

Entrepreneurial Leadership in M&A

## **The Impact of Industry-wide and Target Market Environmental Hostility on Entrepreneurial Leadership in Mergers and Acquisitions**

### **Abstract**

Based on survey data from 115 acquisitions completed between 2008 and 2011 by European acquirers from German-speaking countries, we find evidence that entrepreneurial leadership is a strong predictor of exploration and a weaker but significant driver of exploitation outcomes following M&A. Industry-wide environmental hostility negatively impacts the influence of entrepreneurial leadership on exploitation. Target market environmental hostility negatively impacts the influence of entrepreneurial leadership on exploration. Thus, while entrepreneurial leadership is a key success factor of M&A performance by increasing both, post-merger exploration and exploitation, acquirers need to take environmental conditions at the industry and market level into account.

**Keywords:** Entrepreneurial Leadership, Mergers and Acquisitions, Exploration, Exploitation, Environmental Hostility, Post-merger Integration

## **Introduction**

Mergers and acquisitions (M&A) are prominent strategic means for corporate development. Companies use acquisitions to pursue organizational learning and as a consequence drive their innovation performance (Ahuja & Katila, 2001). Their managerial importance is displayed by the annual global transaction volume. With 3.5 trillion US\$ the global transaction volume was similar to the GDP of Germany in 2014 (Thomson Reuters, 2014). Despite their popularity, outcomes are contradicting. On the one side, failure rates are high and reported to range between 40 % and 60 % (Christensen, Alton, Rising, & Waldeck, 2011) and on the other side, there is evidence that firms regularly engaging in M&A activities display increased survival rates (Almor, Tarba, & Margalit, 2014). Even though research investigating M&A performance and success has enjoyed increasing popularity during recent years, key success factors remain poorly understood (Gomes, Angwin, Weber, & Yedidia Tarba, 2013; Weber, Tarba, & Reichel, 2011).

Most M&A research is either focused on pre-merger issues or on post-merger integration (Bauer & Matzler, 2014) with the upcoming agreement that value is created after deal closing (Haspeslagh & Jemison, 1991). Integration research usually investigates internal aspects like integration approaches (Weber & Tarba, 2011), integration typologies (Angwin & Meadows, 2015), different types of integration (Birkinshaw, Bresman, & Håkanson, 2000), speed of integration (Bauer, King, & Matzler, 2016a), integration measures (Bauer, Dao, Matzler, & Tarba, 2017), sociocultural and human factors (Stahl et al., 2013; Stahl, Mendenhall, & Weber, 2005), or communication during acquisitions (Angwin, Mellahi, Gomes, & Peter, 2016; Schweiger & Denisi, 1991). During acquisition implementation, which can last for years (Bauer & Matzler, 2014; Homburg & Bucerius, 2005, 2006), organizations are not only internally disrupted but also vulnerable and exposed to uncertainties of the external environment (Angwin, 2004).

Recently, research has begun to reflect on such environmental and competitive issues impacting M&A (Clougherty & Duso, 2009; Keil, Laamanen, & McGrath, 2013; Lebedev, Peng, Xie, & Stevens, 2015) indicating that the relation to the environment is a fruitful avenue for a better understanding of pertinent integration measures (Bauer et al., 2017) and acquisition performance (Clougherty & Duso, 2009; Lebedev et al., 2015; Schriber, 2016). Environmental hostility refers to a high intensity of competition, rare opportunities and uncertainties in terms of competition, products and markets (Zahra & Covin, 1995). Acquirers are not only confronted with an industry-wide environmental hostility but specifically with the environmental hostility in the market of the acquired target firm that potentially differs significantly (McDougall, 1989; McDougall, Oviatt, & Shrader, 2003; Young, Dimitratos, & Dana, 2003). Especially, when entering new geographic regions, acquirers are confronted with local competitive pressures that generally remain under-investigated (Perri, Andersson, Nell, & Santangelo, 2013). Thus, during acquisition in general and specifically in cross-border acquisitions, firms have to cope not only with increased demands for internal coordination during integration (Cording, Christmann, & King, 2008) but also with two—interrelated but distinct—environmental settings: Industry-wide and target market environmental hostility.

Industry-wide and target market environmental hostility together with integration measures trigger uncertainty (Graebner, 2004), causal ambiguity (Cording et al., 2008), or surprises and irrationalities (Vester, 2002). During such times of unfavorable organizational conditions leadership plays an important role. Especially, entrepreneurial firms have proven to be able to cope with and to achieve superior performance in such hostile environments (Covin & Slevin, 1989; Zahra & Covin, 1995). Thus, in the context of acquisitions, entrepreneurial leadership is a promising approach for coping with uncertainties triggered through acquisition implementation under environmental hostility. “Entrepreneurial leadership entails influencing

and directing the performance of group members towards the achievement of organizational goals that involve recognizing and exploiting entrepreneurial opportunities” (Renko, El Tarabishy, Carsrud, & Brännback, 2015: 55). As entrepreneurial leaders trigger opportunity recognition among followers instead of merely influencing them towards following predefined performance goals, entrepreneurial leadership is a viable approach to overcome the lack of predictability associated to acquisition implementation under environmental hostility.

However, we argue that entrepreneurial leadership during integration can be a drawback as well as an asset. While on the one side, entrepreneurial integration skills will enable companies to better identify and transform or use strategically important target resources and opportunities in cases of industry-wide and target market environmental hostility (Covin & Slevin, 1989; Lumpkin & Dess, 2001), on the other side, it might decrease transparency during integration and thus, trigger employee uncertainty and resistance (Bauer, Schriber, King, & Uzelac, 2016c).

Usually, international entrepreneurship studies draw a direct link between entrepreneurial behavior and performance, in terms of sales of the foreign subsidiary (cf. Dimitratos, Lioukas, & Carter, 2004). Instead of drawing a direct M&A performance link, we investigate the effects of entrepreneurial leadership under industry-wide environmental and target market hostility, on exploration and exploitation innovation changes after the acquisition as salient antecedents for M&A performance. Thus, we build on previous work that has established a link between M&A, innovation, and performance. This literature argues that the knowledge base of a firm can be increased through acquisitions, which in turn improves innovation performance (Ahuja & Katila, 2001; Bauer, Strobl, Dao, Matzler, & Rudolf, forthcoming; Cloudt, Hagedoorn, & Van Kranenburg, 2006; Gomes, Donnelly, Morris, & Collis, 2010). We follow this approach for several reasons. First, intermediate goals reduce causal ambiguity (Cording et al., 2008). Further, entrepreneurial leadership focuses on

recognizing innovation opportunities. Thus, investigating how entrepreneurial leadership translates into innovation outcomes which in turn trigger performance should provide a more detailed picture of antecedents of M&A performance. Second, exploration and exploitation are important M&A motives (Angwin, 2007) and have been shown to be antecedents of acquisition performance (Bauer et al., forthcoming). Third, we want to reflect on the different effects of behavioral patterns during acquisition integration, as entrepreneurial behavior during integration can have both, beneficial and detrimental effects (Bauer et al., 2016c), and finally, we want to investigate the diverging contingency effects of industry-wide and target market environmental hostility.

With this research we intend to contribute to M&A research in several ways. Against the typical M&A research background of analyzing internal aspects we investigate the contingency of the industry-wide and target market business environment in terms of hostility and its impact on post-merger integration. In greater detail, we recognize both as important contingency-factors with distinct impacts on acquisition implementation relationships. Furthermore, research investigating entrepreneurial behavior in an M&A context is scarce (for a qualitative exception see Thomson & McNamara, 2001) even though behavioral decision making processes are cited to be a fruitful base for understanding acquisition outcomes (Haleblian, Devers, McNamara, Carpenter, & Davison, 2009). One reason for this this research gap can be found in the fact that research on entrepreneurial leadership is still in its infancy because until recently “progress has been hindered by the lack of conceptual development and adequate tools to measure leaders’ entrepreneurial characteristics and behaviors” (Renko et al., 2015: 55). Thus, to the best of our knowledge this is the first study to investigate entrepreneurial leadership during post-merger integration, a topic that in general has been neglected in M&A research or is limited to conceptual work (Sitkin & Pablo, 2005; Waldman & Javidan, 2009). Investigating such leadership behaviors in an M&A context is

especially important “as a lack of decisive action from the top in establishing clear company direction and managing the necessary change during the integration process will inevitably result in failure” (Gomes et al., 2013: 23). Finally, we also contribute to literature that investigates antecedents of exploration and exploitation and by arguing that entrepreneurial leadership influences both, and that this relationship is moderated by industry and market factors. Thus, this study also has implications for the ambidexterity literature. This literature argues that the simultaneous pursuit of exploitation and exploration is a leadership issue more than a structural one (O'Reilly & Tushman, 2013). Managers allocate resources and coordinate exploration and exploitation activities. Previous literature has put this forth in the context of solutions to the exploration/exploitation dilemma (Gibson & Birkinshaw, 2004; O'Reilly & Tushman, 2004). While it is generally acknowledged that leadership plays a crucial role in the post-acquisition phase (Gomes et al., 2013), we are not aware of any work that investigates how entrepreneurial leadership influences exploitation and exploration in an M&A context.

