the absence of multicollinearity bias (Tabachnick and Fidell, 1995).

RESULTS

Table 2 lists the descriptive statistics and correlations for the variables used in this study. Table 3 lists the results of our hierarchical regression analysis.

Table 2
Descriptive statistics and bivariate correlations.

	Variables	Mean	SD	1	2	3	4	5	6	7	8	9
	Dependent Variable											
1.	Organizational ambidexterity	26.25	10.61	1								
	Independent Variables											
2.	Strategic planning	5.80	1.06	.308***	1							
3.	Leaders' innovation orientation	5.78	1.07	.345***	.466***	1						
4.	Perceived environmental uncertainty	3.80	.83	.033	-.129*	-.107	1					
	Controls											
5.	Technological capability	4.81	1.17	.617***	.424***	.444***	.005	1				
6.	Market orientation	5.45	1.00	.308***	.493***	.499***	-.030	.356***	1			
7.	Firm size	6.22	.77	-.056	.013	.073	.155**	.007	-.013	1		
8.	Firm age	4.03	.83	-.026	-.009	.020	.003	-.018	-.060	.063	1	
9.	Prior performance	.12	.23	.003	.057	-.069	.052	.007	.050	-.071	.003	1

N = 217.
*** p < .01 (two-tailed test), ** p < .05 (two-tailed test), * p < .10 (two-tailed test).

Table 3
Results of the hierarchical regression analysis for organizational ambidexterity (multiplicative term).

	Model 1	Model 2	Model 3	VIF
Intercept	-41.187 (168.345)	-26.530 (167.230)	-15.490 (165.800)	
Controls				
Perceived environmental uncertainty	.563 (.799)	.765 (.798)	.929 (.795)	1.100
Technological capability	4.962*** (.638)	4.633*** (.682)	4.324*** (.694)	1.840
Market orientation	1.449** (.697)	.784 (.785)	.889 (.779)	1.640
Firm size	-.500 (.730)	-.743 (.729)	-.613 (.725)	1.090
Firm age	4.955 (22.317)	3.769 (22.136)	2.202 (21.949)	1.130
Industry dummies included	Yes	Yes	Yes	
Prior performance	-1.165 (3.097)	-.375 (3.083)	.124 (3.065)	1.140
Main effects				
Strategic planning		-.220 (.778)	.272 (.809)	1.910
Leaders' innovation orientation		1.763** (.753)	2.121*** (.768)	1.810
Moderation effect				
Strategic planning x leaders' innovation orientation			.850** (.426)	1.500
R^2	.45	.47	.49	
Adj. R^2	.41	.42	.43	
F improvement of fit	9.69***	2.76*	3.97**	

Values reported are unstandardized coefficients with standard errors in parentheses.
N = 178. *** p < .01 (two-tailed test), ** p < .05 (two-tailed test), * p < .10 (two-tailed test).

Main Analysis

Table 3 lists the results of the hierarchical regression analysis for organizational ambidexterity. We tested three models.

In Model 1, we entered only our control variables as predictor variables. Our results indicate significant and positive effects for both technological capability ($\beta = 4.962$, $p < .01$) and market orientation ($\beta = 1.449$, $p < .05$). Furthermore, we find significant differences with regard to

industry affiliation. While firms from health, education, and social services display a significantly higher level of organizational ambidexterity compared with manufacturing firms ($\beta = 10.966$, $p < .10$), firms from other industries display a significantly lower level of organizational ambidexterity relative to manufacturing firms ($\beta = -5.454$, $p < .10$).

In Model 2, we also added the main effects for strategic planning and LIO. A significant change in R^2 is observed ($\Delta R^2 = .02$, $p < .10$). In Model 3, we entered the aforementioned control variables, the main effects, and the moderation effect. Again, we observe a significant change in R^2 ($\Delta R^2 = .02$, $p < .05$).

We see no support for H1 in our data (i.e., a negative effect of strategic planning on organizational ambidexterity) (Model 3) because the coefficient for strategic planning is neither significant nor negative ($\beta = .272$, $p > .10$).

Moreover, the results of our analysis support H2 and show a positive and significant regression coefficient for the moderation term ($\beta = .850$, $p < .05$). This finding implies that, with regard to organizational ambidexterity, the relationship between strategic planning and LIO is complementary in nature. With regard to the control variables in our model, technological capability ($\beta = 4.324$, $p < .01$) renders a positive and significant effect. In addition, LIO is positively and significantly associated with organizational ambidexterity ($\beta = 2.121$, $p < .01$). Consistent with Model 1, we again find the same industry-specific effects (i.e., health, education, social services: $\beta = 10.911$, $p < .10$; other industries: $\beta = -5.377$, $p < .10$). Furthermore, our model yields sufficient empirical validity (adjusted $R^2 = .43$).

Due to the lack of support for H1 in our main model (Table 3, Model 3), we performed a follow-up analysis to better understand the functional relationship between strategic planning and organizational ambidexterity. The main effect of strategic planning on organizational

ambidexterity (β = .272, p > .10) is the effect at the mean of LIO (5.78 on a 7-point Likert scale) (Hartmann and Moers, 1999). Given the high level of LIO in our sample, we also considered the effect of strategic planning for lower levels of LIO. While we do not find an overall significant main effect for strategic planning, the association between strategic planning and organizational ambidexterity becomes negative and significant for firms with low values of LIO (e.g., if LIO takes on a value of 3 the main effect for strategic planning becomes negative and significant (β = -2.093, p < .10)). Figure 2 shows the relationship between strategic planning[4] and organizational ambidexterity for LIO that takes on the values of 4.0 and 6.5.

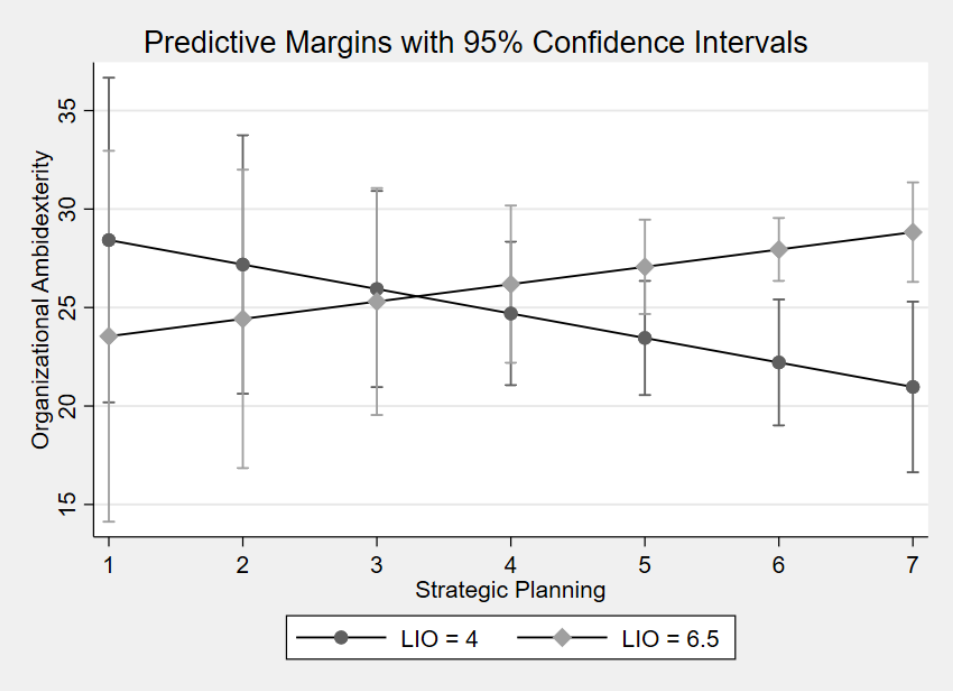

Fig. 2. Moderating effect of LIO on the relationship between strategic planning and organizational ambidexterity.

[4] The numbers of subjects responding at each level of the variable strategic planning are as follows (level of variable shown in bold): **1.67:** 1; **2.00:** 1; **2.33:** 1; **2.67:** 3; **3.00:** 1; **3.67:** 3; **4.00:** 5; **4.33:** 4; **4.67:** 6; **5.00:** 16; **5.33:** 15; **5.67:** 22; **6.00:** 34; **6.33:** 21; **6.67:** 22; **7.00:** 23.

Table 4
Results of the subgroup analysis to test H3.

