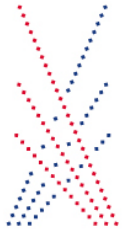

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The Interdependence of Entrepreneurial Orientation and Organisational Learning in Explaining New Product Performance: A Configurational Approach

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Abstract

This study examines how entrepreneurial orientation interacts with organisational learning to affect new product performance. Based on a configurational perspective using fuzzy set qualitative comparative analyses (fsQCA), it explores the combinations of entrepreneurial activities (i.e., innovativeness, risk-taking, and proactiveness) and organisational learning activities (i.e., exploration and exploitation) that are conducive to high new product performance within small and medium-sized enterprises (SMEs). Using data from 110 UK SMEs, it was found that while innovativeness, risk-taking, and proactiveness can be elements for high product performance, none of them is a necessary or sufficient condition on its own. Similarly, neither exploration nor exploitation is a necessary or sufficient condition for high product performance. The results demonstrate that the presence of high product performance requires a combination of entrepreneurial and organisational learning activities, implying that they complement each other to impact new product performance. Furthermore, the configurations for high product performance vary according to different contextual factors in terms of market turbulence and firm size. The present study contributes to the literature by uncovering the interdependence of entrepreneurial orientation and organisational learning in affecting new product performance. It also offers useful guidelines for practitioners on how to configure bundles of entrepreneurial and organisational learning activities for better new product performance.

Keywords:

Entrepreneurial Orientation; Organisational Learning; New Product Performance; SMEs; Fuzzy-Set Qualitative Comparative Analysis.

1. Introduction

Organisations often rely on successful new products to renew themselves and maintain a competitive advantage as their existing products can become obsolete quickly in a fast-changing business environment with increasing competition and shortening product life-cycles (Wu 2012; Wang, Senaratne, and Rafiq 2015). Indeed, the survival and growth of organisations often depends on the success of new products they introduced (Roper 1997; Ledwith and O'Dwyer 2009; Alegre and Chiva 2013). It is thus not surprising that increasing research efforts have been devoted to understanding the factors that contribute to new product performance (Henard and Szymanski 2001; Langerak, Hultink, and Robben 2004; Nakata and Im 2010; Li et al. 2013; Grimpe et al. 2017). Research has shown that, for example, entrepreneurial orientation (EO) significantly impacts new product performance (Hughes and Morgan 2007). Furthermore, evidence suggests organisational learning is also related to the performance of new products (Atuahene-Gima and Murray 2007; Tsai and Huang 2008; Wei, Yi, and Guo 2014).

While both EO and organisational learning have been found to significantly influence new product performance (Hughes and Morgan 2007; Tsai and Huang 2008; Wei, Yi, and Guo 2014), prior research tends to examine the two sets of activities separately. As such, little is known about the potential interdependence between them in affecting new product performance. In particular, it remains unclear whether high new product performance can be achieved by entrepreneurial activities or organisational learning activities alone, or whether its presence requires these two sets of activities to complement each other. Since EO and organisational learning are resource intensive activities (Rauch et al. 2009; Junni et al. 2013), there are reasons to expect that firms might not be able to pursue all activities simultaneously due to resource constraints. To prevent overstretching the limited resources firms have, for example, they might need to be strategic in deciding the bundle of activities they pursue. Hence, it is imperative to better our understanding of whether EO complements or substitutes organisational learning to affect new product performance. Recent evidence suggests EO interacts with organisational learning to impact firm performance (Hughes et al. 2018). It is likely, therefore, that the interplay between them might also influence new product performance.

Accordingly, this study draws on EO and organisational learning literature and explores the combinations or configurations of entrepreneurial activities (innovativeness, risk-taking, and proactiveness) and organisational learning activities (exploration and exploitation) that are conducive to high new product performance (hereafter referred to high performance). In so doing, we aim to shed light on the potential interdependence between them in affecting new product performance. Research based on the contingency perspective suggests the performance of new products depends on the alignment between firms' strategies and their environment (Gatignon and Xuereb 1997; Droge, Calantone, and Harmancioglu 2008; Acur, Kandemir, and Boer 2012). Hence, the present study also examines how the configurations vary under different contextual factors in terms of market turbulence and firm size. The extent of market turbulence might determine the levels of needs for firms to pursue entrepreneurial and organisational learning activities (Jaworski and Kohli 1993), whereas firm size determines the amount of resources that are available for such activities (Audia and Greve 2006; Plambeck 2012). The context of small and medium-sized enterprises (SMEs) is the focus because they are constrained by limited resources (Rosenbusch, Brinckmann, and Bausch 2011; OECD 2017), and, thus, have greater needs to be more strategic in the activities they pursue.