For researching the phenomena of interest, we study a sample of 115 acquisitions conducted between 2008 and 2011 by medium sized enterprises from manufacturing branches situated in the German speaking part of central Europe. Up to date the major part of empirical contributions to M&A research focus on larger corporations, although small and medium sized companies make up for a considerable amount of M&A transactions in the German-speaking part of Europe (Jansen, 2008) and have been shown to differ regarding transaction related issues (Bauer et al., forthcoming).

The paper proceeds as follows: The next section will derive hypotheses from the extant literature and introduce the study model. After that the sample selection is described followed by the measurement, the method and hypotheses testing. The final section will draw conclusions and outline future research possibilities.

## **Theoretical Background and Hypotheses Development**

### *The influence of entrepreneurial leadership on exploitation and exploration innovation*

Leadership plays a key role in meeting the opposing demands of exploitation and exploration (Halevi, Carmeli, & Brueller, 2015) and has been described by Adler et al. (1999: 65) as a “key precondition for (persistently and continually reasserting) the simultaneous importance of flexibility and efficiency.” While several studies investigate the role of leader characteristics, leadership styles, and leader behavior in the pursuit of exploration and exploitation (Havermans, Den Hartog, Keegan, & Uhl-Bien, 2015; Jansen, George, Van den Bosch, & Volberda, 2008; Nemanich & Vera, 2009; Xing, Liu, Tarba, & Wood, 2016), further research to better understand the role of leaders in ambidexterity, and especially their orientations, is still needed (Junni, Sarala, Tarba, Liu, & Cooper, 2015). One such orientation is the entrepreneurial orientation.

According to Miller (1983: 771) “an entrepreneurial firm is one that engages in product-market innovation, undertakes somewhat risky ventures, and is first to come up with “proactive innovations, beating competitors to the punch.” This entrepreneurial strategic posture was later termed entrepreneurial orientation (Covin & Slevin, 1989) and describes company level entrepreneurial behavior (Lumpkin & Dess, 1996). Entrepreneurial orientation is strongly linked to innovation performance and outcomes in companies (e.g. Boso, Cadogan, & Story, 2013; Miller & Friesen, 1983). Entrepreneurial leadership provides the link to transform this company level strategic posture to the individuals constituting the company. According to Renko et al. (2015: 59) it “is these individuals who spark entrepreneurial ideas and champion them.” Thus, we expect entrepreneurial leadership to be a strong driver of innovation in companies.

Innovation is a wide researched field with many different facets. In this research we concentrate on innovation strategies which companies follow during acquisitions and which have been shown to be related to financial performance (Zahra & Das, 1993). We follow He and Wong's (2004) argumentation for a two dimensional conceptualization of innovation strategy based on concepts from the organizational learning literature (Levinthal & March, 1993; March, 1991): exploration and exploitation. While an explorative innovation strategy refers to "technological innovation activities aimed at entering new product-market domains", an exploitative innovation strategy encompasses "technological innovation activities aimed at improving existing product-market positions" (He & Wong, 2004: 483-484). We build our research on this conceptualization of innovation strategy because entrepreneurial behavior has been closely linked to various facets of the exploration / exploitation paradigm in different settings and the empirical results are promising (e.g. Atuahene-Gima & Ko, 2001; Ireland, Hitt, & Sirmon, 2003; Ireland & Webb, 2007, 2009; Schildt, Maula, & Keil, 2005; Short, Ketchen, Shook, & Ireland, 2010; Sirén, Kohtamäki, & Kuckertz, 2012). Furthermore, this conceptualization meets the demands of the M&A context of the study because exploration and exploitation are important antecedents of acquisition behavior and performance (Angwin, 2007; Bauer et al., forthcoming). Most importantly however, companies need to balance exploitation and exploration activities to achieve a sustainable company development (Birkinshaw & Gupta, 2013; Gupta, Smith, & Shalley, 2006; March, 1991). A concentration on current technologies and markets only, may lead to short-term effects, coming at the expense of long-term performance, as the ability of a firm to adapt to future opportunities may be reduced (Hannan & Freeman, 1984). Too much exploration might reduce the improvement of existing skills (March, 1991) and disrupt successful routines without providing significant compensation for the loss of existing capabilities (Mitchell & Singh, 1993). Too much focus on either exploration or exploitation might trap firms into the dynamics of accelerating one process over the other, due to the iterative and self-reinforcing nature of organizational



learning (He & Wong, 2004). Empirical research has clearly shown that the ability to explore and exploit simultaneously, is associated with high performance (for reviews see for example Junni, Sarala, Taras, & Tarba, 2013; Lavie, Stettner, & Tushman, 2010; Stadler, Rajwani, & Karaba, 2014). However, how exactly an effective balance between exploration and exploitation looks like is still matter of debate and depends on the context an organization is embedded in (Gupta et al., 2006). For instance, He and Wong (2004: 493) conclude that “the effective balance between exploration and exploitation may vary significantly with market and technological dynamism.” Thus, depending on the circumstances an organization faces, an effective balance between exploration and exploitation might of course be biased towards one of the two orientations.

Explorative innovation roots in organizational learning which is associated to terms such as “search, variation, risk taking, experimentation, play, flexibility, discovery, innovation” (March, 1991: 71). Exploitative innovation roots in organizational learning activities which can be described with terms such as “refinement, choice, production, efficiency, selection, implementation, execution” (March, 1991: 71). According to Ireland and colleagues (Ireland et al., 2003; Ireland & Webb, 2007, 2009) companies face the tension to balance opportunity-seeking (identifying innovations laying the foundation for future company performance: exploration) and advantage-seeking (sustaining current competitive advantages through refining the existing business: exploitation). Companies achieve this by pursuing strategic entrepreneurship practices such as entrepreneurial leadership (Ireland et al., 2003; Ireland & Webb, 2007, 2009).

Entrepreneurial leadership aims at empowering followers to recognize and exploit business opportunities (Gupta, MacMillan, & Surie, 2004; Renko et al., 2015) and thus fosters an innovative development of organizations. While “opportunity recognition is about perception, exploitation is about action, and the goals set by entrepreneurial leaders involve

both” (Renko et al., 2015: 57). Entrepreneurial leaders therefore engage in encouraging followers to seek entrepreneurial goals (Gupta et al., 2004; Ireland et al., 2003), in stimulating an innovation orientation among followers by challenging them and the companies’ dominant logic (Ireland et al., 2003; Renko et al., 2015; Thornberry, 2006), in articulating a vivid and motivating vision of the company triggering involvement among followers and as a consequence fostering follower consciousness to act as a company agent in charge of innovation and future success (Ireland et al., 2003; Renko et al., 2015). Most importantly, entrepreneurial leaders act as role models to their followers in identifying innovation opportunities, protecting these opportunities by emphasizing their benefits to all members of an organization and securing resources for opportunity exploitation (Ireland et al., 2003; Kuratko, Ireland, & Hornsby, 2001). Entrepreneurial leadership shows similarities to transformational leadership regarding the intellectual stimulation of followers (Podsakoff, MacKenzie, Moorman, & Fetter, 1990; Renko et al., 2015) and to creativity-supportive leadership because creativity is an important aspect of opportunity seeking (Ardichvili, Cardozo, & Ray, 2003; Renko et al., 2015).

During M&A integration—where value creation takes actually place (Cartwright & Schoenberg, 2006; Haspeslagh & Jemison, 1991)—leadership plays an important role as M&A increase employee uncertainty (Larsson & Finkelstein, 1999), organizational stress and turmoil (Meglio, King, & Risberg, 2015; Weber, Shenkar, & Raveh, 1996), or top-management turnover (Krug & Hegarty, 1997), disrupt inventors (Paruchuri, Nerkar, & Hambrick, 2006), and decrease commitment and satisfaction (Schweizer & Patzelt, 2012). Managers in charge need to create commitment to change (Covin, Kolenko, Sightler, & Tudor, 1997) by providing a clear vision of the future and by incorporating employees as active agents during integration (Kanter, 1984). We argue that entrepreneurial leaders can transform their subordinates in opportunity seekers during post-merger integration and seek to

realize opportunities for exploration and exploitation when merging, re-organizing, and restructuring formerly separated entities. For this reason, managers will engage in experimentation, variation and discovery learning activities for finding new and more radical innovation opportunities as well as in refining and revising learning activities for incrementally sustaining current competitive and innovation advantages in the newly merged entity. As entrepreneurial leadership is strongly associated to challenging current situations, risk and to creativity we expect that a greater emphasis will be put on exploration innovation activities. Miller and Friesen (1982) characterize entrepreneurial companies as innovating boldly taking considerable risks concerning their product-market strategies into account. According to Gupta et al. (2004: 255) entrepreneurial leaders “emphasize building commitment through active, creative, and discovery-driven engagement with the opportunities presented by the environment.” Furthermore, entrepreneurial leadership has been shown to have intersections with creativity supporting leadership styles and it is correlated with entrepreneurial orientation, a measure emphasizing a rather radical and proactive approach to innovation (Renko et al., 2015). Therefore, we put the following hypotheses forward.