	Low PEU			High PEU		
	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Intercept	-.981 (194.039)	40.694 (192.135)	50.702 (192.677)	-197.582 (411.530)	-237.242 (414.276)	-335.913 (397.696)
Controls						
Technological capability	4.569*** (.884)	3.986*** (.945)	3.688*** (1.002)	5.031*** (.987)	4.857*** (1.115)	5.024*** (1.068)
Market orientation	1.251 (.914)	.181 (1.100)	.209 (1.102)	1.380 (1.144)	.769 (1.265)	1.252 (1.223)
Firm size	-.474 (.945)	-.901 (.954)	-.826 (.958)	-0.240 (1.244)	-.310 (1.265)	-.388 (1.210)
Firm age	.312 (25.713)	-3.760 (25.390)	-4.994 (25.456)	25.730 (54.427)	31.549 (54.799)	44.029 (52.586)
Industry dummies included	Yes	Yes	Yes	Yes	Yes	Yes
Prior performance	-4.779 (4.239)	-.375 (3.083)	-3.320 (4.233)	.786 (5.205)	1.802 (5.283)	2.620 (5.058)
Main effects						
Strategic planning		.110 (1.037)	.426 (1.096)		-.358 (1.394)	.383 (1.362)
Leaders' innovation orientation		2.162** (1.019)	2.437** (1.065)		1.678 (1.270)	2.162* (1.227)
Moderation effect						
Strategic planning x leaders' innovation orientation			.461 (.512)			2.486** (.936)
N	99	99	99	79	79	79
R^2	.45	.48	.48	.51	.52	.57
Adj. R^2	.37	.38	.38	.42	.41	.46
F improvement of fit	5.34***	2.34	.81	5.64***	.88	7.06**

Values reported are unstandardized coefficients with standard errors in parentheses.
N = 178. *** p < .01 (two-tailed test), ** p < .05 (two-tailed test), * p < .10 (two-tailed test).

Table 4 lists the results of regression analysis to test H3. To test whether the moderation effect of LIO on the association between strategic planning and organizational ambidexterity is sensitive to the level of PEU, we relied on a subgroup analysis (Venkatraman, 1989; Boyd, Takacs Haynes, Hitt, Bergh, and Ketchen, 2012). We chose a subgroup analysis instead of running a singular regression with a three-way product term (strategic planning x LIO x PEU) for three reasons. First, subgroup analysis is more appropriate if it is assumed that the effect investigated differs by nature and not by degree (Gao et al., 2017). This is the case in our setting since our theorizing for H3 compares settings of high and low PEU. Second, subgroup analysis allows for differing coefficients for all independent variables across the two subsamples (Zedeck, Cranny, Vale, and Smith., 1971) and is a more conservative hypothesis test (Ping, 1996). Third, subsample analysis allows to investigate to what extent the R^2 differs across the subsamples.

To elucidate the boundary conditions of the interplay between strategic planning and LIO, we hence split our sample into a subsample of firms at and above the mean level of PEU (3.80) and a subsample of firms below this value. We then ran our regression model including the moderation effect on both subsamples separately. In line with Li, Hernandez, and Gwon (2018) we then statistically tested the difference of the coefficient for the moderation effect between strategic planning and LIO across the two subsamples by jointly running the two equations with seemingly unrelated regression (i.e., SUEST in Stata). Based on the joint estimation, we finally used a Wald test to compare the coefficients across the two subsamples.

The main effects for strategic planning and LIO are similar in both subsamples (Models 6 and 9, Table 4). However, our analysis reveals that the moderation effect between strategic planning and LIO is positive and significant ($\beta = 2.486$, $p < .05$) for firms facing high levels of PEU; the effect is positive and not significant ($\beta = .461$, $p > .10$) for the low-PEU subsample (Models 6 and

9, Table 4). A Wald test after joint estimation of the two models indicates that the difference in the coefficient of the moderation term across the two subsamples is statistically significant (p-value = .040).

This finding of a significant difference is also robust when we use the median instead of the mean as cut-off value, leave out firms that have exactly the mean value of PEU, and classify firms exactly at the mean of PEU as being in the low-PEU subsample.

Our results therefore support H3, i.e., that the complementarity between strategic planning and LIO is more pronounced in a high-PEU context.

Comparing the Predictive Power Across the Two Subsamples

Despite a significant improvement in model fit, Table 3 shows that the product term of strategic planning and LIO explains only about 2% of the additional variance in organizational ambidexterity. While there appears to be some evidence that studies focused on the complementarity between antecedents of ambidexterity are characterized by rather low additional variance when moderation/interaction effects were added in general[5], the subsample analysis for H3 allows us to delve deeper into this issue.

Scholars have highlighted that the rather low additional variance explained by product terms could be the result of not considering contextual factors. In their paper on complementarities in organizations, Ennen and Richter (2009, 208), for instance, underscore the importance of analyzing the role of contextual factors "that may be constitutive for complementarity relationships

[5] Mom et al. (2009), for example, introduce *four* interaction terms in their model (all significant) that *together* only account for 5% in additional variance explained. Similarly, Cao, Simsek, and Zhang (2010) introduce *six* moderation/interaction effects to their model (three of these effects are significant) resulting in a total increase in R^2 of 9.9%. The study of Heavey, Simsek, and Fox (2015) shows a similar pattern: *three* product terms are added (of which two are significant), the R^2 increases by 6%.

to materialize." Furthermore, Porter and Siggelkow (2008) posit that scholars investigating complementarities need to account for contextual factors in their studies, an argument that is corroborated by recent advancements in contingency research suggesting that contingency-type arguments can also be fruitfully applied to analyze complementarity relationships (Cassiman and Veugelers, 2006; Grabner, Posch, and Wabnegg, 2018).

Following this logic, we are able to shed light on the contextualization of the complementarity between strategic planning and LIO in our subgroup analysis. A more thorough follow-up analysis of the change in R^2 when including the product term in the regression model for the two subsamples actually reveals that the predictive power in the high-PEU subsample increases by approximately 5% (difference in R^2 between Models 8 and 9, Table 4); it goes up only by about .4% in the low-PEU subsample (difference in R^2 between Models 5 and 6, Table 4).

Our analysis of H3 thus underscores the notion that a contextual analysis of complementarities between drivers of organizational ambidexterity has the potential to enhance our ability to better explain variation in organizational ambidexterity across different contexts.

Robustness Checks

We ran robustness checks to ensure that our findings are robust under different specifications. As a first robustness check, we changed the measurement of our dependent variable. We used the sum of exploration and exploitation to operationalize organizational ambidexterity. Despite a change in the magnitude of the regression coefficients, the sign and significance of our effects remained statistically and inferentially identical.

Second, we also performed a robustness check that omitted prior performance in order to check whether our results are sensitive to excluding firms without objective performance data. This

procedure increased our sample size to 217 firms. This analysis yielded results very similar to the ones reported in Tables 3 and 4 in terms of both the signs of the coefficients and their corresponding p-values. Overall, we found strong empirical support for H2 and H3 but not for H1.

Third, previous studies also use a single regression equation to test for three-way moderation effects (e.g., Thanos, Dimitratos, and Sapouna, 2017). Consistent with Giarratana, Mariani, and Weller (2018) we also rely on this technique (including the three-way moderation term strategic planning x LIO x PEU) as alternative test of H3. This test treats PEU as continuous variable instead of dichotomizing it as is the case in the subgroup analysis. The results of this specification corroborate the findings of our main analysis and demonstrate that the results are very similar regardless of whether PEU is treated as a dichotomous or continuous variable. A detailed description of the findings as well as the corresponding regression table can be found in Appendix B of our paper.

Fourth, to control for heteroscedasticity we also estimated our models using robust standard errors. The significance levels obtained from this robustness check were almost identical, implying that our inferences do not change.

Fifth, to identify whether outliers were influencing our findings, we constructed bootstrapped estimates of our coefficients and standard errors. The bias in our coefficients for strategic planning, LIO and the product term were less than one tenth the bootstrapped standard errors, supporting the robustness of our results (Srikanth and Puranam, 2011).

DISCUSSION

We set out to shed light on the nexus of strategic planning-LIO/organizational ambidexterity. Despite the popularity of strategic planning as a tool for defining business objectives in practice

and its long tradition in strategic-management research, this study is—to the best of our knowledge—the first to conceptually propose and rigorously test its association with organizational ambidexterity. Our study offers a nuanced perspective on the relationship between strategic planning and organizational ambidexterity by illuminating how and under which conditions strategic planning is associated with organizational ambidexterity.

