Antecedents of green market performance: a case from Southeast Asian market

Diana Aqmala*

Faculty of Economics and Business,
Universitas Diponegoro,
Central Java, Indonesia
and
Sekolah Tinggi Ilmu Ekonomi Totalwin,
Jl. Gedongsongo Raya No.12 Manyaran,
Semarang Barat 50247, Semarang, Indonesia
Email: diana.aqmala@gmail.com
*Corresponding author

Kardison Lumban Batu

Business Administration,
Politeknik Negeri Pontianak,
Pontianak, Indonesia
Email: kardisonlumban@yahoo.com

Amie Kusumawardhani

Department of Management,
Faculty of Economics and Business,
Universitas Diponegoro
Central Java, Indonesia
Email: amiekwardhani@live.undip.ac.id

Andriyansah

Department of Management,
Faculty of Economics,
Universitas Terbuka,
Jakarta, Indonesia
Email: andri@ecampus.ut.ac.id

Abstract: This empirical research was conducted to investigate the effect of entrepreneurial orientation on the uniqueness of green products and market performance through green exploitative and explorative product capabilities, explorative and exploitative market penetration, and examining the effect of the uniqueness of green products on market performance. The exploitation and exploration of green product capabilities was considered as the antecedents and postulated as the driver of the uniqueness of green products, while exploitative and explorative market penetration were considered as the antecedents of market effectiveness. The current study proposes nine hypotheses. The

statistical output showed that all hypotheses significantly affect green product differentiation and market performance but explorative market penetration is proven insignificant for leveraging market effectiveness. Data was collected from 1300 respondents charged as operational, sales, and marketing managers in Indonesia and several other Southeast Asian countries. Data was analysed using SEM with AMOS Statistical Software. This research demonstrated that green exploration and exploitation approaches to new product development practices hold a strategic anchor for enhancing green product differentiation and market performance.

Keywords: entrepreneurial orientation; green exploitation and green exploration; new product development; explorative and exploitative market-related.

Reference to this paper should be made as follows: Aqmala, D., Batu, K.L., Kusumawardhani, A. and Andriyansah (2018) 'Antecedents of green market performance: a case from Southeast Asian market', *Int. J. Green Economics*, Vol. 12, No. 1, pp.35–52.

Biographical notes: Diana Aqmala is Lecturer at the STIE Total Win, Semarang, Indonesia.

Kardison Lumban Batu is an Assistant Professor and Lecturer of Business Administration at Pontianak State Polytechnic and Faculty of Economics and Business.

Amie Kusumawardhani, PhD, is a Lecturer at the Faculty of Economics & Business, Universitas Diponegoro, Indonesia. She received her PhD degree from Sydney Business School, University of Wollongong, Australia.

Andriyansah is Lecturer at Faculty of Economics, Universitas Terbuka, Tangerang Selatan, Indonesia.

1 Introduction to research

There have been many seminal works concerned with entrepreneurship, such as the study on cross-cultural entrepreneurial competence to identify international business opportunities that contribute to the theoretical notion of how to identify international opportunity by Muzychenko (2008). In identifying international opportunity, the most popular features are considered to be risk-taking, innovativeness, and a proactive orientation (Hughes and Morgan, 2007). This gestalt construct of entrepreneurship was developed in the context of large multinational corporations (Williams and Lee, 2009). Proactiveness, innovativeness, customer intensity, and resource leveraging dimensions of entrepreneurial marketing are positively associated with innovative performance (Hacioglu et al., 2012). Proactiveness towards opportunities draws from active interactions with customers and partners in lead countries (Dimitratos et al., 2010). Therefore, prospector organisations have higher innovativeness, risk-taking, and proactive orientation than defenders and analysers (Tayauova, 2011). Entrepreneurial orientation plays an influential role in the acquisition and utilisation of marketing information and also has a direct effect on firm performance (Keh et al., 2007; Fadhilah,

2017). Another study highlighted the significant impact of EO in its various manifestations on organisational performance (Anderson and Eshima, 2013).