H1a: Entrepreneurial Leadership during the post-merger integration stage positively influences post-merger Exploitation innovation.

H1b: Entrepreneurial Leadership during the post-merger integration stage positively influences post-merger Exploration innovation.

H1c: The positive effect of Entrepreneurial Leadership is stronger for post-merger Exploration than for post-merger Exploitation innovation.

***The influence of exploitation and exploration on M&A performance***

M&A are prominent strategic means for triggering innovation performance of companies by increasing the organizational knowledge base (Ahuja & Katila, 2001; Cloudt et al., 2006; Gomes et al., 2010). Extending organizational skills, processes and competences by refining and revising existing company routines and competences is at the focus of exploitation activities (Auh & Menguc, 2005; March, 1991). Exploitation activities are referred to as being path dependent, because managers engaging in these kinds of activities build on experience and existing knowledge in the company (Baum, Li, & Usher, 2000; Lavie, Kang, & Rosenkopf, 2011; Nielsen, 2010; Nielsen & Gudergan, 2012). Therefore, exploitation innovation strategies increase efficiency, reduce variance, strengthen problem-solving capabilities (Smith & Tushman, 2005) and refine routines (Baum et al., 2000). Efficiencies are leveraged by revising existing company technologies reducing redundancies and standardizing processes and structures. Exploitation therefore leads to cost reductions through synergy realization and risk reduction due to the refinement of familiar and partly already existing knowledge (He & Wong, 2004; Nielsen, 2010). Eventually exploitation innovation strategies lead to incremental innovation (Andriopoulos & Lewis, 2009). As a consequence, exploitation innovation strategies enable companies to realize synergies through cutting costs (Benner & Tushman, 2003) and to diminish overall risk (Bodwell & Chermack, 2010). M&A transactions will yield many possibilities for exploitation activities, because managers can build on the existing knowledge base of the acquirer and the newly acquired knowledge base of the target. Similar as in alliances (see for example Koza & Lewin, 1998), companies will face opportunities to exploit complementary resources inherent in the merging entities. Exploiting the opportunities from merging two organizations will therefore yield incremental innovations and cost reductions through incremental product and process innovations. Thus, exploitation triggered during an M&A transaction will positively influence M&A performance (Bauer et al., forthcoming).

H2a: Post-merger Exploitation innovation positively influences M&A Performance.

In sharp contrast, exploration innovation strategies are based on learning activities associated to “concerted variation, planned experimentation and play” (Baum et al., 2000: 768). Explorative innovation is therefore accompanied by high risk (Angwin, 2007) because new knowledge is accumulated in a discovering manner aiming at above average returns (Koza & Lewin, 1998). Furthermore, companies engaging in exploration innovation strategies are driven by a future-orientation, as well as fresh knowledge and experience, which is more uncertain and time-consuming than exploitation innovation approaches (March, 1991). In order to achieve exploration, companies need to experiment with dispersed and varied knowledge (Andriopoulos & Lewis, 2009). Companies refer to external information and seek to transform it for commercial purposes (Cohen & Levinthal, 1990; Lavie et al., 2011) yielding “product improvements and innovations” (Nielsen, 2010: 688). The open and flexible nature of explorative learning allows companies to develop radical innovations (Atuahene-Gima, 2005) which are associated with the long term and as a consequence future success of companies (Ireland et al., 2003; Ireland & Webb, 2007; Levinthal & March, 1993; March, 1991).

Companies are motivated to pursue M&A transactions in order to achieve exploration (Angwin, 2007) yielding company knowledge in new and potentially valuable areas. We therefore argue that post-merger exploration triggers increased M&A performance through opening up new business opportunities. He and Wong (2004) provide evidence for this assumption. According to the authors exploration positively impacts a company’s innovation intensity. In turn, the innovation intensity of companies is positively related to sales growth (He & Wong, 2004). Following this line of argumentation, we expect post-merger exploration

innovation to drive M&A performance (Bauer et al., forthcoming). Therefore, we put the following hypothesis forward.

H2b: Post-merger Exploration Innovation positively influences M&A Performance.

***Contingency effects of industry-wide and target market environmental hostility***

An environment is considered as being hostile when competition is intense, market opportunities are rare and uncertainties regarding competition, markets and products are high (Zahra & Covin, 1995). Furthermore, forces driving these uncertainties are external and from outside the companies immediate surrounding (Zahra & Covin, 1995; Zahra & Garvis, 2000). Radical changes in an industry and regulatory burdens (Zahra & Covin, 1995; Zahra & Garvis, 2000), but also technology and demand can trigger uncertainties (Atuahene-Gima & Li, 2004) and as a consequence yield environmental hostility. In line with previous research, we differentiate between the perceived industry-wide and the target market environmental hostility (Dimitratos et al., 2004). In the context of M&A, we argue that acquirers are confronted with environmental dynamics on different levels. First of all, companies face an industry-wide environmental hostility related to the industry the company is active in. This industry-wide environmental hostility will frame acquisition activities. Second, acquirers face peculiar environmental conditions in markets where they seek out targets to be acquired. Acquirers might face situations where the industry-wide business environment is characterized through an intense competition and many market related uncertainties. However, the situation in the market of the target might be quite different. The environment might be more favorable because competitive pressures are low and market uncertainties are manageable. Of course the opposite situation could also be the case, when the industry-wide environment is favorable and target market environment hostile. Thus, we expect the effect of entrepreneurial leadership

during M&A transactions to be contingent on industry-wide environmental hostility and target market environmental hostility.

Research investigating environmental hostility as a contingency factor in the entrepreneurial behavior performance relationship finds negative as well as positive effects. While e.g. Miller and Friesen (1983: 223) state that “hostility makes for scarcer resources, slimmer profit margins, and, in general, less maneuverability” and “requires that during the most threatening periods more attention be paid to the conservation of resources and the selective pursuit of economical competitive strategies”, others argue that in environments characterized through hostility, companies need to take risks and to proactively strive solutions to maintain or achieve sustainable competitive advantages (e.g. Covin & Slevin, 1989). “Such an advantage will more likely result from the proactive, innovative, and risk-taking efforts of entrepreneurial firms than the passive and reactive efforts of conservative firms” (Covin & Slevin, 1989: 77). This is in line with results from Calantone and colleagues (1997: 186) investigating new product development activities of Fortune 500 manufacturers. The authors show that “in more hostile conditions the likelihood of success was increased by 13.5 to 27 percentage points by improving the quality of execution of new product activities.” Summing up, while environmental hostility might be negatively related directly to performance outcomes (Rosenbusch, Rauch, & Bausch, 2013; Wiklund, Patzelt, & Shepherd, 2007), the evidence provided above provides stronger support for a positive moderated relationship of entrepreneurial behavior on innovation outcomes (Calantone et al., 1997; Covin & Slevin, 1989; Lumpkin & Dess, 2001).

Putting these arguments to an M&A context, we argue that industry-wide environmental hostility during acquisition integration will moderate the relationship between entrepreneurial leadership and exploration and exploitation in different ways. Pursuing exploitative innovation strategies following an acquisition in a hostile environment might yield efficiency

gains and incremental product and process innovations. Anyway, the value of integration measures is highly context-specific (Bauer et al., 2017). Especially exploitation is associated with an elimination of redundant resources (Meglio et al., 2015) and painful structural measures (Cording et al., 2008; Karim, 2006; Pablo, 1994) affecting employees of the target firm. As environmental hostility in combination with negative employee perceptions after deal closing increase the fear of future viability and job-losses (Bauer et al., 2017; Lengnick-Hall & Lengnick-Hall, 1988), integration measures should aim at establishing organizational clarity and stability (Ghoshal, Korine, & Szulanski, 1994; Zahra & George, 2002). As entrepreneurial leadership is characterized by proactive opportunity recognition and quick decision making, the perceived transparency in the organization decreases in hostile environments when aiming for exploitative efficiency gains. In-transparency triggers employee uncertainty and resistance (Bauer et al., 2016c) and quick decisions made by managers in charge result in ambiguous communication increasing employees' anxiety (Risberg, 1997). As a consequence, we assume that the relationship from entrepreneurial leadership on exploitation following an acquisition is negatively moderated by the industry-wide environmental hostility.