Our findings indicate that the complementarity of strategic planning and LIO with regard to organizational ambidexterity is particularly pronounced when the environment is perceived as uncertain. We can interpret this finding by considering the challenges that PEU imposes on management. Highly uncertain environments necessitate a certain degree of flexibility and agile actions (Miller and Friesen, 1983). If executives apply strategic planning with an innovation-depreciative mindset, strategic planning will show its "coercive face" (Arend et al., 2017) and executives will focus budget allocation on low-risk, exploitation activities (Miller and Cardinal, 1994; Sirén and Kohtamäki, 2016) and undermine creativity and entrepreneurial thinking (Schoonhoven, 1984). Very quickly, the organization will not be able to adapt to the frequent changes in the environment anymore, its core capabilities will become core rigidities (Leonard-Barton, 1992), and soon the organization will end at the "boneyard" next to the dinosaurs (cf. Tushman and O'Reilly, 1996). Similar to the increasingly negative consequences of strategic planning under high PEU, high LIO without planning strategically ahead is highly dangerous also when an environment is rapidly changing. In such a setting, executives not able to strategically set objectives and allocate resources may easily lose sight of innovation costs and efficiencies (Kortmann, 2015; Simpson et al., 2006) and allocate resources to high-risk explorations only because such explorations often promise significantly higher revenues than exploitation projects (March, 1991). The organization will soon be characterized by undirected autonomy (Davila,

2005) and chaos (Simsek, 2009), and face high costs for exploration despite not reaping the benefits of exploitation; it might perish caught in a failure trap (Levinthal and March, 1993). In light of these arguments, our findings demonstrate why the complementary, yet paradoxical (cf. Andriopoulos and Lewis, 2010; Papachroni et al., 2016) interrelationship between strategic planning and LIO is so important in environments perceived as highly uncertain.

It is somewhat surprising that our results do not support the proposed negative main association of strategic planning and organizational ambidexterity. One possible explanation for this non-finding might be found in our empirical stetting (see also Appendix A). Bachmann, Engelen, and Schwens (2016) have argued that national culture is of great relevance for strategic planning and that findings of single-nation studies need to be interpreted in light of the cultural setting. Our study was conducted in Austria; a country with low power distance, high uncertainty avoidance, rather individualistic and masculine orientations as compared to other industrialized countries such as the US, UK, and Australia (Hofstede, 2019). It might well be the case that the lack of support for H1 is related to the cultural idiosyncrasies of Austria. Due to Austria's low power distance, for example, it might be that strategic planning on its own is perceived as less coercive by employees and thus no negative effects unfold on organizational ambidexterity. Moreover, the high uncertainty avoidance prevalent in Austria might also contribute to our finding that high PEU makes the complementarity between strategic planning and LIO stronger. It could be that this finding is less prevalent in a cultural setting with low uncertainty avoidance. While we can only speculate about this prevalence and the reasons of our non-finding in H1—which is clearly a limitation of this study—the reflection about the reasons shows that studying the extent to which national culture is associated with the relationship of strategic planning and organizational ambidexterity constitutes a fruitful avenue for future research. In particular, nations that possess

either a duality in thinking deeply embedded in their culture (e.g., China) (cf. Fang, 2012) or do not show this feature at all (like countries in the Arab Middle East) (cf. Elbanna, 2012) may be promising research contexts for future studies and we hope that our paper stimulates more studies in this field.

CONCLUSION

Theoretical Implications

With strategic planning, we introduce a new antecedent that is widely used in organizational practice to the discussion on the drivers of organizational ambidexterity (Lavie et al., 2010). By drawing on Adler and Borys' (1996) differentiation of enabling and coercive strategic planning and considering its interrelationship with LIO, we additionally offer a compelling theoretical explanation when strategic planning is positively or negatively associated with organizational ambidexterity. By considering this interrelation and contextualizing it with another known antecedent of organizational ambidexterity— PEU—we address a not-yet-sufficiently-answered call for research that Raisch and Birkinshaw (2008) already made a decade ago. We are accordingly among the first to formally test a hypothesis as to how antecedents interact and complement each other in the pursuit of organizational ambidexterity across different environmental contexts. By addressing and echoing the call of Raisch and Birkinshaw (2008), we hope that our work will revitalize and spur debates about the interrelations and boundary conditions of the antecedents of organizational ambidexterity. Simsek (2009, 620) even suggested that without an examination "how different antecedents interact and complement one another […] our theory [of organizational ambidexterity] is impoverished."

While the primary contribution of this paper is to the debate about the antecedents of organizational ambidexterity, our findings pertaining to the nexus of strategic planning-LIO/organizational ambidexterity may also inform strategic-planning research in two ways. First, the established moderation effect of LIO on the association between strategic planning and organizational ambidexterity offers new insights as to how to complement strategic planning with other organizational factors (Song et al., 2011; Wilson, 1994; Wolf and Floyd, 2017). This theorized and empirically supported moderation explains how strategic planning can be used successfully. In doing so, our findings contribute to the recent literature stream that cautions against sweeping assumptions that strategic planning is either good or bad (Sirén and Kohtamäki, 2016). Our study suggests that the debate should not be focused on whether or not strategic planning adds value but on *how* strategic planning is carried out to serve corporate purposes (see Vilà and Canales, 2008 for a similar reasoning). Second, it directly relates to Arend et al.'s (2017) call to investigate the effects of strategic planning on alternative outcome variables by looking at organizational ambidexterity—an outcome variable that is related to new product development, firm performance, and sustained competitive advantage (Junni et al., 2011).

Our finding of the positive main effect of LIO may also add to the literature on upper echelons and top-management teams, which is increasingly adopting a cognitive perspective (cf. García-Granero, Fernandez-Mesa, Jansen, and Vega-Jurado, 2018; Narayanan, Zane, and Kemmerer, 2011). In the past, this research stream has mainly used demographic indicators as proxies for leaders' cognitive orientations, resulting in a "black-box problem" (Hambrick, 2007). While our study may not fully open this "black box", it still contributes to this emerging field as it directly assesses the impact of LIO on organizational ambidexterity. Our data support prior theorizing that LIO fosters organizational ambidexterity (Garaus et al., 2016; Smith and Tushman, 2005). In that

way, it adds to the debate about the role of strategic cognition in explaining the emergence of organizational ambidexterity and therefore the competitive advantage of firms (Narayanan et al., 2011).

Limitations and Avenues for Future Research

The findings of our paper should be interpreted in light of this study's limitations. Although we have taken steps to enhance the study's validity by addressing and assessing potential methodological biases, we cannot rule out alternative explanations (Podsakoff et al., 2003). For instance, our non-finding for H1 may be driven by a lack of mediating effects in our model, which might explain the missing link between strategic planning and organizational ambidexterity. While empirical research has assumed that the antecedents of organizational ambidexterity are directly associated with organizational ambidexterity (see Lavie et al., 2010, Raisch and Birkinshaw, 2008; Simsek, 2009 for detailed reviews), particularly qualitative research might uncover a new construct "in-between" and accordingly allow for better theorizing about the arrows (e.g., Bednarek, Burke, Jarzabkowski, and Smets, 2016).

Furthermore, the relationships uncovered in this paper can only suggest possible avenues to investigate causal relationships requiring a different research design than the one we selected (cross-sectional). For instance, the direction of the effects is suggested by extant literature (e.g., LIO causes organizational ambidexterity) (Kortmann, 2015). However, organizational ambidexterity might also influence LIO. Claiming causality would require experimental or longitudinal research designs and is therefore beyond the scope of our study. Hence, the relationships explored in our investigation are purely associative in nature.

We also wish to highlight one weakness referring to the measurement of LIO. In this study, we drew on a measure consisting of two items reflecting what can be considered the agreed "core" of the definition of LIO: leaders' orientation towards learning and innovation (cf. Siguaw et al., 2006; Stock and Zacharias, 2011; Zhou et al., 2005). However, there is still significant ambiguity regarding the definition and dimensionality of LIO as well as its delimitation from a firm's innovation orientation (FIO), as becomes obvious from the following three exemplary conceptualizations. Stock and Zacharias (2011) conceptualize the "innovation orientation of leadership" as one out of five dimensions (e.g., "innovation orientation of culture", "innovation orientation of strategy") of FIO. Zhou et al. (2005), in contrast, define FIO as one of two strategic orientations, equal it with LIO in its measurement and demarcate it from market orientation. Kortmann (2015) also conceptualizes FIO as one of two strategic orientations, but integrates LIO in the reflective measurement of FIO and contrasts it with cost orientation. While the list could be continued, it shows that the field urgently needs better theorizing and measures. One way forward, as already indicated by Siguaw et al. (2006) is to give better thought to the pillars of innovation orientation and to the corresponding tri-partite operationalization ("learning philosophy", "strategic direction", and "transfunctional acclimation"). In this respect, it might be warranted to use more elaborate measurement models, such as specifying innovation orientation as first-order reflective second-order formative construct in future research (e.g., Diamantopoulos and Siguaw, 2006). We thus call for theoretical and empirical work clarifying the dimensionality and developing better scales (Churchill, 1979; Gupta, MacMillan, and Surie, 2004).