A sample of 110 UK SMEs was used in this study. It adopted the configurational perspective using the fuzzy-set qualitative comparative analyses (fsQCA) for three reasons. First, the configurational perspective suggests that different conditions might influence the outcome in combination rather than operate independently from one another (Ragin 2008; Greckhamer 2016). As Dess et al., (1993, 776) noted, it "allows researchers to express complicated and interrelated relationships among many variables without resorting to artificial oversimplification of the phenomenon of interest". As such, it can help to uncover the potential interdependence between EO and organisational learning in affecting new product performance. Second, the configurational perspective posits that several paths or configurations often produce the same outcome (Ragin 2008; Fiss 2007; Fiss 2011). Hence, it can help to identify potentially multiple pathways that are conducive to high new product performance. Third, increasing studies have shown that fsQCA is a useful technique to identify configurations of conditions

that produce a certain outcome (Hofman, Faems, and Schleimer 2017; Goduscheit and Faullant 2018; Hughes et al. 2018; McKenny et al. 2018).

The present study contributes to the literature in several ways. It expands the EO and organisational learning literature by uncovering that the presence of high new product performance requires a combination of entrepreneurial activities with organisational learning activities, suggesting the interdependence of EO and organisational learning in shaping new product performance. That is, EO complements organisational learning, and vice versa, to influence new product performance. Furthermore, it contributes to EO research by showing that innovativeness, risk-taking, and proactiveness are likely to impact new product performance in combination rather than in isolation because the presence of high performance often requires a combination of two EO dimensions. As such, beyond the independent effects, research should consider the interactive effects of individual EO dimensions in affecting new product performance.

Moreover, it contributes to organisational learning literature by demonstrating that exploration and exploitation are likely to substitute for each other within resource-constrained firms because the presence of exploration is often accompanied by the absence of the other, and vice versa. Finally, by adopting a configurational perspective using fsQCA, the present study contributes to the new product performance literature by showing that firms can obtain high performance through multiple configurations or paths. That is, different combinations of EO and organisational learning can be effective in leading to the same outcome. The findings provide useful guidance for practitioners on how to configure the portfolio of entrepreneurial and organisational learning activities for high new product performance.

2. Theoretical Framework

2.1. Entrepreneurial Orientation and New Product Performance

EO refers to "the processes, practices, and decision-making activities that lead to new entry" (Lumpkin and Dess 1996, 136). While EO is often conceptualised as a unidimensional construct (Rauch et al. 2009; Van Doorn et al. 2013; Baker, Grinstein, and Harmancioglu 2016), increasing studies have

adopted a multidimensional view by examining the dimensions of EO independently because they can be distinct (Hughes and Morgan 2007; George and Marino 2011; Dai et al. 2014; Hughes et al. 2018). Indeed, recent research has highlighted that innovativeness, risk-taking, and proactiveness, the three EO dimensions, have differential impacts on organisational performance (Kreiser et al. 2013; Dai et al. 2014). Hence, this study adopts the multidimensional view of EO by examining the dimensions separately. This approach can help to generate a more fine-grained understanding of their influences on new product performance.

Innovativeness. Lumpkin and Dess (1996, 142) suggest innovativeness concerns firms' willingness to "engage in and support new ideas, novelty, experimentation, and creative processes that may result in new products, services, or technological processes". As such, innovativeness will likely lead to the development of innovative new products. Indeed, it has been found that innovativeness positively influences the quantity of new products introduced by a firm (Pérez-Luño, Wiklund, and Cabrera 2011). Firms that have high levels of innovativeness also have a higher chance to stand out from the competition and establish a differentiation advantage through their innovative new products (Porter 1980; Kleinschmidt and Cooper 1991; Linton and Kask 2017). As such, the innovative new products introduced by such firms might yield better performance. Consistent with this view, evidence suggests innovativeness positively influence new product performance (Hughes and Morgan 2007; Frishammar and Hörte 2007).

It should be highlighted that, however, innovativeness is not the only approach for firms to obtain high performance. Research suggests firms might use imitation strategy to introduce "me-too" products or enhanced products based on existing ones in the market (Schnaars 2002; Zhou 2006). For example, firms might benefit from the imitation strategy by avoiding the uncertainties associated with innovation. As Rosenbusch et al., (2011, 445) pointed out, "If SMEs devote a significant proportion of their resources to the innovation task, yet, are unable to generate a return on their resource investments, their existence and development can be threatened". Furthermore, innovation requires substantial resources in terms of upfront investment for research and development and for developing innovation related capacity (van de Ven 1986; Kreiser et al. 2013). Thus, some firms may prefer imitation over innovation

due to potential constraints on resources and capabilities. Literature has highlighted that some firms might gain more benefits from imitation than innovation (Schnaars 2002; Nelson and Winter 2004). These arguments suggest although innovativeness can contribute to new product performance, it is not a necessary condition for high performance.