With regards to exploration innovation strategies, we argue that the proactive, risk taking and innovative nature of entrepreneurial leadership is the only way acquirers can secure competitive advantage. Integration strategies aiming at exploration are less associated with layoffs and painful structural changes that lead to a loss of status and to productivity losses (Paruchuri et al., 2006). By creating a common vision on innovation activities, employees become active agents throughout the integration process (Covin et al., 1997) and the hostile industry-wide environment might act as a connecting link between the merged entities. Thus, explorative innovation (which is associated to risk and proactiveness) is expected to be stronger under conditions of industry-wide environmental hostility.



Entrepreneurial leaders foster opportunity recognition and innovation by stimulating followers to challenge the company's dominant logic (Ireland et al., 2003; Renko et al., 2015; Thornberry, 2006). By creating a common vision on innovation activities, employees become active agents throughout the integration process (Covin et al., 1997). Consequently, we put the following hypotheses:

H3a: Industry-wide Environmental Hostility negatively influences the relationship between Entrepreneurial Leadership and post-merger Exploitation innovation.

H3b: Industry-wide Environmental Hostility positively influences the relationship between Entrepreneurial Leadership and post-merger Exploration innovation.

For target market environmental hostility, we expect different effects. Compared to an industry-wide environmental hostility, the specific situation of facing hostility in the targets' market will impact more promptly and drastically. Post-merger integration is already a time of organizational uncertainty and managerial stress (e.g. Meyer, 2008) besides the competitive pressures (King & Schriber, 2016). The specific situation in the target market will be more tangible because the factors causing environmental hostility can be identified more easily due to the limited scope of the target market and due to target employee familiarity with the situation. As a consequence available knowledge about inferior resource availability, limited profit opportunities and as a consequence a limited strategic action set (Miller & Friesen, 1983) might impede and limit post-merger innovation opportunities at the local level. Miller and Friesen (1983) refer to the necessity of maintaining important resource endowments in such situations. As a consequence shifting post-merger initiatives away from risky experimentation, towards the exploitation and refinement of existing processes and product might help acquires to ease the handling of competitive pressures in the target market. This is

especially important as acquirers face the threat of competitive retaliation (King & Schriber, 2016). Integration aiming at exploitative gains creates a positional momentum as the targets strategic position is sustained or extended (Amburgey & Miner, 1992) due to the availability of the acquirers' resources and capabilities. As entrepreneurial leaders develop target employees into active agents, they can preserve the momentum "by performing mobilizing and mitigating actions" (Graebner, 2004: 852). As the acquired employees have a deep understanding of their firm and their immediate environment, the active involvement stimulated by entrepreneurial leaders will result in positive contingency effects for exploitation.

For integration strategies aiming at explorative gains, we expect different effects. First, the results of explorative activities are more distant in time. Even though entrepreneurial leaders might create a common vision and change employees into active agents, quick wins are difficult to reach with explorative activities (March, 1991). Furthermore, explorative gains are more uncertain which increases employee anxiety and organizational turmoil. Both, distance in time and uncertainty increase the awareness and motivation for competitive retaliation following acquisitions (King & Schriber, 2016). The limited scope of the target market environment will make competitor retaliation more tangible and pressing. Second, a loss of social status caused through entrepreneurial leaders creating and enforcing their vision, challenging the current status and simultaneously being not familiar with the local environment, might disrupt inventors (Paruchuri et al., 2006) and lead to increased turnover of managers as well as other knowledgeable employees. In hostile local environments, key employees might be targets of headhunting competitors as a part of their retaliation strategies. We expect this threat to increase if competitive pressures are high in the target market. As a consequence, we put the following two hypotheses forward:

H3c: Target Market Environmental Hostility positively influences the relationship between Entrepreneurial Leadership and post-merger Exploitation innovation.

H3d: Target Market Environmental Hostility negatively influences the relationship between Entrepreneurial Leadership and post-merger Exploration innovation.

Figure 1 presents the theoretical model to be tested in this study.

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## **Method**

### ***Sample and data***

Not all variables of interest are available in secondary data sources. For this reason a primary data collection was conducted in spring 2014 with the means of a survey design. This procedure is in line with previous research investigating internal processes in an M&A context (e.g. Bauer & Matzler, 2014; Homburg & Bucerius, 2006; Zaheer, Castañer, & Souder, 2013). Additionally, we complemented the collected primary data with secondary data on target market hostility and leadership culture. The sample consists of full-acquisitions from acquirers from manufacturing branches (Chemicals, Rubber, Plastic, Metals, Machinery, Furniture, Recycling, Gas, Water, Electricity, Construction, and Transportation) in Austria, Germany and Switzerland which have been completed between 2008 and 2011. Even though partial acquisitions are a popular entry mode in international business (Dikova & van Witteloostuijn, 2007) especially when large cultural differences exist (Kogut & Singh, 1988),

we focused on full-acquisitions to guarantee that the acquirer has the management control necessary to decide about strategy, operations, change, integration, and to apply leadership (Jakobsen & Meyer, 2008).

We restricted our sample to the German-speaking countries for two reasons. First, an economic crisis strongly affects firm behavior (Cerrato, Alessandri, & Depperu, 2016) while the macroeconomic development is an important contingency for firm expansion (di Giovanni, 2005). Compared to other European countries, the German-speaking countries recovered quite quickly from the recession and only 2009 displayed a negative GDP growth. To mitigate potential macroeconomic effects, we consequently concentrated on countries with a similar development. Second, firms from the German-speaking countries share an enduring entrepreneurial and international business history (De Massis, Audretsch, Uhlaner, & Kammerlander, 2017) that makes the acquirers comparable.

The sectoral restriction was necessary, as acquisition motives differ with regards to industries (Teusler, 2008), the industry lifecycle determines pertinent integration mechanisms (Bauer et al., 2017), and motives strongly impact the integration approaches (Ranft & Lord, 2002). While e.g. in high-technology industries integration leads to productivity losses in the technological sense (Paruchuri et al., 2006; Puranam, Singh, & Chaudhuri, 2009), manufacturing firms usually need to integrate redundancies and to transfer and share resources and capabilities (Bauer & Matzler, 2014; Birkinshaw et al., 2000). E.g. Assa Abloy, a serial acquirer and producer of locking-systems reaps quickly cost synergies and benefits from increased bargaining power through integration. As our intention was to observe long term developments after deal closing, the period chosen guarantees that the integration of target companies is completed or near to completion (Ellis, Reus, & Lamont, 2009; Homburg & Bucerius, 2006) and that recollection bias is not a serious concern (Krishnan, Miller, & Judge, 1997).

For identifying sample cases the Zephyr database from the Bureau van Dijk was accessed. All transactions aiming at simply restructuring a company (acquirer and target belong to the same company) were excluded from the sample. The final sample included 761 M&A transactions. Top managers from the acquiring companies were addressed as key informants for the survey. Although the focus on top managers has been criticized due to systematically distinct views on organizational processes and outcomes compared to other company members (Kumar, Stern, & Anderson, 1993), we decided to stick with this approach for two reasons. First, research shows that when it comes to strategic and organizational issues top managers are still the most knowledgeable informants (e.g. Datta, 1991; Ellis et al., 2009; Homburg & Bucerius, 2006) and second, due to the top positions of our respondents and managerial turnover it was hardly impossible to identify more than one executive per firm that accompanied the requested acquisition.

Before the survey was sent out, a pretest was conducted among five experts that have diverse managerial and scientific backgrounds related to M&A. This procedure increases the reliability and validity of the survey (Churchill, 1995). After some minor changes in wording, the data collection started at the end of February 2014. We sent out printed questionnaires to the 761 firms together with a return envelope and an executive summary of a previous study to motivate potential respondents to participate. During the first three weeks 50 completed questionnaires were returned. After three weeks reminder emails were sent out before follow-up telephone calls were undertaken in order to maximize sample size until the end of April. The final sample comprised 115 usable questionnaires (80 postal and 35 online and phone) which sums up to a response rate of 15 percent. The data for this study was part of a larger survey. Thus, due to the substantial length of the survey, the response rate is satisfactorily and similar to comparable studies in the field of M&A (e.g. Bauer & Matzler, 2014; Capron, 1999; Homburg & Bucerius, 2006; Zaheer et al., 2013). Although low, the response rate is

also not unusual for studies conducted in the area of international business. Chidlow and colleagues (2015) investigated research based on surveys in the leading international business journals. The authors report that about 9.5% of studies in international business report similar response rates ranging between 10 and 19.99%, while 7% are based on response rates even lower than 10%. Most of the studies (20%) in the field of international business report response rates ranging between 20 and 29.99% (Chidlow et al., 2015).