Another limitation of our work revolves around the fact that adding the product term between strategic planning and LIO increases the variance explained in organizational ambidexterity only to a limited extent. In this study, we only consider strategic planning and LIO. Prior literature (e.g.,

Lavie et al., 2010; Raisch and Birkinshaw, 2008), however, refers to potential other drivers of organizational ambidexterity as well. The study by García-Granero et al. (2018) for example zooms in on the top-management team perspective and investigates the interrelationships between TMT-characteristics (i.e., functional diversity, age diversity) and contingencies (i.e., CEO cognitive trust, TMT shared responsibility) with regard to ambidexterity. This example shows how diverse the literature on drivers of organizational ambidexterity is and how much potential there is in taking a synergistic perspective. Considering the role of additional antecedents of organizational ambidexterity from a complementarity perspective is thus an especially fruitful avenue for future research to increase our ability to explain variation in organizational ambidexterity. Similarly, further contextualizing interaction effects between drivers of organizational ambidexterity is another area that merits future scholarly attention. While our paper covers an aggregate measure of PEU, recent research highlights the fine-grained nature of uncertainty (O'Connor and Rice, 2013). Future research might hence shed more light on the boundary conditions of interaction effects in ambidexterity research.

Our results are based on firms with 200 or more employees, which has ramifications for the generalizability of our findings. Due to our size criterion, small- and medium-sized firms (SMEs) with fewer than 200 employees are not included in our analyses. We accordingly caution against sweepingly generalizing our insights to the SME context. Prior studies have demonstrated the relevance of both organizational ambidexterity and strategic planning in the context of SMEs (e.g., Lubatkin et al., 2006; Voss and Voss, 2013; Brinckmann et al., 2018). The challenges and tensions brought about by organizational ambidexterity are especially pressing for SMEs (Ebben and Johnson, 2005; Voss and Voss, 2013) due to their limited resources and risk-bearing capability (Sirén and Kohtamäki, 2016). Given that strategic planning helps particularly SMEs use their

limited resource base efficiently (Brinckmann, Grichnik, and Kaspa, 2010; Sirén and Kohtamäki, 2016), its cost-benefit trade-offs with regard to organizational ambidexterity might differ from those of larger firms. Taking a different perspective, Amankwah-Amoah et al. (2019) suggest that SMEs can also transcend organizational boundaries and pursue ambidexterity by means of external networks. Future research could therefore shed more light on how SMEs try to attain organizational ambidexterity in light of their idiosyncrasies.

Managerial Implications

Our study has important managerial implications. Rather than telling whether to use strategic planning—which in fact most organizations in our sample do—it indicates *how* leaders may use this tool to enhance organizational ambidexterity and, thus, short-term and long-term performance (cf. Cao et al., 2009; He & Wong, 2004; Junni et al., 2013). Our results indicate that leaders' innovation orientation makes the difference, whether strategic planning is perceived as coercive or enabling and thus hinders or enables the joint pursuit of exploitation and exploration (i.e., organizational ambidexterity). By complementing the formal, mechanistic process of strategic planning with LIO, leaders can create a way for managing (rather than trying to resolve) the paradoxical relation between exploration and exploitation (e.g., Andriopoulos and Lewis, 2010; Kassotaki et al., 2018; Papachroni et al., 2016) and thus foster organizational ambidexterity.

Our findings suggest that when leaders' cognitive and behavioral tendencies for supporting learning and innovation are weak, strategic planning is likely to show its coercive face. If that is the case when defining strategic objectives, leaders will provide little consideration for difficult-to-measure elements such as opening up new markets and entering new technology fields and thereby prefer exploitation over exploitation. When setting up a system for monitoring the pursuit

of these objectives (that are already biased towards exploitation), leaders will create control and incentive systems that restrict employees' learning and innovation behavior, which will further negatively affect the exploration-exploitation balance.

To make strategic planning beneficial with regard to organizational ambidexterity, leaders should strive to use strategic planning in an enabling way. They can do so by valuing and signaling the importance of learning and innovation in the two aspects of strategic planning: First, already in the definition of strategic objectives leaders can make sure that strategic planning is not overly focused on exploitation objectives. One way of how they can emphasize learning and innovation in defining strategic objectives might be found in including scenario planning—which is a technique that expands the mental models of decision makers—in the strategic-planning process. Doing so, scenario planning also helps decision makers become less susceptible to the exploitative biases of strategic planning (cf. Vecciato, 2019).

Second, emphasizing learning and innovation in creating a system for monitoring the results of these objectives may be achieved by acknowledging not only easily quantifiable ("hard") results related to exploitation, but also more qualitative ("soft") results related to exploration. For instance, leaders could try to design incentive systems that foster risk-taking and openness on the one side and knowledge utilization and sharing on the other. Doing so, leaders explicitly reward the creation and the sharing of new knowledge, which complements the exploitative focus of strategic planning (Arend et al., 2017). In addition, leaders can also signal the importance of innovation orientation by using developmental performance evaluations for employees (Prieto and Santana, 2012). Such performance assessments do not display a controlling focus but rather concentrate on "soft" aspects of performance such as knowledge sharing and innovation (Grabner, 2014). Furthermore, firms can also draw on innovation and creativity trainings for employees to

send signals about the importance of innovation and accordingly achieve a better balance between exploitation and exploration activities (e.g., Burroughs et al., 2011; Prieto and Santana, 2012).

Our study also underscores how important assessing environmental uncertainty is for the effectiveness of complementing strategic planning with LIO in the pursuit of organizational ambidexterity. Our results suggest, that the complementarity between strategic planning and LIO is most beneficial for reaching organizational ambidexterity, when leaders perceive the environment as highly uncertain. When leaders' feel that they are not able to foresee, how the environment may evolve and impact means-end relationships (Bstieler, 2005), the complementarity between strategic planning and LIO may be key for coping with this uncertainty. A first step for profiting from the strategic-planning-LIO complementarity may thus already be to have a strategy for environmental scanning and realizing how uncertain the environment is (Robinson and Simmons, 2018).

REFERENCES

Adler, P.S., Borys, B., 1996. Two types of bureaucracy: enabling and coercive. Administrative Science Quarterly. 41, 61–89.

Agostini, L., Nosella, A., Filippini, R., 2016. Towards an integrated view of the ambidextrous organization: A second-order factor model. Creativity and Innovation Management. 25, 129–141.

Aiken, L.S., West, S.G., 1991. Multiple regression: Testing and interpreting interactions. Sage, Newbury Park, CA.

Amankwah-Amoah, J., Chen, X., Wang, X., Khan, Z., Chen, J., 2019. Overcoming institutional voids as a pathway to becoming ambidextrous: The case of China's Sichuan Telecom. Long Range Planning. 10.1016/j.lrp.2019.02.004.

Ambos, T.C., Birkinshaw, J., 2010. Headquarters' attention and its effect on subsidiary performance. Management International Review, 50, 449–469.

Anderson, J.C., Gerbing, D.W., 1982. Some methods for respecifying measurement models to obtain unidimensional construct measurement. Journal of Marketing Research. 19, 453–460.

Andriopoulos, C., Lewis, M.W., 2010. Managing innovation paradoxes: Ambidexterity lessons from leading product design companies. Long Range Planning, 43, 104–122.

Ansoff, H.I., 1991. Critique of Henry Mintzberg's "The design school: Reconsidering the basic premises of strategic management". Strategic Management Journal, 12, 449–461.

Arend, R.J., Zhao, Y.L., Song, M., Im, S., 2017. Strategic planning as a complex and enabling managerial tool. Strategic Management Journal, 38, 1741–1752.

Armstrong, J.S., 1982. The value of formal planning for strategic decisions: review of empirical research. Strategic Management Journal, 3, 197–211.