Risk-taking. Firms' tendency towards risk-taking is reflected in how resources are allocated and the types of products and markets firms pursue (Pérez-Luño, Wiklund, and Cabrera 2011). Similarly, Li et al., (2008, 119) suggest risk-taking is manifested through the propensity to "borrow heavily, invest in unexplored technologies, or bring new products into new markets". On the one hand, risk-taking may be an inextricable element for firms to obtain high performance. For example, unless firms are willing to tolerate the risks involved in developing and launching new products, they may refrain from such activities (Hult, Hurley, and Knight 2004). In other words, without the willingness to tolerate risks by committing time and resources (Hultink et al. 1997), no new products will ever be introduced to the marketplace. Indeed, firms that are risk tolerant tend to direct more attention and efforts in pursuing new opportunities (Wiklund and Shepherd 2003). Furthermore, risk-taking has been found to positively impact the quantity of new products introduced by a firm (Pérez-Luño, Wiklund, and Cabrera 2011).

On the other hand, risk-taking might hamper new product performance as it involves a chance of failure (Morgan and Strong 2003; Alvarez 2007). While increasing levels of risk-taking might generate greater returns, the probability of failure is also higher (Alvarez 2007). This might explain why increasing levels of risk-taking is negatively related to new product performance (Hughes and Morgan 2007). Since risk-taking entails uncertain outcomes, firms need greater slack resources to absorb potential losses from such activates. SMEs are often risk-averse due to lack of resources (Rosenbusch, Rauch, and Bausch 2013; OECD 2017). Indeed, it has been found that resources availability is positively related to risk-taking behaviours, whereas the absence of slack resources tends to reduce risk-taking (Singh 1986; Steensma and Corley 2001). Therefore, while risk-taking might contribute to new product performance, it is not a necessary condition for firms to obtain high performance.

Proactiveness. Proactiveness refers to the "forward-looking, first mover advantage-seeking efforts to shape the environment by introducing new products or processes ahead of the competition" (Lyon,

Lumpkin, and Dess 2000, 1056). It has two important implications for organisations. First, being proactive in anticipating future market demand allows firms to establish a first-mover advantage by launching new products before competitors. As such, proactive firms will likely become the leader in the marketplace rather than a follower (Lumpkin and Dess 1996). Second, introducing new products ahead of the competition also enables firms to shape the market environment (Smith and Cao 2007). This implies that competitors will need to react or respond to the initiatives of proactive firms. Hence, increasing levels of proactiveness might contribute to the performance of new products. Consistent with this view, proactiveness has been found to positively impact new product performance (Hughes and Morgan 2007).

However, literature has highlighted that "being first in a new market may not confer automatic long-term rewards. An alternative strategy worth considering may be to let other firms pioneer and explore markets and enter after learning more about the structure and dynamics of the market" (Golder and Tellis 1993, 169), implying that followers can benefit from the vicarious learning from pioneers (Srinivasan, Haunschild, and Grewal 2007). This might explain why followers tend to enjoy a lower rate of product failure than pioneers (Golder and Tellis 1993). Furthermore, prior research has highlighted that late entrants can outperform pioneers in both high-technology and low-technology industries (Schnaars 2002). As such, it is likely that firms can obtain high performance without the presence of high proactiveness. Accordingly, while proactiveness can enhance new product performance, it is not a necessary condition for high performance.

2.2. Organisational Learning and New Product Performance

Beyond EO, organisational learning activities in terms of exploration and exploitation also significantly influence new product performance (Atuahene-Gima and Murray 2007; Wei, Yi, and Guo 2014). Exploration requires firms to venture into areas beyond their existing product and market expertise (Katila and Ahuja 2002). As such, the exploration process can often lead to the development of new knowledge bases with regard to product, customer, market, or technology. The new knowledge can then be used by firms to inform the development of new products and contribute to better new product

performance (Cao, Gedajlovic, and Zhang 2009). Furthermore, the exploration process entails experimenting with new alternatives that might lead to the development of new competencies (March 1991; Baum, Li, and Usher 2000; Gupta, Smith, and Shalley 2006). The expansion of new competencies might enhance new product performance as it allows firms to strengthen their ability in identifying and evaluating potential new product opportunities (Danneels 2002).

By contrast, the exploitation process concerns local search and building upon firms' existing routines and experiences (March 1991; Baum, Li, and Usher 2000; Atuahene-Gima and Murray 2007). In other words, exploitation allows firms to refine their existing knowledge base and competencies. As a result, the exploitation process can enhance the efficiency of organisations (Simsek 2009), which allows firms to reap more benefits from their new products. It should be noted that, however, organisations that pursue exploitation without exploration can result in a "suboptimal stable equilibria", whereas those that pursue exploration without exploitation can lead to "too many undeveloped new ideas and too little distinctive competence" (March 1991, 71). This implies that the success of organisations requires both exploration and exploitation (March 1991; Lavie, Stettner, and Tushman 2010; Junni et al. 2013). Following the same line, firms that exhibit high levels of both exploration and exploitation are more likely to obtain better new product performance. In line with this view, evidence suggests the interactive dimension of exploration and exploitation is positively associated with new product performance (Wei, Yi, and Guo 2014).