Due to the possibility of a non-response bias, we tested for differences between early (67 questionnaires that were returned from our initial mailing) and late (the remaining 48 questionnaires) respondents (Armstrong & Overton, 1977). Furthermore, we compared the corresponding firms concerning firm size (in terms of sales, when applying questionnaire scaling to the Zephyr data, the mean values are 3.82 for our sample and 3.79 for the basic population, the median values do not differ) and the individual acquisitions with regards to relatedness with our basic population. In doing so, we compared our 115 responses with a random sample of nonresponding firms (Zaheer et al., 2013). Both variables are available for our sample from the Zephyr database. For assessing potential differences, we applied the Kruskal-Wallis test, as it is free of distributional assumptions. The results of the Kruskal-Wallis test ( $df=1$ ) indicate no significant differences for the comparisons (in terms of size for early and late-respondents the values range between Chi-Square (1) = 2.551;  $p = 0.110$  and Chi-Square (1) = 0.011;  $p = 0.918$ ; in terms of relatedness, values range between Chi-Square (1) = 0.166;  $p = 0.684$  and Chi-Square (1) = 0.025;  $p = 0.873$ ). Consequently, we argue that non-response bias is not a serious concern for our data.

### *Measures*

For measuring entrepreneurial leadership the eight item scale form Renko et al. (2015) was adapted to the study context. We concentrated on entrepreneurial leadership during the post-merger integration stage because this stage is of major importance for transaction

outcomes (Cording et al., 2008; Haspeslagh & Jemison, 1991). Key informants were asked to indicate to what extent managers involved in post-merger integration could be characterized according to the eight statements describing entrepreneurial leadership behavior proposed by Renko et al. (2015). A seven point Likert scale was applied for measurement. Due to a low loading one of the items had to be excluded from the ongoing analyses. Refer to table 2 for the psychometric properties of the scale.

The measures for exploitation and exploration innovation following an acquisition have been adapted from He and Wong (2004). The two constructs are measured with four items each along a seven point Likert scale. Key informants were asked to what extent the transaction affected the innovation outcomes by rating their level of agreement to eight items. Due to a low loading one of the items measuring exploration innovation outcomes had to be deleted. Table 2 presents the items and the psychometric properties of the scale.

We measured industry-wide environmental hostility with three items adapted from Khandwall (1977). The scale has been applied by several researchers in the entrepreneurship field (Covin & Slevin, 1989; Naman & Slevin, 1993). Respondents were asked to describe the company environment along three items measured with seven point Likert scales. Due to a low loading one of the items had to be deleted. Table 2 present the items and the psychometric properties of the scale.

For measuring target market environmental hostility we retrieved data about the target markets in our sample from “The Global Competitiveness Report 2012–2013” published by the World Economic Forum (Schwab, 2012). The report is based on aggregated survey data from the Executive Opinion Survey conducted by the World Economic Forum. 14,059 executive responses from 144 economies around the world have been aggregated for the report. For measuring target market environmental hostility we refer to the indicators “intensity of local competition” (item: How would you assess the intensity of competition in

the local markets in your country? [1 = limited in most industries; 7 = intense in most industries]; 2011–12 weighted average) and “extent of market dominance” (item: How would you characterize corporate activity in your country? [1 = dominated by a few business groups; 7 = spread among many firms]; 2011–12 weighted average). While the indicator “intensity of local competition” captures the fierceness of competition, the indicator “extent of market dominance” is a proxy for the rareness of market opportunities because industry concentration is associated to a mature industry with little market opportunities. Thus, both measures cover important aspects of a hostile environment as described by Zahra and Covin (1995). Table 2 presents the items and the psychometric properties of the scale.

There is a debate going on about how performance of transactions should be measured (Meglio, 2009; Tuch & O'Sullivan, 2007) and no consensus has been achieved yet (Cording, Christmann, & Weigelt, 2010; Larsson & Finkelstein, 1999). In this study, we apply a managerial self-assessment of M&A performance for several reasons. First, research indicates that there is a high correlation between objective and perceptual performance measures (Datta, 1991; Homburg & Bucerius, 2005). Second, the aim of our measure is to assess integration specific issues of M&A which usually take three to five years (Homburg & Bucerius, 2006) making announcement based event studies inapplicable. Third, integration related issues are often not publicly known so that for instance long-term stock performance will very likely yield inappropriate results (Cording et al., 2010). Finally, accounting based measures may bias results due to different accounting standards in different countries (Leuz, Nanda, & Wysocki, 2003; Weetman & Gray, 1991). Furthermore, mandatory reporting duties are dependent on firm size and legal forms. Smaller firms have fewer obligations than large corporations or corporate bodies. As our research focuses on small and medium sized acquirers with various legal forms and size-differences, an accounting based comparison is not possible.



For this survey, the measurement model of Becker (2005) has been adapted to the study context. This measurement assesses M&A performance on two dimensions: objective and subjective performance. Each dimension consists of four items rated along seven point Likert scales. Regarding the objective performance respondents were asked how the different performance measures changed after the transaction. The scale ranged from 1=strong negative development to 7=strong positive development. Regarding the subjective performance measure informants were asked to indicate the level of agreement (ranging from 1=completely disagree to 7=completely agree) to four items. These scales have been used in previous M&A studies (e.g. Bauer & Matzler, 2014; Bauer et al., forthcoming).<sup>1</sup> Table 2 presents the psychometric properties of the scale.

As innovation outcomes and performance of M&A transactions might depend on further influencing factors besides the variables proposed above, we included eight control variables in this study. The effort and difficulty of integration processes is likely to depend upon the size of target companies to be integrated. Therefore, respondents were asked to indicate the relative size of the target in terms of annual sales in the year of transaction (1 = < 25%; 5 = > 100%). Furthermore, growth opportunities might influence M&A performance. Thus, industry growth is incorporated. According to Barkema and Schijven (2008) annual sales are an indicator of well-developed acquisition routines which could influence M&A performance outcomes. Past acquisition experience has been identified as an important factor influencing acquisition performance (Haleblian & Finkelstein, 1999). We measured acquisition experience applying a single item asking for the number of transactions carried out by the acquiring firm during the five years before the initial transaction (Haleblian & Finkelstein, 1999). Furthermore, previous research highlighted the possibility that post-merger integration

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<sup>1</sup> Please note: As different valuation rules in the countries might influence the performance comparisons of our objective and subjective success measures, we investigated, whether there are country specific differences. The results of a Kruskal-Wallis test comparing the performance ratings of Germany, Austria, and Switzerland indicate no significant differences.

is prone to cultural influences (Ahammad, Leone, Tarba, Glaister, & Arslan, 2017; Chari & Chang, 2009). Thus, a control for cultural distance was included based on the GLOBE data. The GLOBE data measures leadership values and practices along the dimensions of assertiveness, institutional collectivism, in-group collectivism, future orientation, human orientation, performance orientation, power distance and uncertainty avoidance (House, Hanges, Javidan, Dorfman, & Gupta, 2004). For measuring cultural distance the Kogut & Singh index (Kogut & Singh, 1988) was adapted to the GLOBE dimensions. The following formula was applied:

$$[1] CD_t = \sum_{i=1}^9 \{(I_{it} - I_{ia})^2 / V_i\} / 9$$

where  $CD_i$  is the cultural distance for target  $i$ ,  $I_{it}$  denotes the index for the GLOBE dimension  $i$  for a target from country  $t$ ,  $I_{ia}$  indicates the index for the GLOBE dimension  $i$  and the acquirer from country  $a$  and  $V_i$  is the variance of the GLOBE dimension  $i$ . We calculated the cultural distance for GLOBE values and practices and used these two variables for measuring cultural distance as a latent construct. We also included a dummy variable for cross border acquisitions as there is evidence that these might differ from domestic acquisitions (Shimizu et al. 2004). Finally, post-merger integration is an important driver of acquisition outcomes (e.g. Cording et al., 2008; Dao, Strobl, Bauer, & Tarba, 2017) and the degree of integration refers to the degree of change (Cording et al., 2008; Datta & Grant, 1990; Karim, 2006). As integration is complex by nature (Shrivastava, 1986) we follow Brikinshaw et al. (2000) and distinguish between human and task integration. The former one is assessed with a single and aims to capture the “softer” changes following an acquisition fostering a common understanding and mutual trust. The latter one, assessed with three items, aims to realize operational synergies and to share and transfer resources and capabilities. The respondents

had to rate the degree of change they experienced on a seven-point Likert scale (1 = no change at all; 7 = entire change).