Armstrong, J.S., Overton, T.S., 1977. Estimating nonresponse bias in mail surveys. Journal of Marketing Research, 14, 396–402.

Atuahene-Gima, K., 2005. Resolving the capability—rigidity paradox in new product innovation. Journal of Marketing, 69, 61–83.

Bachmann, J.-T., Engelen, A., Schwens, C., 2016. Toward a better understanding of the association between strategic planning and entrepreneurial orientation — The moderating role of national culture. Journal of International Management, 22, 297–315.

Beckman, C.M., 2006. The influence of founding team company affiliations on firm behavior. Academy of Management Journal, 49, 741–758.

Bednarek, R., Burke, G., Jarzabkowski, P., Smets, M., 2016. Dynamic Client Portfolios as Sources of Ambidexterity: Exploration and Exploitation Within and Across Client Relationships. Long Range Planning, 49, 324–341.

Benner, M.J., Tushman, M.L., 2003. Exploitation, exploration, and process management: the productivity dilemma revisited. Academy of Management Review, 28, 238–256.

Birkinshaw, J., Gupta, K., 2013. Clarifying the distinctive contribution of ambidexterity to the field of organization studies. Academy of Management Perspectives, 27, 287-298.

Bjornali, E.S., Knockaert, M., Erikson, T., 2016. The impact of top management team characteristics and board service involvement on team effectiveness in high-tech start-ups. Long Range Planning, 49, 447–463.

Bourgeois III, L. J. 1985. Strategic goals, perceived uncertainty, and economic performance in volatile environments. Academy of Management Journal, 28, 548-573.

Boyd, B.K., Takacs Haynes, K., Hitt, M.A., Bergh, D.D., Ketchen, D.J., 2012. Contingency hypotheses in strategic management research. Journal of Management, 38, 278–313.

Brews, P., Purohit, D., 2007. Strategic planning in unstable environments. Long Range Planning 40, 64–83.

Brinckmann, J., Dew, N., Read, S., Mayer-Haug, K., Grichnik, D., 2018. Of those who plan: A meta-analysis of the relationship between human capital and business planning. Long Range Planning. 10.1016/j.lrp.2018.01.003.

Brinckmann, J., Grichnik, D., Kapsa, D., 2010. Should entrepreneurs plan or just storm the castle? A meta-analysis on contextual factors impacting the business planning–performance relationship in small firms. Journal of Business Venturing, 25, 24–40.

Brown S.L., Eisenhardt, K.M., 1995. Product development: past research, present findings, and future directions. Academy of Management Review, 20, 343–378.

Bstieler, L., 2005. The moderating effect of environmental uncertainty on new product development and time efficiency. Journal of Product Innovation Management, 22, 267–284.

Burroughs, J.E., Dahl, D.W., Moreau, C.P., Chattopadhyay, A., Gorn, G.J., 2011. Facilitating and Rewarding Creativity During New Product Development. Journal of Marketing, 75, 53–67.

Cao, Q., Gedajlovic, E., Zhang, H., 2009. Unpacking organizational ambidexterity: dimensions, contingencies, and synergistic effects. Organization Science, 20, 781–796.

Cao, Q., Simsek, Z., & Zhang, H. 2010. Modelling the joint impact of the CEO and the TMT on organizational ambidexterity. Journal of Management Studies, 47, 1272–1296.

Cassiman, B., Veugelers, R., 2006. In search of complementarity in innovation strategy: Internal R&D and external knowledge acquisition. Management Science, 52, 68–82.

Chang, S.-J., van Witteloostuijn, A., Eden, L., 2010. From the editors: Common method variance in international business research. Journal of International Business Studies, 41, 178–184.

Chen, Y., Tang, G., Jin, J., Xie, Q., Li, J., 2014. CEOs' transformational leadership and product innovation performance: The roles of corporate entrepreneurship and technology orientation. Journal of Product Innovation Management, 31, 2–17.

Choi, S.Y., Lee, H., Yoo, Y., 2010. Team performance: A field study. MIS Quarterly, 34, 855–870.

Churchill, G. 1979. A paradigm for developing better measures of marketing constructs. Journal of Marketing Research, 16, 64-73.

Clauss, T., Spieth, P., 2016. Treat your suppliers right! Aligning strategic innovation orientation in captive supplier relationships with relational and transactional governance mechanisms. R&D Management, 46, 1044–1061.

Cooper, R.G., Kleinschmidt, E.J., 1986. An investigation into the new product process: Steps, deficiencies, and impact. Journal of Product Innovation Management, 3, 71–85.

Craig, T., 1995. Achieving innovation through bureaucracy: Lessons from the Japanese brewing industry. California Management Review, 38, 8–36.

Cronbach, L.J., 1971. Test validation, in: Thorndike, R.L (Ed.), Educational Measurement, 2nd edition. American Council on Education, Washington, DC.

Damanpour, F., 1991. Organizational innovation: a meta-analysis of effects of determinants and moderators. Academy of Management Journal, 34, 555–590.

Davila, T., 2005. An exploratory study on the emergence of management control systems: formalizing human resources in small growing firms. Accounting, Organizations and Society, 30, 223–248.

Diamantopoulos, A., Siguaw, J.A., 2006. Formative versus reflective indicators in organizational measure development: A comparison and empirical illustration. British Journal of Management, 17, 263–282.

Ebben, J.J., Johnson, A.C., 2005. Efficiency, flexibility, or both? Evidence linking strategy to performance in small firms. Strategic Management Journal, 26, 1249–1259.

Eddleston, K.A., Kellermanns, F.W., Sarathy, R., 2008. Resource configuration in family firms: Linking resources, strategic planning and technological opportunities to performance. Journal of Management Studies, 45, 26–50.

Eisenhardt, K.M., Tabrizi, B.N., 1995. Accelerating adaptive processes: Product innovation in the global computer industry. Administrative Science Quarterly, 40, 84–110.

Elbanna, S., 2012. Slack, planning and organizational performance: Evidence from the Arab Middle East. European Management Review, 9, 99–115.

Elbanna, S., Elsharnouby, T. H. 2018. Revisiting the relationship between formal planning process and planning effectiveness: Do organizational capabilities and decision-making style matter?. International Journal of Contemporary Hospitality Management, 30, 1016-1034.

Ennen, E., Richter, A., 2009. The whole is more than the sum of its parts—or is it? A review of the empirical literature on complementarities in organizations. Journal of Management, 36, 207–233.

Fahey, L., King, W.R., Narayanan, V.K., 1981. Environmental scanning and forecasting in strategic planning—The state of the art. Long Range Planning, 14, 32–39.

Fang, T., 2012. Yin Yang: A new perspective on culture. Management and Organization Review, 8, 25-50.

Filippini, R., Güttel, W.H., Nosella, A., 2012. Ambidexterity and the evolution of knowledge management initiatives. Journal of Business Research, 65, 317–324.

Fornell, C., Larcker, D.F., 1981. Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research, 18, 39–50.

Futterer, F., Schmidt, J., Heidenreich, S., 2018. Effectuation or causation as the key to corporate venture success? Investigating effects of entrepreneurial behaviors on business model innovation and venture performance. Long Range Planning, 51, 64–81.

Gao, Y., Shu, C., Jiang, X., Gao, S., Page, A.L., 2017. Managerial ties and product innovation: The moderating roles of macro- and micro-institutional environments. Long Range Planning, 50, 168–183.

Garaus, C., Güttel, W.H., Konlechner, S., Koprax, I., Lackner, H., Link, K., Müller, B., 2016. Bridging knowledge in ambidextrous HRM systems: Empirical evidence from hidden champions. International Journal of Human Resource Management, 27, 355–381.

García-Granero, A., Fernández-Mesa, A., Jansen, J.J.P., Vega-Jurado, J., 2018. Top management team diversity and ambidexterity: The contingent role of shared responsibility and CEO cognitive trust. Long Range Planning, 51, 881–893.

Giarratana, M.S., Mariani, M., Weller, I., 2018. Rewards for patents and inventor behaviors in industrial research and development. Academy of Management Journal, 61, 264–292.

Gibson, C.B., Birkinshaw, J., 2004. The antecedents, consequences, and mediating role of organizational ambidexterity. Academy of Management Journal, 47, 209–226.

Grabner, I. 2014. Incentive system design in creativity-dependent firms. Accounting Review, 89, 1729-1750.