Nevertheless, exploration and exploitation often compete for organisational resources (March 1991; Gupta, Smith, and Shalley 2006), implying that it can be challenging for resource-constrained SMEs to pursue them simultaneously. When organisations allocate more resources to exploration activities, for example, fewer resources will be available for the other, and vice versa. Furthermore, exploration and exploitation might require different supporting organisational structures and mindsets (Tushman and O'Reilly 1996; Smith and Tushman 2005). Prior research has highlighted that separate structural subunits with different systems, processes, and cultures might be necessary for pursuing both activities (Benner and Tushman 2003). One potential mechanism to balance the need for exploration and exploitation is through the "temporal cycling between long periods of exploitation and short bursts of

exploration" (Gupta, Smith, and Shalley 2006, 698). This implies that firms might benefit from exploration and exploitation without exhibiting high levels of both activities at the same time. Accordingly, it is likely that firms' attainment of high performance might or might not entail the presence of exploration and exploitation simultaneously.

2.3. The Role of Market Turbulence

Research following the contingency perspective suggests the effects of EO (Rauch et al. 2009; Rosenbusch, Rauch, and Bausch 2013; Núñez-Pomar et al. 2016) and organisational learning (Bierly and Daly 2007; Wang and Li 2008) on organisations are contingent on the environment in which firms operate. In line with this view, it is likely that the effects of entrepreneurial and organisational learning activities on new product performance might also depend on the environmental context of organisations. Hence, it is expected that the configurations of EO and organisational learning for high performance will vary under different environmental context. This study focuses on market turbulence, which refers to the extent of changes in the preferences and composition of customers (Jaworski and Kohli 1993). The significance of entrepreneurial activities on the performance of new products will likely depends on the extent of changes in consumer demands. For example, customer preferences will likely change rapidly in a turbulent market environment (Miller and Friesen 1983), implying that organisations' products will become obsolete quickly. As such, firms might need to be more proactive in replacing existing offerings with innovative new products to obtain high new product performance.

Market turbulence also underlines the needs of firms to engage in organisational learning. For example, the competitive pressure caused by market turbulence requires higher capability of organisations to process new information (Wang 2001). Literature suggests customer requirements will change more rapidly in a turbulent than a stable environment (Buganza, Dell'Era, and Verganti 2009). As a result, the product life cycles, as well as firms' existing competencies, will be short-lived in a turbulent environment (Wu 2012; Wang, Senaratne, and Rafiq 2015). Firms operating in a turbulent market environment tend to have greater needs to engage in exploration to expand their knowledge bases as well as develop new competencies (Gupta, Smith, and Shalley 2006; Simsek 2009). By contrast, firms

operating in a stable market environment may rely on exploitation to enhance efficiency (He and Wong 2004). These arguments suggest the importance of the different entrepreneurial and organisational learning activities depends on the market environment in which firms operate. Thus, the configurations for high performance will likely vary between firms operating in different levels of market turbulence.

2.4. The Role of Firm Size

It is expected that the configurations of EO and organisational learning for high performance will also vary between firms in different sizes. Firm size determines the availability of resources for pursuing entrepreneurial and organisational learning activities (Audia and Greve 2006; Plambeck 2012). Pursuing a wide range of entrepreneurial and organisational activities at the same time might overstretch the limited resources SMEs have. Depending on their relative firm size, and thus resource availabilities, firms might exhibit different patterns or bundles of entrepreneurial and organisational activities that are associated with high performance. Increase in firm size, for example, has been found to enhance firms' intention for innovation (Beynon et al. 2016). Furthermore, firm size might influence the complexity of organisational structures (Aldrich and Auster 1986). Firms with a simple organisational structure tend to have higher flexibility in adapting to changes in the market environment or customer demands (Calantone, Benedetto, and Divine 1993; Kandemir and Acur 2012), implying that such firms are better positioned to adjust their activities that might impact new product performance. These arguments suggest the configurations for high performance can be shaped by the size of organisations.

3. Method

3.1. Sample and Data Collection

A sample of 5,000 SMEs (e.g., less than 250 employees) based in England, United Kingdom, was randomly selected from the financial analysis made easy (FAME) database. With the samples selected, only 1,542 firms provide contact details for their top executives (e.g., chief executive officer, managing director, or business owner). This study used top executives as target informants as they are more likely to have complete knowledge of firms' operations (Covin and Wales 2018). In May 2015, the top

executives of those 1,542 firms were contacted through an invitation email for data collection. Yet, the invitation email reached only 1,388 firms as some emails failed to deliver due to invalid email addresses or the executives have left the firm. After three rounds of follow-ups, 157 responses were collected. The response rate is about 11.3 percent based on the 1,388 firms reached. Of the 157 responses collected, 47 cases with missing data on focal variables were removed. Hence, 110 usable responses were used for further analysis. The average firm age was 30.4 years. The firms differ in size with 22 firms have fewer than ten employees, 36 firms have 11-50 employees, and 54 firms have 51-250 employees.