### ***Descriptive data***

Table 1 presents the descriptive statistics of the sample. Comparing these statistics to officially available data, it can be concluded that the sample reflects the acquisition behavior of rather low-tech industries in Austria, Germany and Switzerland quite well. First, the relatively small relative size of the target firms reflects the general tendency of smaller acquisitions in Europe (Bothwick & Leibowitz, 2017), second, the annual sales reflect the importance of mid-sized acquirers in the German-speaking countries (Jansen, 2008), third, the target countries mirror data from official M&A statistics (e.g. Düsterhoff, 2014), and fourth, the reported average industry growth rates reflect the economic situation in the German-speaking countries and the corresponding industries well (e.g. Bloomberg Intelligence). Furthermore, the fact that respondents indicated that 54.8 percent of the transactions display a negative or at best a neutral development acts as a further indicator of the reliability of the survey data. 68 of the investigated acquisitions were cross-border acquisitions with the major part across European borders (54).

--- insert table 1 here ---

### ***PLS structural equation modelling***

For testing the study model, we applied Partial Least Squares (PLS) structural equation modeling (SEM) using the software SmartPLS 3 (v. 3.2.4) (Ringle, Wende, & Becker, 2015). PLS is favorable when research is prediction-oriented because it maximizes the explained

variance of the dependent variable (Hair, Ringle, & Sarstedt, 2012a; Hair, Sarstedt, Ringle, & Mena, 2012c). This study focuses on predicting innovation outcomes from M&A transactions and enabling theory building in M&A research. Therefore, the goal is to explain exploration and exploitation innovation following transactions by introducing critical success factors such as entrepreneurial leadership. “The benefits of PLS-SEM lie in its ability to identify relationships among latent variables in the model when they in fact exist in the population” (Hair, Sarstedt, Pieper, & Ringle, 2012b: 333).

Furthermore, PLS is the appropriate choice because only one of the study items displayed a standard normal distribution. In contrast to co-variance based approaches to SEM, PLS does not require strictly normal distributed data (Chin, 1998, 2010; Esposito Vinzi, 2010; Hair, Ringle, & Sarstedt, 2011; Hair et al., 2012c; Reinartz, Haenlein, & Henseler, 2009). PLS can cope with values of skewness and kurtosis ranging between 1 and -1 (Hair, Hult, Ringle, & Sarstedt, 2014). On average the items underlying the research at hand display a skewness of -.19 and a kurtosis of .62. In addition, PLS is superior in coping with complex study models when there are constraints regarding the number of observations and small sample sizes (Chin, 1998, 2010; Esposito Vinzi, 2010; Hair et al., 2011; Hair et al., 2012c). The study model underlying this research comprises 16 latent constructs (including the second order dimensions of M&A Performance and eight control variables). In the literature there is no definition of complexity concerning study models. However, Shah and Goldstein (2006) review co-variance based SEM studies and report an average of 4.7 latent constructs per study. Thus, we conclude that the research model underlying this research is quite complex when compared to research applying co-variance based SEM. Finally, PLS is superior in coping with small sample sizes (Hair et al., 2012c) which is often a problem in M&A research (e.g. Bauer & Matzler, 2014; Homburg & Bucerius, 2006). As is the case for statistical procedures in general, also the statistical power of PLS depends on the sample size

(Marcoulides & Chin, 2013). However, prior research (Hair et al., 2012c; Henseler et al., 2014; Reinartz et al., 2009) demonstrated that while co-variance based SEM requires sample sizes of at least 200 cases, PLS can achieve high levels of power also with smaller samples. PLS is further the preferred choice when sample sizes are small because “PLS demonstrates better convergence behavior in the case of small sample sizes than covariance-based SEM” (Henseler et al., 2014: 198).

## **Results**

Before testing the structural model, the measurement model is assessed. PLS models latent variables as composite factors. Thus, we check the reliability and validity of the composite measurement model in PLS. For testing the reliability and validity of the survey measurement, average variance extracted (AVE) and composite reliability (CR) were calculated for each latent variable. All scales display values in accordance with the proposed thresholds (.7 for CR and .5 for AVE) recommended in literature (Bagozzi & Yi, 1988). CRs vary between .76 and .96 and AVEs lie between .51 and .91. Furthermore, all items show loadings of at least .60 indicating that the items are reliable measures of the proposed constructs (Hulland, 1999). Table 2 presents the psychometric properties of the latent variables together with the items and item loadings.

--- insert table 2 here ---

For testing discriminant validity, first the cross loadings of the items on other latent variables were checked (Chin, 1998). All items load highest on the proposed latent variables

indicating discriminant validity. Furthermore, following Fornell and Larcker (1981) the square roots of the AVEs were compared with the latent variable correlations. As the square roots of the AVEs are higher than the respective latent variable correlations, a further indicator of discriminant validity is given. Thus, discriminant validity should not be an issue in this research. Table 3 present these calculations. We also investigated potential multicollinearity issues by investigating the latent variable correlations (see Table 3) and calculating variance inflation factors (see table 5). The variance inflation factors of the variables (1.04 to 2.68) were all well below the threshold of 10 recommended in literature (O'Brien, 2007).

--- insert table 3 here ---

As major shares of the data for this research (except for the target market environmental hostility and cultural distance measures) have been collected applying a survey design at a single point in time, common method bias could be a serious concern due to consistency motifs or social desirability (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Even though recent research refers to common method bias as an “urban legend” and argues that an inherent connection of primary data with common method variance is an “oversimplification of the true state of affairs” (Spector, 2006: 221), we applied a priori measures and conducted a post hoc analysis to exclude common method bias (Richardson, Simmering, & Sturman, 2009). In our survey instrument, we guaranteed the respondents anonymity and separated our latent variables (Podsakoff, MacKenzie, & Podsakoff, 2012). Additionally, we relied on already existing measurement scales (Harrison, McLaughlin, & Coalter, 1996). Post hoc, we implemented a common method factor into the research model (Podsakoff et al., 2003;

Williams, Edwards, & Vandenberg, 2003) excluding the latent variables measuring target market environmental hostility and cultural distance because they were collected from distinct sources. For conducting this analysis in PLS, we followed the recommendations of Liang et al. (2007) and compared the substantive variance explained by the particular latent variable with variance explained by the common method factor. All items load higher on the respective constructs. Furthermore, only seven items load significantly on the method factor, while all items except for one ( $p < .05$ ) load highly significant ( $p < .01$ ) on the respective constructs. Comparing the substantive variance to the method variance, the ratio is 60.87:1. Thus, we conclude that common method variance is not an issue for this study. Table 4 presents these calculations.

--- insert table 4 here ---

For the purpose of testing the proposed structural relationships, we ran the standard PLS algorithm. PLS relies on bootstrapping for estimating the significance of relationships. Following recommendations from literature the significance level of the estimates is assessed on the basis of 5,000 bootstraps (Hair et al., 2011). As sign change option, construct level changes was chosen and the number of cases was selected in accordance with the sample size (115) (Hair et al., 2012c; Hulland, 1999). Figure 2 shows the structural model and displays estimates of the hypothesized paths together with their significance levels and  $R^2$ s of the endogenous latent variables. Table 5 presents the path estimates of the hypothesized relationships and the control variables together with the T statistics and variance inflation factors.

--- insert figure 2 here ---

--- insert table 5 here ---

The proposed relationships explain a considerable amount of the variance of M&A performance ( $R^2 = .49$ ), exploitation ( $R^2 = .27$ ) and exploration ( $R^2 = .47$ ). Entrepreneurial leadership is a strong and significant driver of exploration ( $\beta = .44^{***}$ ) and exploitation ( $\beta = .21^{**}$ ). H1a and H1b are therefore supported. For testing H1c we calculated bias corrected confidence intervals for the path estimates of entrepreneurial leadership on exploitation and on exploration. This approach builds on Sarstedt et al.'s (2011) non-parametric confidence set approach for comparing path coefficients across groups. According to this approach paths are statistically distinct when the estimate of path one does not fall into the bias corrected confidence interval of path two and vice versa. A further indicator is when the bias corrected confidence intervals do not intersect at all. For calculating the bias corrected confidence intervals, we followed the propositions of Efron (1987) and Efron and Tibshirani (1986). The estimates do not fall into the bias corrected confidence intervals of the respective other path (see table 6). Therefore, H1c is supported at 5 % significance level.

--- insert table 6 here ---

H2a and H2b proposed positive effects of exploitation and exploration on M&A performance. The calculations show that exploitation ( $\beta = .33^{***}$ ) and exploration ( $\beta = .35^{***}$ ) are highly relevant drivers of M&A performance. Thus, H2a and H2b are supported. To test if exploitation and exploration mediate the influence of entrepreneurial leadership on



M&A performance, we calculated estimates, T statistics and bias corrected confidence intervals for total, direct, and indirect effects (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002; Zhao, Lynch, & Chen, 2010). According to this analysis, entrepreneurial leadership is mediated by exploitation and exploration ( $\beta = .22^{***}$ ). While the total effect of entrepreneurial leadership on M&A performance is significant ( $\beta = .39^{***}$ ), the direct effect is insignificant ( $\beta = .16, p > .10$ ). Thus, we find a full mediation of entrepreneurial leadership (MacKinnon et al., 2002; Zhao et al., 2010). Table 7 presents the calculations for this analysis.