Grabner, I., Speckbacher, G. 2016. The cost of creativity: A control perspective. Accounting, Organizations and Society, 48, 31-42.

Grabner, I., Posch, A., Wabnegg, M., 2018. Materializing innovation capability: A management control perspective. Journal of Management Accounting Research, 30, 163-185.

Grewatsch, S., Kleindienst, I., 2018. How organizational cognitive frames affect organizational capabilities: The context of corporate sustainability. Long Range Planning, 51, 607-624.

Griffin, A., 1997. The effect of project and process characteristics on product development cycle time. Journal of Marketing Research, 34, 24–35.

Gul, F. A., Chia, Y. M. 1994. The effects of management accounting systems, perceived environmental uncertainty and decentralization on managerial performance: A test of three-way interaction. Accounting, Organizations and Society, 19, 413-426.

Gupta, V., MacMillan, I.C., Surie, G., 2004. Entrepreneurial leadership: Developing and measuring a cross-cultural construct. Journal of Business Venturing, 19, 241–260.

Gupta, A.K., Smith, K.G., Shalley, C.E., 2006. The interplay between exploration and exploitation. Academy of Management Journal, 49, 693–706.

Gurtner, S., Reinhardt, R., 2016. Ambidextrous idea generation—Antecedents and outcomes. Journal of Product Innovation Management, 33, 34–54.

Güttel, W.H., Konlechner, S.W., 2009. Continuously hanging by a thread: Managing contextually ambidextrous organizations. Schmalenbach Business Review, 61, 150–172.

Hair, J.F., Anderson, R.E., Tatham, R.L., Black, W.C., 1998. Multivariate Data Analysis. Prentice Hall Upper Saddle River, NY.

Hair, J.F., Hult G.T.M., Ringle, C.M., Sarstedt, M., 2014. A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). Sage, Thousand Oaks.

Hambrick, D.C., 2007. Upper echelons theory: An update. Academy of Management Review, 32, 334–343.

Hambrick, D.C., Geletkanycz, M.A., Fredrickson, J.W., 1993. Top executive commitment to the status quo: Some tests of its determinants. Strategic Management Journal, 14, 401–418.

Hartmann, F.G., Moers, F., 1999. Testing contingency hypotheses in budgetary research: An evaluation of the use of moderated regression analysis. Accounting, Organizations and Society, 24, 291–315.

He, Z.-L., Wong, P.-K., 2004. Exploration vs. exploitation: An empirical test of the ambidexterity hypothesis. Organization Science, 15, 481–494.

Heavey, C., Simsek, Z., Fox, B.C., 2015. Managerial social networks and ambidexterity of SMEs: The moderating role of a proactive commitment to innovation. Human Resource Management, 54, 201–221.

Hofstede, G., 2019. Hofstede insights – country comparison: Austria. Available from: https://www.hofstede-insights.com/country-comparison/austria/ (last access January 4, 2019).

Hulland, J., 1999. Use of Partial Least Squares (PLS) in strategic management research: A review of four recent studies. Strategic Management Journal, 20, 195–204.

Hurley, R. F., Hult, G. T. M. 1998. Innovation, market orientation, and organizational learning: An integration and empirical examination. Journal of Marketing, 62, 42-54.

Jaccard, J., Turrisi, R., Wan, C.K., 1990. Interaction Effects in Multiple Regression. Sage, Newbury Park.

Jiang, X., Yang, Y., Pei, Y.-L., Wang, G., 2016. Entrepreneurial orientation, strategic alliances, and firm performance: Inside the black box. Long Range Planning, 49, 103–116.

Junni, P., Sarala, R.M., Taras, V., Tarba, S.Y., 2013. Organizational ambidexterity and performance: A meta-analysis. Academy of Management Perspectives, 27, 299–312.

Kassotaki, O., Paroutis, S., Morrell, M. 2018. Ambidexterity penetration across multiple organizational levels in an aerospace and defense organization. Long Range Planning. https://doi.org/10.1016/j.lrp.2018.06.002.

Kortmann, S., 2015. The mediating role of strategic orientations on the relationship between ambidexterity-oriented decisions and innovative ambidexterity. Journal of Product Innovation Management, 32, 666–684.

Krumpal, I., 2013. Determinants of social desirability bias in sensitive surveys: A literature review. Quality & Quantity, 47, 2025–2047.

Lavie, D., Stettner, U., Tushman, M.L., 2010. Exploration and exploitation within and across organizations. Academy of Management Annals, 4, 109–155.

Leonard-Barton, D., 1992. Core capabilities and core rigidities: A paradox in managing new product development. Strategic Management Journal, 13, 111–125.

Levinthal, D.A., March, J.G., 1993. The myopia of learning. Strategic Management Journal, 14, 95–112.

Li, Y., Hernandez, E., Gwon, S., 2018. When do ethnic communities affect foreign location choice? Dual entry strategies of Korean Banks in China. Academy of Management Journal. Forthcoming. 10.5465/amj.2017.0275.

Lin, L.-H., Ho, Y.-L., 2016. Institutional pressures and environmental performance in the global automotive industry: The mediating role of organizational ambidexterity. Long Range Planning, 49, 764–775.

Lubatkin, M.H., Simsek, Z., Ling, Y., Veiga, J.F., 2006. Ambidexterity and performance in small- to medium-sized firms: The pivotal role of top management team behavioral integration. Journal of Management, 32, 646–672.

March, J.G., 1991. Exploration and exploitation in organizational learning. Organization Science, 2, 71–87.

Mihalache, M., Mihalache, O. R., 2016. Organizational ambidexterity and sustained performance in the tourism industry. Annals of Tourism Research, 56, 142–144.

Miller, C.C., Cardinal, L.B., 1994. Strategic planning and firm performance: A synthesis of more than two decades of research. Academy of Management Journal, 37, 1649–1665.

Miller, D., Friesen, P.H., 1983. Strategy-making and environment: the third link. Strategic Management Journal, 4, 221–235.

Moers, F., 2006. Performance measure properties and delegation. Accounting Review, 81, 897–924.

Mom, T.J.M., van den Bosch, F.A.J., Volberda, H.W., 2009. Understanding variation in managers' ambidexterity: Investigating direct and interaction effects of formal structural and personal coordination mechanisms. Organization Science, 20, 812–828.

Moorman, C., Miner, A.S., 1998. The convergence of planning and execution: Improvisation in new product development. Journal of Marketing, 62, 1–20.

Narayanan, V.K., Zane, L.J., Kemmerer, B., 2011. The cognitive perspective in strategy: An integrative review. Journal of Management, 37, 305–351.

Narver, J. C., Slater, S. F., MacLachlan, D. L., 2004. Responsive and proactive market orientation and new-product success. Journal of Product Innovation Management, 21, 334-347.

Nickerson, J.A., Zenger, T.R., 2004. A knowledge-based theory of the firm—The problem-solving perspective. Organization Science, 15, 617–632.

Nosella, A., Cantarello, S., Filippini, E., 2012. The intellectual structure of organizational ambidexterity: A bibliographic investigation into the state of the art. Strategic Organization, 10, 450–465.

Nunnally, J.C., 1978. Psychometric Theory. 2nd edition, McGraw-Hill, NewYork.

O'Connor, G.C., Rice, M.P., 2013. A comprehensive model of uncertainty associated with radical innovation. Journal of Product Innovation Management 30, 2–18.

O'Reilly, C.A., Tushman, M.L., 2008. Ambidexterity as a dynamic capability: Resolving the innovator's dilemma. Research in Organizational Behavior 28, 185–206.

O'Reilly, C.A., Tushman, M.L., 2013. Organizational ambidexterity: Past, present, and future. Academy of Management Perspectives, 27, 324–338.

Papachroni, A., Heracleous, L., Paroutis, S. 2016. In pursuit of ambidexterity: Managerial reactions to innovation–efficiency tensions. Human Relations, 69, 1791-1822.

Pedhazur, E.J., Schmelkin, L.P., 1991. Measurement, Design, and Analysis: An Integrated Approach. Lawrence Erlbaum Associates, Hillsdale, NJ.

Ping, R.A., 1996. Estimating latent variable interactions and quadratics: The state of this art. Journal of Management, 22, 163–183.

Podsakoff, P.M., MacKenzie S.B., Lee, JY., Podsakoff, N.P., 2003. Common method biases in behavioral research: A critical review of the literature and recommended remedies. Journal of Applied Psychology, 88, 879–903.