3.2. Measures

The survey questions that are used to measure the outcome variable and causal conditions are shown in the Appendix. All constructs except firm size were measured by five-point Likert scales. The summed values of the items were used to represent the constructs used in the present study.

Outcome of interest. New product performance was measured by asking respondents to assess the performance of their new products relative to their objectives on five elements: sales, market share, profitability, return on investment, and customer satisfaction. The items were adapted from Atuahene-Gima and Murray (2007) and Akgün et al., (2006).

Causal conditions. Innovativeness, risk-taking, and proactiveness were measured following the widely used nine-item scale in EO research (Covin and Slevin 1989; Rauch et al. 2009; Covin and Wales 2012). Each dimension was measured with three items. Exploration and exploitation were measured with four items each adapted from Atuahene-Gima and Murray (2007).

Contextual factors. Market turbulence was measured with a three-item scale adapted from Jaworski and Kohli (1993). Firm size was captured by asking respondents to indicate the number of employees within their firms based on three categories: less than 10, more than 10 but less than 49, and more than 50 but less than 250. Firms in the first two categories were considered as small firms with the remaining ones as medium-sized firms.

3.3. Measure Assessment

Exploratory factor analysis was first applied to assess whether the survey items used in this study capture the intended latent construct. The results show two of the items, one for new product performance and one for market turbulence, were not loaded on the intended construct. The two items were then removed from further analysis. After that, a confirmatory factor analysis (CFA) with a seven-factor measurement model was estimated. The results from CFA demonstrate a good model fit with confirmatory fit index (CFI) = .91, root mean squared error of approximation (RMSEA) = .07, χ^2 (d.f.) = 314.605 (209), although the model is significant ($p < 0.01$). As shown in Appendix 1, all factor loadings were above .40. All Cronbach's alpha and composite reliability were above the recommended value of 0.7 except for market turbulence (α=0.69), which is considered acceptable (Hair et al. 2014). The average variance extracted (AVE) of all constructs were greater than the recommended level of .50 (Bagozzi and Yi 2012). Furthermore, the square root of the AVE of each construct was higher than its correlations with other constructs, as shown in Table 2. These results demonstrate adequate reliability and validity of the measures.

4. Analyses and Results

4.1. Data Analysis Method

Table 1 shows the descriptive statistics and correlations of the variables. The configurations of EO and organisational learning for high performance were examined using fsQCA 3.0 software (UC 2017) with three steps. The first step is to transform or calibrate the variables into fuzzy membership scores ranging from 0 to 1 (Ragin 2008). A membership score of 0 designates "full non-membership", while 1 corresponds to "full membership", and 0.5 represents the "cross-over point". Following prior research (Ruiqi et al. 2017; Linton and Kask 2017; Scholer et al. 2010), this study sets the 10th, 50th, and 90th percentiles of the data to corresponding to the full non-membership, cross-over point, and full membership, respectively (Table 2). It should be noted that the fsQCA software program automatically excludes cases with a membership score of 0.5 because this value signals maximum ambiguity (Ragin

2008). That is, the software cannot determine the condition is present or absent. To ensure no cases are neglected during the analysis, a 0.001 was added to cases with a membership score of 0.5 following Fiss (2011).

Table 1

Descriptive Statistics and Correlations

	Mean	S.D.	1	2	3	4	5	6	7
1. Innovativeness	9.99	2.54	**.735**						
2. Risk-taking	8.58	2.92	.492**	**.824**					
3. Proactiveness	9.62	2.76	.515**	.468**	**.736**				
4. Exploration	11.62	2.99	.358**	.465**	.249**	**.722**			
5. Exploitation	14.69	2.50	.061	.033	.029	.101	**.774**		
6. Market turbulence	6.84	1.62	.335**	.253**	.237*	.080	.022	**.823**	
7. New product performance	13.85	2.65	.409**	.108	.358**	.084	.130	.187	**.812**

Notes: N = 110. Bold numbers represent the square root of the average variance extracted

Second, a truth table with 2^k rows was constructed, where k refers to the number of conditions included (Rihoux and Ragin 2009). Given that the present study includes 7 conditions, there are 128 (2^7) distinct configurations possible in the truth table. The configurations with a minimum number of one case were retained and those contain no empirical cases were then removed from the truth table. Setting the threshold as 1 is appropriate as it allows us to ensure the retained configurations capture at least 75-85% of the total cases (Ragin 2008). Following Misangyi and Acharya (2014), this study uses a minimum raw consistency of 0.80 as well as a proportional reduction in inconsistency (PRI) consistency of 0.75 to distinguish configurations that are associated with the presence of high performance from those that are not.