--- insert table 7 here ---

For testing the interaction hypotheses the variables were standardized (Aiken & West, 1991). H3a and H3b proposed moderating effects of industry-wide environmental hostility. For the path between entrepreneurial leadership and exploitation a negative interaction effect was predicted, for the path between entrepreneurial leadership and exploration a positive one. In support of H3a, the calculations show a significant and negative interaction effect for the path between entrepreneurial leadership and exploitation ( $\beta = -.25^{***}$ ). For the path between entrepreneurial leadership and exploration the interaction is again negative ( $\beta = -.20$ ) but the path is far from being significant (T statistic = .95). Thus, H3b is not supported.

H3c proposed a positive moderation effect of target market environmental hostility for the path between entrepreneurial leadership and exploitation and a negative interaction effect for the path between entrepreneurial leadership and exploration. The calculations show an insignificant and negative interaction effect for the path between entrepreneurial leadership and exploitation ( $\beta = -.08$ ). For the path between entrepreneurial leadership and exploration the interaction is negative and significant ( $\beta = -.20^*$ ). Thus, while H3c is not supported H3d

is. Figure 3 visualizes the negative moderating effects of industry-wide and target market environmental hostility.

--- insert figure 3 here ---

The controls have some impact on our research model. Industry growth has a beneficial effect on M&A performance ( $\beta = .12^*$ ) while relative size has a negative impact ( $\beta = -.10^*$ ). Furthermore, relative size positively influences exploitation ( $\beta = .19^{**}$ ). Relative size can be seen as an indicator for relative standing (Ranft & Lord, 2002) and more complex integration measures (Cording et al., 2008; Zollo, 2009). Interesting are the effects of transaction experience. While transaction experience has a negative impact on M&A performance ( $\beta = -.24^{***}$ ) it positively influences exploitation ( $\beta = .17^*$ ) and exploration ( $\beta = .23^{***}$ ). Thus, these findings shed further light on the complex influences of transaction experience in mergers and acquisitions (e.g. Bauer et al., forthcoming; Haleblan & Finkelstein, 1999; King, Dalton, Daily, & Covin, 2004; Zollo & Singh, 2004). Cross border acquisitions show a higher M&A performance ( $\beta = .16^*$ ). Task integration is beneficial for exploration following an acquisition ( $\beta = .25^*$ ). This is in line with prior research which demonstrated that task integration is necessary for transferring and sharing resources and capabilities (Birkinshaw et al., 2000) and thus, leads to improved innovation outcomes (Bauer, Matzler, & Wolf, 2016b). The controls for annual sales, human integration and cultural distance did not yield any significant effects.

As a final step of the analyses, the predictive relevance of the inner model was evaluated by calculating  $f^2$  and  $q^2$  square effect sizes for the latent variables explaining the endogenous latent variables (Cohen, 1988; Henseler, Ringle, & Sinkovics, 2009). For

calculating the  $f^2$  and  $q^2$  effect sizes the latent variables explaining an endogenous construct were omitted one at a time. Regarding the  $q^2$  effects the cross-validated redundancy approach was used and the omission distance was set to seven meeting the criteria of not being a multiple of the sample size ( $n = 115$ ) and a number between five and ten (Chin, 1998). Table 8 present the  $f^2$  effect sizes for each path and table 9  $q^2$  effect sizes for the endogenous constructs M&A performance, exploitation and exploration.

--- insert table 8 here ---

--- insert table 9 here ---

Entrepreneurial leadership displays a strong  $f^2$  effect size for exploration and a weak one for exploitation and M&A performance. Exploitation shows a moderate  $f^2$  effect size for M&A Performance. The other paths display weak  $f^2$  effect sizes. The  $q^2$  effects are between weak and moderate (.00 – .16) (Hair et al., 2012c). Thus, the evaluation of the inner models shows that the proposed variables are of predictive relevance for the endogenous latent variables (see tables 8 and 9). Especially, exploitation and exploration are important for explaining the variance of M&A performance and entrepreneurial leadership is highly important for explaining exploration.

## **Discussion**

### ***Theoretical Relevance***

This study contributes to literature on entrepreneurial behavior in companies and to literature on M&A transactions. The research specifically contributes to the scarce research investigating entrepreneurial phenomena in M&A (Thomson & McNamara, 2001). This is especially important because M&A transactions are means for growing and developing companies strategically (Angwin, 2007; Christensen et al., 2011). More, specifically the contribution of entrepreneurial leadership, as a means of strategic entrepreneurship (Ireland et al., 2003; Ireland & Webb, 2007), to M&A performance is investigated by showing how entrepreneurial leadership fosters post-merger exploitation and exploration innovation outcomes which in turn positively influence M&A performance. Especially, exploration innovation in the post-merger stage is driven through entrepreneurial leadership. The study therefore provides evidence that strategic entrepreneurship means can facilitate balancing exploitation and exploration activities (Ireland et al., 2003; Ireland & Webb, 2007) in M&A transactions with a greater emphasis on exploration. This might reflect the nature of exploration which is associated to greater risk and uncertainty (March, 1991) and as a consequence needs greater efforts in order to be successful.

During the post-merger integration stage, entrepreneurial leadership triggers opportunity recognition and exploitation among employees which provides the merged entity with fertile opportunities to pursue exploitation as well as exploration innovation activities. Entrepreneurial leadership practices should therefore encompass the articulation of a rousing vision, stimulating creativity and boundary spanning thinking as well as creating a supportive context (Ardichvili et al., 2003; Podsakoff et al., 1990; Renko et al., 2015) in which post-merger integration takes place. Thus, the entrepreneurial context in which the acquiring organization seeks to realize synergies when integrating a target enables followers to recognize viable opportunities for stimulating innovation activities in the merged entity. These innovation activities are of exploitative and explorative nature sustaining a strategic

entrepreneurship emphasis in the organization. This strategic entrepreneurship focus especially guarantees that acquirers sustain long term profitability by laying a stronger focus on exploration innovation activities. The study at hand therefore complements prior case study research by Thomson and McNamara (2001) showing that entrepreneurial behavior during transactions stipulates long term success. We extend this research by showing how strategic entrepreneurship activities, respectively entrepreneurial leadership, secure transaction success through the realization of exploitation and exploration opportunities in post-merger integration. Especially, potential exploration innovation activities are leveraged. Future research can build on these findings and investigate further means of strategic entrepreneurship practices in M&A transactions.

A further contribution of this research is the investigation of an important contingency factor of entrepreneurial behavior: environmental hostility (Covin & Slevin, 1989; Zahra & Covin, 1995) that has been largely neglected in prior M&A research (Haleblian et al., 2009; Schriber, 2016). This research provides a unique insight into this contextual influence by investigating industry-wide environmental hostility and specifically environmental hostility in the market of the target. In this respect, we also contribute to the discussion of whether environmental hostility exerts beneficial influences on entrepreneurial behavior or not (Covin & Slevin, 1989; Miller & Friesen, 1983). This research provides a finer grained picture of this issue: While an industry-wide environmental hostility diminishes the positive outcomes of entrepreneurial leadership on exploitation during acquisitions, target market environmental hostility diminishes the positive outcomes on exploration. Thus, this research adds to the notion that the impact of environmental hostility on an entrepreneurial strategic posture is dependent on contingencies (Rosenbusch et al., 2013). According to this research the impact of entrepreneurial behavior depends upon the level of environmental hostility.

Entrepreneurially lead companies pursuing M&A transactions under conditions of industry-wide environmental hostility will rather engage in exploration innovation. The harsh environmental context diminishes the benefits of exploitation orientation because such incremental developments do not allow acquirers to develop a sufficient level of competitiveness. Increases in efficiency and cost savings associated to exploitation (Benner & Tushman, 2003; He & Wong, 2004) will not last long in highly competitive environments. Furthermore, in such settings exploitation may lead to incremental innovations which do not meet the requirements of a fast changing competition or demand. Focusing on exploration activities after M&A under such conditions seems promising albeit all risks involved, because research provides evidence that success rates of explorative innovations increase in such situations (Calantone et al., 1997). Exploration might therefore be the viable option for creating more sustainable competitive advantages.