Podsakoff, P.M., MacKenzie, S.B., Podsakoff, N.P., 2012. Sources of method bias in social science research and recommendations on how to control it. Annual Review of Psychology, 63, 539–569.

Porter, M., Siggelkow, N., 2008. Contextuality within activity systems and sustainability of competitive advantage. Academy of Management Perspectives, 22, 34–56.
Prieto, I.M., Pilar Pérez Santana, M., 2012. Building ambidexterity: The role of human resource practices in the performance of firms from Spain. Human Resource Management, 51, 189–211.
Raisch, S., 2008. Balanced structures: Designing organizations for profitable growth. Long Range Planning, 41, 483–508.
Raisch, S., Birkinshaw, J., 2008. Organizational ambidexterity: Antecedents, outcomes, and moderators. Journal of Management, 34, 375–409.
Raisch, S., Birkinshaw, J., Probst, G., Tushman, M.L., 2009. Organizational ambidexterity: Balancing exploitation and exploration for sustained performance. Organization Science, 20, 685–695.
Real, J.C., Roldán, J.L., Leal, A., 2014. From entrepreneurial orientation and learning orientation to business performance: Analysing the mediating role of organizational learning and the moderating effects of organizational size. British Journal of Management, 25, 186–208.
Rigby, D., Bilodeau, B., 2011. Management Tools and Trends 2011. Bain & Company, Boston.
Robinson, C.V., Simmons, J.E.L., 2018. Organising environmental scanning: Exploring information source, mode and the impact of firm size. Long Range Planning, 51, 526–539.
Rudd, J.M., Greenley, G.E., Beatson, A.T., Lings, I.N., 2008. Strategic planning and performance: Extending the debate. Journal of Business Research, 61, 99–108.
Saebi, T., Lien, L., Foss, N.J., 2017. What drives business model adaptation? The impact of opportunities, threats and strategic orientation. Long Range Planning, 50, 567–581.
Schoonhoven, C.B., 1984. High technology firms: where strategy really pays off. Columbia Journal World Business, 19, 5–16.
Schreyögg, G., Sydow, J., 2010. Crossroads—organizing for fluidity? Dilemmas of new organizational forms. Organization Science, 21, 1251–1262.
Sidhu, J.S., Commandeur, H.R., Volberda, H.W., 2007. The multifaceted nature of exploration and exploitation: value of supply, demand, and spatial search for innovation. Organization Science, 18, 20–38.
Siemsen, E., Roth, A., Oliveira, P., 2010. Common method bias in regression models with linear, quadratic, and interaction effects. Organizational Research Methods, 13, 456–476.
Siggelkow, N., 2002. Misperceiving interactions among complements and substitutes: organizational consequences. Management Science, 48, 900–916.
Siguaw, J.A., Simpson, P.M., Enz, C.A., 2006. Conceptualizing innovation orientation: A framework for study and integration of innovation research. Journal of Product Innovation Management, 23, 556–574.
Simpson, P.M., Siguaw, J.A., Enz, C.A., 2006. Innovation orientation outcomes: The good and the bad. Journal of Business Research, 59, 1133–1141.
Simsek, Z., 2009. Organizational ambidexterity: Towards a multilevel understanding. Journal of Management Studies, 46, 597–624.
Simsek, Z., Heavey, C., Veiga, J.F., Souder, D., 2009. A typology for aligning organizational ambidexterity's conceptualizations, antecedents, and outcomes. Journal of Management Studies, 46, 864–894.
Sirén, C., Kohtamäki, M., 2016. Stretching strategic learning to the limit: The interaction between strategic planning and learning. Journal of Business Research, 69, 653–663.
Smith, W.K., Tushman, M.L., 2005. Managing strategic contradictions: A top management model for managing innovation streams. Organization Science, 16, 522–536.

Song, M., Im, S., van der Bij, H., Song, L.Z., 2011. Does strategic planning enhance or impede innovation and firm performance? Journal of Product Innovation Management, 28, 503–520.

Srikanth, K., Puranam, P., 2011. Integrating distributed work: Comparing task design, communication, and tacit coordination mechanisms. Strategic Management Journal, 32, 849–875.

Stock, R.M., Totzauer, F., Zacharias, N. A., 2014. A closer look at cross-functional R&D cooperation for innovativeness: Innovation-oriented leadership and human resource practices as driving forces. Journal of Product Innovation Management, 31, 924–938.

Stock, R., Zacharias, N., 2011. Patterns and performance outcomes of innovation orientation. Journal of the Academy of Marketing Science, 39, 870–888.

Tabachnick, B.G., Fidell, L.S., 1995. Using Multivariate Statistics. 3rd edition, Harper Collins College, New York.

Talke, K., Salomo, S., Kock, A., 2011. Top management team diversity and strategic innovation orientation: The relationship and consequences for innovativeness and performance. Journal of Product Innovation Management, 28, 819–832.

Teece, D.J., 2007. Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. Strategic Management Journal, 28, 1319–1350.

Terziovski, M., 2010. Innovation practice and its performance implications in small and medium enterprises (SMEs) in the manufacturing sector: A resource-based view. Strategic Management Journal, 31, 892–902.

Thanos, I.C., Dimitratos, P., Sapouna, P., 2017. The implications of international entrepreneurial orientation, politicization, and hostility upon SME international performance. International Small Business Journal, 35, 495–514.

Turner, N., Swart, J., Maylor, H., 2013. Mechanisms for managing ambidexterity: A review and research agenda. International Journal of Management Reviews, 15, 317–332.

Tushman, M.L., 1977. Special boundary roles in the innovation process. Administrative Science Quarterly, 22, 587–605.

Tushman, M.L., O'Reilly, C.A., 1997. Winning Through Innovation. Harvard Business School Press, Boston, MA.

Tushman, M.L., O'Reilly, C.A., 1996. Ambidextrous organizations: Managing evolutionary and revolutionary change. California Management Review, 38, 8–29.

Varadarajan, R., 2017. Innovating for sustainability: a framework for sustainable innovations and a model of sustainable innovations orientation. Journal of the Academy of Marketing Science, 45, 14–36.

Vecchiato, R., 2019. Scenario planning, cognition, and strategic investment decisions in a turbulent environment. Long Range Planning. 10.1016/j.lrp.2019.01.002.

Venkatraman, N., 1989. The concept of fit in strategy research: Toward verbal and statistical correspondence. Academy of Management Review, 14, 423–444.

Vilà, J., Canales, J.I., 2008. Can strategic planning make strategy more relevant and build commitment over time? The case of RACC. Long Range Planning, 41, 273–290.

Voss, G.B., Voss, Z.G., 2013. Strategic ambidexterity in small and medium-sized enterprises: implementing exploration and exploitation in product and market domains. Organization Science, 24, 1459–1477.

Wang, C.L., Rafiq, M., 2014. Ambidextrous organizational culture, contextual ambidexterity and new product innovation: A comparative study of UK and Chinese high-tech firms. British Journal of Management, 25, 58–76.

Whittington, R., Cailluet, L., Yakis-Douglas, B., 2011. Opening strategy: Evolution of a precarious profession. British Journal of Management, 22, 531–544.
Williams, L.J., Hartman, N., Cavazotte, F., 2010. Method variance and marker variables: A review and comprehensive CFA marker technique. Organizational Research Methods, 13, 477–514.
Wilson, I., 1994. Strategic-planning isn't dead: It changed. Long Range Planning, 27, 12–24.
Wolf, C., Floyd, S.W., 2017. Strategic planning research: Toward a theory-driven agenda. Journal of Management, 43, 1754–1788.
Zaefarian, G., Forkmann, S., Mitręga, M., Henneberg, S.C., 2017. A capability perspective on relationship ending and its impact on product innovation success and firm performance. Long Range Planning, 50, 184–199.
Zedeck, S., Cranny, C.J., Vale, C.A., Smith, P.C., 1971. Comparison of "joint moderators" in three prediction techniques. The Journal of Applied Psychology, 55, 234–240.
Zhou, K.Z., Gao, G.Y., Yang, Z., Zhou, N., 2005. Developing strategic orientation in China: Antecedents and consequences of market and innovation orientations. Journal of Business Research, 58, 1049–1058.
Zhou, K.Z., Li, J.J., Zhou, N., Su, C., 2008. Market orientation, job satisfaction, product quality, and firm performance: Evidence from China. Strategic Management Journal, 29, 985–1000.
Zimmermann, A., Raisch, S., Birkinshaw, J., 2015. How is ambidexterity initiated? The emergent charter definition process. Organization Science, 26, 1119–1139.