Table 2

Thresholds for Data Calibration using fsQCA

	Full Non-Membership	Cross-over point	Full Membership
1. Innovativeness	7.0	10.0	14.0
2. Risk-taking	4.1	9.0	12.0
3. Proactiveness	6.0	9.0	13.0
4. Exploration	8.0	12.0	15.0
5. Exploitation	12.0	15.0	18.0
6. Market turbulence	4.0	7.0	9.0
7. New product performance	11.0	14.0	16.9

In the final step, the rows retained in the truth table are combined using Boolean algebra to derive the solutions (Fiss 2007; Fiss 2011; Ragin 2008; McKenny et al. 2018). The fsQCA software provides three types of solutions: "complex", "parsimonious", and "intermediate" solutions (Ragin 2008). Consistent with prior studies, the intermediate solution is used because it entails all necessary conditions and is considered superior to the other solutions (Ragin 2009; Núñez-Pomar et al. 2016; Pittino, Visintin, and Lauto 2017; Hughes et al. 2018).

4.2. Configurations for High Performance

Table 3 presents the configurations of entrepreneurial and organisational learning activities for high new product performance. The results suggest high performance can be obtained through six different configurations or paths. Configurations 1 to 4 show the different combinations of conditions required for small firms operating in a turbulent market environment to achieve high performance. Configuration 1 suggests a combination of high levels of risk-taking, proactiveness, and exploration are conducive for high performance. Configuration 2 illustrates that high innovativeness, high exploitation combined with the absence of high risk-taking and exploration can produce high performance. While both configuration 3 and 4 consist of the combination of high innovativeness and high proactiveness, the former entails the presence of high exploration and the absence of high exploitation, whereas the latter includes the absence of high exploration and the presence of high exploitation.

Configuration 5 shows the causal conditions needed for small firms operating in a stable market environment to obtain high performance. It consists of four conditions including high levels of innovativeness, proactiveness, exploration, and exploitation. Configuration 6 shows the causal conditions required for medium-sized firms operating under a turbulent market environment to realise high performance. It consists of the combination of high innovativeness, high risk-taking, high exploitation combined with the absence of high exploration. As shown in Table 3, the unique coverage refers to the proportion of instances of the outcome explained by the configuration (Ragin 2008), varies between the six configurations. This implies that while firms can obtain high performance by different configurations, the relative importance of each configuration differs. Since the unique coverages of Configuration 1, 5, and 6 are much higher than the remaining three configurations, they tend to have stronger empirical relevance. The overall solution consistency is 0.92, much higher than the threshold value of 0.80 (Ragin 2008).

Table 3

Causal Configurations for High New Product Performance

Causal Conditions	1	2	3	4	5	6
Innovativeness		●	●	●	●	●
Risk-taking	●	○				●
Proactiveness	●		●	●	●	
Exploration	●	○	●	○	●	○
Exploitation		●	○	●	●	●
Market turbulence	●	●	●	●	○	●
Medium-sized firms	○	○	○	○	○	●
Consistency	0.95	0.95	0.96	0.96	0.90	0.93
Raw coverage	0.25	0.13	0.17	0.15	0.17	0.12
Unique coverage	0.04	0.01	0.01	0.01	0.03	0.12
Overall solution consistency	0.92					
Overall solution coverage	0.46					

● (○) indicates the presence (absence) of the condition

5. Discussion and Conclusion

While EO and organisational learning have been found to significantly influence new product performance, prior research tends to examine them separately (Hughes and Morgan 2007; Tsai and

Huang 2008; Wei, Yi, and Guo 2014), suggesting that the potential interdependence between EO and organisational learning is largely ignored. To address this limitation, this study aimed to explore the configurations of entrepreneurial activities as well as organisational learning activities that can produce high new product performance. Furthermore, this study examined how the configurations vary under different contextual factors in terms of market turbulence and firm size. Based on the configurational perspective, this study applied fsQCA as this method is particularly useful to reveal the complex relationships among different variables (Dess, Newport, and Rasheed 1993; Fiss 2007; Ragin 2008).

5.1. Theoretical Implications

The findings demonstrate that no configuration leading to high performance consists of high levels of innovativeness, risk-taking, and proactiveness simultaneously. In particular, all configurations contain two dimensions of EO such as the combination of innovativeness with proactiveness (configuration 3, 4, and 5)/risk-taking (configuration 6), or the combination of risk-taking with proactiveness (configuration 1), except for configuration 2 that entails the presence of innovativeness combined with the absence of risk-taking. These results suggest the individual EO dimensions tend to impact new product performance in combination rather than operating in isolation. Indeed, recent research has highlighted "bilaterally shared effects" that arise from two dimensions of EO. That is, some of the variances in firm performance "are attributed to covariation in any set of two of the three dimensions of EO" (Lomberg et al. 2016, 977). The present study expands the literature by showing that, beyond the independent and shared effects of innovativeness, risk-taking, and proactiveness on new product performance, it is imperative to consider the potential interactive effects between the individual EO dimensions in affecting new product performance.