However, hostile conditions in the target market yield a completely different picture. In such settings the positive influence of entrepreneurial leadership on exploration is diminished. This is in line with other investigations of exploratory company innovation activities. For instance, in terms of exploration under intense competition, Anand, Mesquita, and Vassolo (2009: 814) conclude that "... firms may be less prone to trigger entry wars in new markets, since they are uncertain about the value of future technologies". Furthermore, competitors will engage in retaliation as a reaction to market entries (Gatignon, Anderson, & Helsen, 1989; King & Schriber, 2016). Such threats become more tangible because of the distinct situation in a specific target market. Together with the difficulties of acquiring resources such as financial and human capital in hostile environments (Rosenbusch et al., 2013), acquirers might refrain from pursuing exploration because risk and uncertainty are inflated. Instead, turning to exploitation based on refining familiar and partly existing knowledge (He & Wong, 2004; Nielsen, 2010) could counteract target market environmental hostility. This might be

especially important as post-merger integration is always a phase of ambiguity and uncertainty which might be triggered even further the more tangible hostile conditions are.

Another contribution derives from the control variable acquisition experience. We show that transaction experience is beneficial for leveraging specific innovation outcomes, but not for M&A performance in general. Acquisition experience can be seen as an indicator for developed acquisition routines and practices (Al-Laham, Schweizer, & Amburgey, 2010; Nikandrou & Papalexandris, 2007). Experience should have beneficial effects, if acquirers codify their lessons learnt from prior acquisitions (Zollo & Singh, 2004). We assume that tight codified processes disregard the flexibility and degrees of freedom in decision making needed for entrepreneurial leadership. Future research should investigate the tension between the need of codification and flexibility during post-merger integration.

In their review of ambidexterity literature, O'Reilly and Tushman (2013: 332) conclude that "what remains less clear is the role of senior team and leadership behaviors in attending to the contradictory demands of exploration and exploitation." We contribute to previous literature on the role of leadership in achieving ambidexterity (e.g. Alexiev, Jansen, Van den Bosch, & Volberda, 2010; Carmeli & Halevi, 2009) by showing that entrepreneurial leadership influences both, exploitation and exploration and that this relationship is moderated by some situational variables. Furthermore, our results point towards a stronger emphasize on exploration innovation of entrepreneurial leaders which might shift the ambidexterity balance of a company towards the more risky avenue of exploration. However, especially under the condition of a general or industry wide hostile environment this might be the more promising answer as there is evidence that success rates of explorative innovations increase in such situations (Calantone et al., 1997). However, target market conditions have to be taken into account in this respect.

### ***Managerial Relevance***

Companies should foster strategic entrepreneurship means like entrepreneurial leadership when pursuing company development strategies encompassing M&A. Furthermore, when a company's general industrial environment is characterized through hostility (e.g. intense competition) the influence of entrepreneurial leadership on exploitation innovation is dampened while its positive influence on exploration innovation remains unchanged. Thus, in general entrepreneurial leadership is a viable opportunity to promote exploration innovation which has been shown to be a more powerful answer to environmental hostility (Calantone et al., 1997; Zahra, 1996). However, in situations such as entering a specific hostile market, entrepreneurially lead acquirers turn to rather exploitation based strategies in order to counteract environmental hostility. Entrepreneurial leadership does not lead to blindly following opportunities characterized by uncertainty, but rather to balancing the risks and benefits of exploration and exploitation. Thus, M&A managers are advised to create a supportive context during post-merger integration by pursuing entrepreneurial leadership practices. Managers should stimulate follower commitment to create an innovative merged entity. Triggering opportunity recognition and exploitation through providing followers with the appropriate vision and the safety to follow innovative ideas are important means for leadership initiatives during post-merger integration. In this respect, leaders also have to act as role models for their followers following an entrepreneurial mind set. This enables followers to also act entrepreneurial by triggering their commitment to innovation and proactivity, but taking possible excessive risks into account.

Acquisitions offer firms several pathways to success. An increase in exploration as well as exploitation activities can lead to M&A performance. While the beneficial effects of entrepreneurial leadership on exploitation are highly risky under conditions of environmental hostility, the path on exploration is rather robust for external effects. Anyway, highly developed and codified acquisition routines and processes are a false friend for managers as



the potential for a generalization error increases. As acquisition integration is “project management to its fullest” (Vester, 2002: 36) there is a clear need for flexibility. Additionally, to unfold the beneficial effects of entrepreneurial leadership, firms should guarantee sufficient degrees of freedoms in decision making to their integration managers. However, despite the need for flexibility managers should care about the transparency during the integration as in-transparency could lead to organizational resistance.

### ***Limitations and Outlook***

This study is not free of limitations. First, it takes some time until all relevant activities of M&A transactions have been completed and the success of M&A transactions can be measured. Usually research proposes a time span of three to five years to measure the success of a transaction (Homburg & Bucerius, 2006). As a consequence, this study faces the problem that the key informants might not remember every detail of a transaction as a considerable amount of time has passed. This might decrease the capacity of recollection of key informants and therefore measurement reliability (Sudman & Bradburn, 1973). However, post-merger integration activities determine if an M&A transaction is successful or not. Usually, this period extends to several years and makes it necessary to elicit data after the post-merger integration phase has been completed (Ellis et al., 2009; Homburg & Bucerius, 2006; Zollo & Meier, 2008).

Second, our sample only covers the German speaking part of central Europe. Future research initiatives could therefore investigate the proposed relationship in other regions. Third, in our study, we focused on transactions from acquirers in manufacturing industries in Austria, Germany and Switzerland that were completed between 2008 and 2011. Cerrato et al. (2016) show that during an economic crisis, firms tend to change their acquisition behavior and focus more on their core business and home market, reducing the exploration of new industrial and geographical markets. They also found that during an economic crisis both, the

negative relationship between diversifying acquisition and performance and the positive relationship between cross-border acquisitions and performances, are weakened. While these findings do not affect the main effects in our model (entrepreneurial leadership-exploration/exploitation, and exploration/exploitation-M&A performance), they might be interesting moderators of the relationships. Literature has shown that several facets of entrepreneurial leadership are particularly relevant for resilience, survival, adaptability, and growth during an economic crisis (e.g. Juha, Kaisu, Helena, & Pasi, 2012; Pal, Torstensson, & Mattila, 2014; Patel, Thorgren, & Wincent, 2015). Hence, the relationships between entrepreneurial leadership and exploration/exploitation, and the relationship between exploration/exploitation and M&A performance might be contingent on an economic crisis. As there is very little research on the role of economic crises in M&As and their antecedents and consequences, this would be an interesting question for future research. To test effects of the economic crisis however, a context is needed, where the impact of the crisis is particularly strong (Cerrato et al., 2016). Of the four observation years in our study, only 2009 has shown a negative GDP growth in these countries (whereas Italy, which was the focus in Cerrato et al.'s (2016) study, performed much worse: GDP per capita in the period 2008-2012 was -7% versus +3.1% in Germany).

Additionally, our results might not be comparable to other industries and sectors, as we focused on rather traditional ones. Thus, future research should compare the acquisition behavior of firms operating in different industries and the acquisition behavior of different types of firms like younger or older firms, family firms and non-family firms.

Fourth, our study focuses on full-acquisitions and ignores partial acquisitions as a potential entry mode or acquisition strategy. Our motivation for this restriction was to avoid biases caused by minority shareholder rights that can challenge management decisions and have serious impact on the ability to reorganize a target (Capron & Guillen, 2009). Anyway,

future research should investigate how institutional differences impact an acquiring firm's ability to reorganize a target firm in partial and full acquisitions. Fifth, like other research in the field of M&A, this study faces the problem of having to cope with a small sample size (e.g. Dao et al., 2017; Homburg & Bucerius, 2006) which is why this research applied PLS structural equation modelling. Although, PLS has been shown to achieve statistical power also with very small samples (Henseler et al., 2014; Reinartz et al., 2009), potential biases cannot be ruled out completely.

Furthermore, cross-cultural influences on the influence of entrepreneurial leadership driving M&A transactions could be investigated more detailed. The study results also revealed that cross-border acquisitions show higher M&A performance. Thus, future research should further investigate such cross-border settings using more fine grained measures describing the cross-border context and enabling to detect the reasons for potential differences. For instance, the impact of distinct institutional settings would make a fertile future research opportunity. Finally, the study is cross-sectional in nature. Thus, future research should study the proposed hypotheses in longitudinal settings.

## **Conclusion**

In closing, our research contributes to acquisition research in several ways. First, we demonstrate that entrepreneurial leadership is important for acquisition implementation and thus, for acquisition performance. Second, we give evidence that acquisitions provide firms several pathways to performance via exploration and exploitation. Third, the diverging results on the contingency factors of industry-wide and target market environmental hostility give evidence that acquisition performance does not solely derive from internal reconfiguration and realignment measures but is additionally impacted by external circumstances.

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