APPENDIX A: AUSTRIA IN BRIEF

This appendix first gives a brief overview of Austria and its economy. Next, we discuss the generalizability of Austrian data.

Located in the center of Europe, Austria is an industrialized country (Perlitz, 1985) that has a stable and wealthy market economy reflected in a gross-domestic product (GDP) per capita (USD $50,000 in 2017) that exceeds the average GDP per capita of the European Union (EU), the Euro area ("Eurozone"), and the Organization for Economic Co-operation and Development (OECD) countries (Austria is part of all three) (CIA World Factbook 2018; OECD Better Life Index, 2017). Austria's GDP per capita is also slightly above that of Germany, to which Austria's economy is closely tied. Belonging to one of the world's largest and most technologically advanced regions, Austria's economy "features a large service sector, a relatively sound industrial sector, and a small, but highly developed agricultural sector" (CIA World Factbook, 2018). The major language of

Austria (as for Germany and Switzerland) is German, the most widely spoken language in the EU (16% of the EU population) (CIA World Factbook, 2018).

Beyond a shared language, German-speaking countries (i.e., Germany, Austria, and Switzerland and sometimes also Lichtenstein, Luxembourg, and parts of the Netherlands) also hold comparable cultural values, exhibit similar institutions, and belong to the same trading block (cf. Arregle, Miller, Hitt, and Beamish, 2013). Therefore, Austrian data are very likely to be generalizable to these contexts.

Prior research has often assumed that Austria and other German-speaking countries are comparable to other industrialized countries as well. Extant studies have collected data from Austria and other German-speaking countries alongside other developed economies (most commonly Australia, Canada, Scandinavian countries, Italy, France, Japan, the United Kingdom, and the United States). Qualitative and quantitative papers based on such data are frequently published in Long Range Planning (e.g., Hoenen, Nell, and Ambos, 2014; Keegan and Turner, 2002; Raisch, 2008), other leading journals in the field of strategic management (e.g., Bauer and Matzler, 2014; Menz and Barnbeck, 2017; Speckbacher, Neumann, and Hoffmann, 2015) and beyond (e.g., Demirgüç-Kunt and Maksimovic, 1998; Franke, Keinz, and Steger, 2009; Nekoei and Weber, 2017). However, the German-speaking countries' stricter legal regulations and a stronger corporatist tradition than more liberal market economies (e.g., Canada, the United Kingdom, the United States) do not allow one to rule out a regional bias. We highlight this potential constraint to the generalizability of our findings in the limitations section of the manuscript.

APPENDIX B: TECHNICAL APPENDIX

In this technical appendix, we give additional information on the discriminant validity of strategic planning and LIO. In addition, we provide the detailed results of our robustness check using a three-way moderation model instead of a subsample analysis (see Table 5).

Furthermore, we also performed several analyses to investigate the discriminant validity between LIO and strategic planning. We performed a joint exploratory factor analysis on the items used to measure LIO and strategic planning. The results revealed two factors with Eigenvalues exceeding 1. Moreover, the factor loadings on the respective factors were sufficiently high and there were no cross-loadings above .30 (Richard et al., 2010).

We also performed a hierarchical model comparison using confirmatory factor analysis and used the same steps as described in the discriminant validity analysis for exploration, exploitation, and LIO. The results of this analysis also indicate that LIO and strategic planning are distinct constructs.

Finally, we also applied the Fornell-Larcker criterion (1981) to analyze the discriminant validity between LIO and strategic planning. According to Fornell and Larcker (1981), discriminant validity is established if a latent variable accounts for more variance with its manifest indicator variables than it shares with other constructs. In line with the Fornell-Larcker criterion (1981), the square root of the AVE for LIO amounts to .889, which exceeds its correlation with strategic planning (ρ = .466) and all of the other variables in the model. Overall, the statistical analyses consistently underscore that LIO and strategic planning are distinct constructs.

Table 5 reports the results of our alternative test for H3. Instead of using subgroup analysis, we employ a single regression specification including the main effects for strategic planning, LIO, and PEU, as well as the three two-way product terms (i.e., strategic planning x LIO, strategic

planning x PEU, LIO x PEU) and the three-way product term (i.e., strategic planning x LIO x PEU). Consistent with our main analyses, we observe a non-significant effect for strategic planning ($\beta = .362$, $p > .10$), a positive and significant main effect for LIO ($\beta = 2.130$, $p < .01$), and a positive and significant moderation effect between strategic planning and LIO ($\beta = .872$, $p < .05$). The other two-way moderation terms are non-significant. The test for H3 is captured in the three-way moderation effect. In line with the subgroup analysis, the coefficient is positive and significant ($\beta = 1.046$, $p < .10$, one-tailed).

Table 5
Alternative regression specification to test for H3 (using three-way moderation instead of subsample analysis).

	Model 1	VIF
Intercept	-31.766 (167.171)	
Controls		
Technological capability	4.419*** (.703)	1.870
Market orientation	.982 (.789)	1.670
Firm size	-.631 (.729)	1.100
Firm age	4.694 (22.093)	1.140
Industry dummies included	Yes	
Prior performance	.361 (3.099)	1.160
Main effects		
Strategic planning	.362 (0.822)	1.960
Leaders' innovation orientation	2.130*** (.770)	1.820
Perceived environmental uncertainty	.453 (.867)	1.300
2-Way moderation effects		
Strategic planning x leaders' innovation orientation	.872** (.433)	1.540
Strategic planning x perceived environmental uncertainty	-.034 (.940)	1.460
Leaders' innovation orientation x perceived environmental uncertainty	.429 (.898)	1.550
3-Way moderation effect		
Strategic planning x leaders' innovation orientation x perceived environmental uncertainty	1.046† (.717)	1.560
R^2	.49	
Adj. R^2	.43	
F improvement of fit	7.61***	

Values reported are unstandardized coefficients with standard errors in parentheses.
N = 178. *** p < .01 (two-tailed test), ** p < .05 (two-tailed test), * p < .10 (two-tailed test), † p-value = 0.147 (two-tailed test).

Additional References

Arregle, J. L., Miller, T. L., Hitt, M. A., Beamish, P. W., 2013. Do regions matter? An integrated institutional and semiglobalization perspective on the internationalization of MNEs. Strategic Management Journal, 34, 910–934.

Bauer, F., Matzler, K., 2014. Antecedents of MA success: The role of strategic complementarity, cultural fit, and degree and speed of integration. Strategic Management Journal, 35, 269–291.

CIA World Factbook, 2018. Europe: Austria. Available from: https://www.cia.gov/library/publications/the-world-factbook/geos/au.html (last access January 1, 2018).

Demirgüç-Kunt, A., Maksimovic, V. 1998. Law, finance, and firm growth. Journal of Finance, 53, 2107–2137.

Franke, N., Keinz, P., Steger, C. J., 2009. Testing the value of customization: when do customers really prefer products tailored to their preferences? Journal of Marketing, 73, 103–121.

Hoenen, A. K., Nell, P. C., Ambos, B., 2014. MNE entrepreneurial capabilities at intermediate levels: the roles of external embeddedness and heterogeneous environments. Long Range Planning, 47, 76–86.

Keegan, A., Turner, J. R., 2002. The management of innovation in project-based firms. Long Range Planning, 35, 367–388.

Menz, M., Barnbeck, F., 2017. Determinants and consequences of corporate development and strategy function size. Strategic Organization, 15, 481–503.

Nekoei, A., & Weber, A., 2017. Does extending unemployment benefits improve job quality?. American Economic Review, 107, 527–561.

OECD Better Life Index, 2017. Austria. Available from: http://www.oecdbetterlifeindex.org/countries/austria/ (last access March 14, 2018)

Perlitz, M., 1985. Country-portfolio analysis—Assessing country risk and opportunity. Long Range Planning, 18, 11–26.

Raisch, S., 2008. Balanced structures: Designing organizations for profitable growth. Long Range Planning, 41, 483–508.

Richard, M.-O., Chebat, J.-C., Yang, Z., Putrevu, S., 2010. A proposed model of online consumer behavior: Assessing the role of gender. Journal of Business Research, 63, 926–934.

Speckbacher, G., Neumann, K., Hoffmann, W. H., 2015. Resource relatedness and the mode of entry into new businesses: internal resource accumulation vs. access by collaborative arrangement. Strategic Management Journal, 36, 1675–1687.

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