Although innovativeness, risk-taking, and proactiveness are important causal conditions for high performance, the results show that no condition is present in all configurations and no condition can lead to high performance alone. Hence, neither one is a necessary or sufficient condition for high performance (Fiss 2007; Ragin 2008). It should be pointed out, however, that the three conditions differ in their significance. To illustrate, among the six configurations leading to high performance, five entail innovativeness and four involve proactiveness, respectively, indicating that innovativeness and

proactiveness are prominent causal conditions for firms to obtain high product performance. That is, firms are more likely to obtain high product performance by emphasising innovation and being proactive in introducing products ahead of the competition. By contrast, the role of risk-taking is less prominent as only two configurations entail its presence and one configuration requires its absence. These discussions suggest:

Proposition 1: Innovativeness, risk-taking, and proactiveness can be drivers of new product performance, but no dimension is a sufficient or a necessary condition on its own. Furthermore, the individual EO dimensions tend to impact new product performance in combination rather than operate in isolation.

The results show that organisational learning activities in terms of exploration and exploitation are also important drivers of new product performance as all configurations leading to high performance include the presence of at least one of the two conditions. It should be highlighted that the two conditions differ in their relative prominence. For example, exploration is present in three configurations and absent in the remaining three configurations, whereas exploitation is present in four configurations and absent in only one configuration. As such, exploitation will likely play a more prominent role in leading to high performance than exploration. This finding is not surprising given that the outcomes from exploration are uncertain as it involves experimentation, whereas the outcomes from exploitation are more predictable as it concerns refinement (March 1991).

The findings demonstrate that neither exploration nor exploitation is present in all configurations and no condition can result in high performance alone. Thus, neither condition is necessary or sufficient for firms to achieve high performance (Fiss 2007; Ragin 2008). The relationship between exploration and exploitation is interesting. The results show that only one configuration (i.e., configuration 5) consists of the presence of both exploration and exploitation, implying that pursuing high levels of exploration and exploitation simultaneously can be challenging for resource-constrained SMEs. It is observed that the presence of one condition is often accompanied by the absence of the other (i.e., configurations 2, 3, 4, and 6). These results contribute to the literature by showing a potential substitutive relationship between exploration and exploitation. Because exploration and exploitation tend to compete for the

limited resources SMEs have (March 1991; Lavie, Stettner, and Tushman 2010; Rosenbusch, Rauch, and Bausch 2013; OECD 2017), cycling through exploration and then exploitation periodically might be more feasible for resource-constrained firms to obtain high performance (Gupta, Smith, and Shalley 2006). Hence:

Proposition 2: Exploration and exploitation can be drivers of new product performance, but neither exploration nor exploitation is a sufficient or a necessary condition on its own. Furthermore, the two activities are likely to substitute each other within resource-constrained firms.

One important contribution of the present study is uncovering the interdependence of EO and organisational learning in affecting new product performance. The results suggest the different combinations of innovativeness, risk-taking, and proactiveness are not sufficient for achieving high performance. Similarly, the different combinations of exploration and exploitation are not sufficient to produce high performance. In other words, entrepreneurial activities or organisational learning activities alone are unlikely to produce high performance. In all configurations leading to high performance, entrepreneurial activities are always accompanied by the presence of one or two of the organisational learning activities. This implies that entrepreneurial activities complement organisational learning activities, or vice versa, in contributing to new product performance. The results also contribute to the literature by demonstrating that there are multiple configurations of EO and organisational learning that can produce high performance. As such:

Proposition 3: EO interacts with organisational learning to influence new product performance such that the presence of high performance requires entrepreneurial activities to be complemented by organisational learning activities.

The present study shows that the configurations for high performance vary under the different environmental contexts in terms of market turbulence. Interestingly, only one of the configurations for high performance (configuration 5) pertains to a stable market environment and the remaining five configurations relate to the turbulent market environment. One explanation is that, in general, firms are experiencing increasing levels of changes in their environment. That is, only a relatively small number

of firms are operating in a stable market environment. As Nadkarni and Herrmann (2010, 1050) noted, "With increasingly intense competition, shrinking product cycles, accelerated technological breakthroughs, and progressively greater globalization, the business arena may best be described as being in a chronic state of flux, with continual variation in its external environment". Literature suggests the effects of EO and organisational learning on firm performance are influenced by the extent of changes in the environment (Wiklund and Shepherd 2005; Jansen, Van Den Bosch, and Volberda 2006; Rosenbusch, Rauch, and Bausch 2013). The present study expands the literature by showing that the configurations of EO and organisational learning for high performance also vary between firms in a stable market environment and those in a turbulence market environment. Therefore:

Proposition 4: Configurations of EO and organisational learning for high new product performance will vary between firms experiencing different levels of market turbulence.

Because EO and organisational learning are resource intensive activities (Rauch et al. 2009; Junni et al. 2013), it was expected that their configurations for high performance can be influenced by organisational context in terms of firm size, which determines the availability of resources within organisations (Audia and Greve 2006; Plambeck 2012). Consistent with this assumption, the results show that the configurations for small firms differ from the configuration for medium-sized firms. The results demonstrate that only one configuration (configuration 6) belongs to medium-sized firms, whereas the remaining five configurations are related to small firms. Configuration 6 shares the same pattern of exploration and exploitation as with configuration 2 and 4, but differs in the patterns of innovativeness, risk-taking, and proactiveness. In comparison with configuration 1 and 3, configuration 6 differs on the patterns of both entrepreneurial and organisational learning activities. These results contribute to the literature by demonstrating that the bundles of entrepreneurial and organisational learning activities leading to high new product performance can differ between small firms and medium-sized firms. Accordingly:

Proposition 5: Configurations of EO and organisational learning for high new product performance will differ between firms of different sizes.

5.2. Managerial Implications

The present study offers three implications for SME managers. A first implication is related to the bundle of activities that firms should priorities for better new product performance. For example, emphasising innovativeness and proactiveness tends to be more fruitful because, in the six configurations leading to high performance, five of them entail innovativeness and four involve proactiveness, with three configurations including both conditions simultaneously. Similarly, exploitation represents another prominent factor for high performance as four out of six configurations include the presence of this condition. A second implication concerns the configurations of entrepreneurial and organisational learning activities. In all configurations, neither combinations of innovativeness, risk-taking, and proactiveness nor combination of exploration and exploitation can lead to high performance. To obtain high performance, firms should complement entrepreneurial activities with organisational learning activities. A final implication deals with how the bundle of activities may be tailored to fit with firms' environmental and organisational contexts as the configurations vary between firms facing different levels of market turbulence as well as firms in different sizes. Accordingly, in devising the combination of activities for high performance, managers should consider not only the resources available to them but the market environment in which firms are operating within.

5.3. Limitations and Future Research

This study includes firms from both the manufacturing and service sectors. One potential limitation is that the configurations for high performance required for manufacturing sectors may be different from those in service sectors. This is because the nature of new products tends to vary substantially between firms in different sectors. Therefore, future research efforts could devise sector-specific studies to develop a more fine-grained understanding of the configurations required to obtain high performance. Another potential limitation is the use of subjective performance measures following prior research (Akgün, Lynn, and Byrne 2006; Atuahene-Gima and Murray 2007). Future research could employ financial performance data to verify whether the configurations identified in the present study hold with objective performance outcomes. Finally, the empirical context is small and medium-sized firms that are often constrained by limited resources. Because large firms have more resources and potentially

higher capabilities, future studies could also explore what are the configurations required for large firms to obtain high new product performance.

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Appendix: Survey Questions

Scales	Factor Loading
Innovativeness (α = .82; CR = .78; AVE = .54)	
We favour a strong emphasis on R&D, technological leadership, and innovations	.74
My firm has many new lines of products marketed in the past 3 years	.77
Changes in our product lines have usually been quite dramatic	.69
Risk-taking (α = .89; CR = .86; AVE = .68)	
We have a strong propensity for high-risk projects (with chances of very high returns)	.86
We believe, owing to the nature of the environment, that bold, wide-ranging acts are necessary to achieve the firm's objectives	.82
When there is uncertainty, we typically adopt a bold, aggressive posture in order to maximise the probability of exploiting potential opportunities	.80
Proactiveness (α = .79; CR = .80; AVE = .54)	
We initiate actions to which competitors then respond	.71
We are very often the first business to introduce new products, administrative techniques, operating technologies, etc.	.77
We typically adopt a very competitive, "undo-the-competitors" posture	.73
Exploration (α = .78; CR = .81; AVE = .52)	
We preferred to collect information with no identifiable market needs to ensure experimentation	.49
We collected novel information and ideas that went beyond our current market and technological experiences	.80
In information search, we focused on acquiring information and ideas involving experimentation and high market risks	.72
Our aim was to acquire knowledge to develop products that involves learning new areas such as markets and technologies	.83
Exploitation (α = .78; CR = .86; AVE = .60)	
Our aim was to search for information to refine common methods and ideas in solving problems	.69
Our aim was to search for ideas and information that we can implement well to ensure predictable outcome	.79
We searched for proven ideas and solutions to product development problems	.79
We emphasised the use of knowledge related to our existing product and market experiences	.81
Market turbulence (α = .69; CR = .81; AVE = .68)	
Customers' product preferences change quite a bit over time	.86
Our customers tend to look for new products all the time	.79
We are witnessing demand for our products from customers who never bought them before *	-
New product performance (α = .86; CR = .89; AVE = .66)	
Sales objectives	.77
Profit objectives	.85
Market share objectives	.82
Return on investment objectives	.82
Customer satisfaction objectives *	-

*Items removed due to cross loading

α = Cronbach's alpha; CR= composite reliability; AVE = average variance extracted.