Furthermore, the importance of aggressive and risk-taking investment to obtain entrepreneurial rent and effective policy for managing technology development has been clearly shown (Lee and Slater, 2007; Andriyansah and Sufian, 2017). Entrepreneurial alertness with elements of alertness scanning, search, association, connection, evaluation and judgment presented had a significant effect on the pursuit of new opportunities (Tang et al., 2012). As another study also said, the entrepreneurship is then conceptualised as the present value to pursue opportunities (Erikson, 2002). Others findings found links between entrepreneurial orientation, knowledge creation process, and firm performance (Li et al., 2009; Lumbanbatu and Aryanto, 2015). Similarly, there is research that examines the impact of entrepreneurial orientation on firm's growth rate (Soininen et al., 2012). Besides the effect of market orientation on firm's growth, it also affects product innovation (Kusumawardhani et al., 2009). The findings demonstrated the significant effect of market orientation and entrepreneurship orientation alignment on product innovation (Atuahene-Gima and Ko, 2001b; Avlonitis and Salavou, 2007; Valliere, 2013; Setiadi, 2017).

Entrepreneurial orientation is involved in market orientation as well as individual-level job related performance, that is, employee innovative behaviours (Huang and Wang, 2011; Suroso, 2017) including commitment with internationalisation, leveraging human capital influence (Javalgi and Todd, 2011), EO is also found in dimensions of strategic decision-making (SDM) process (Ürü et al., 2011). Enhancing entrepreneurial self-efficacy (ESE) improves perceived entrepreneurial abilities (Karlsson and Moberg, 2013). The impact of EO also can be seen through complex penetration and development market strategies to increase business performance (Garri and Konstantopoulos, 2013). In addition, the vector of R&D investment versus asset growth investment is an indicator of entrepreneurial aggression (Williams and Lee, 2009). Social entrepreneurship is seen as promoting social value and development versus capturing economic value (Mair and Martí, 2006; Andriyansah and Zahra, 2017).

For the last two decades, there has been a huge change in marketplaces. Dramatic growth in new technologies, customer demand and diversity, competitive markets, and globalisation have led to significant effects on innovation for the success of firms (Hult and Ketchen, 2001; Menguc and Auh, 2010). In general, innovation is considered the main sources of competitive advantages, organisational renewal, and also the growth of the firm (Day and Wensley, 1988; Porter, 1990). A literature analysis stated that firms are able to develop, integrate, and reconfigure their ability and capability for innovation, adapt with marketplace shifting, and achieve their competitive advantage (Eisenhardt and Martin, 2000; Teece et al., 1997). The exploitation and exploration are considered to be the crucial factors for innovation (Atuahene-Gima, 2005). The exploitation itself is involved in the development of new knowledge about firms which exist in the marketplace, exploration of new products and marketplaces, technology and capabilities (March, 1991).

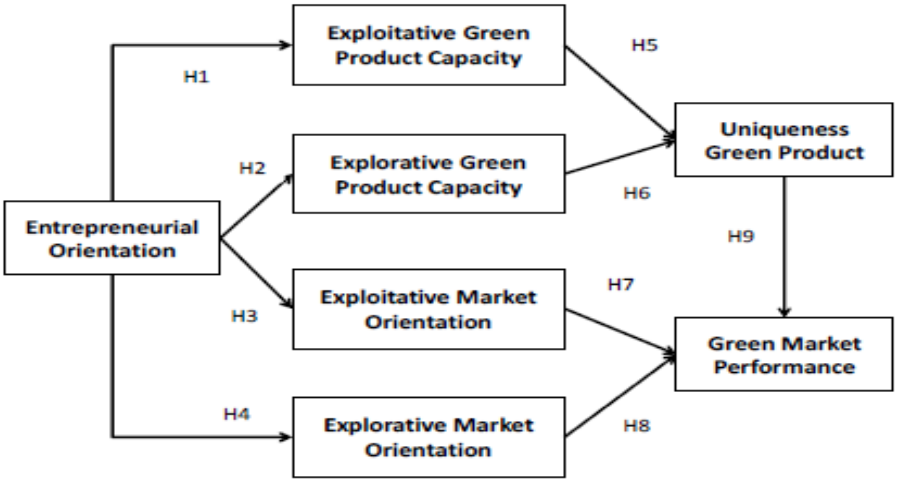
Robust theories have shown that innovation and product development capability has become the research focus on exploitation and exploration (Atuahene-Gima and Murray, 2007) while other forms of innovation was neglected (Weerawardena, 2003). Moreover, the appropriate marketing strategy led to product failure in the marketplace even with advanced technology usage (van Sluisveld and Worrell, 2013). As the place for the customer to receive and reject new products, the market needs a new form of renewal and

success (Bonner and Walker, 2004). Hence, the firm not only needs to develop new products but also, need to increase market penetration and outperforming the competition. For consideration, market-related exploitative and explorative capabilities are particularly related to timing, as knowledge and market based-assets is the key factor to increase the firms growth (Prahalad and Hamel, 1990; Ramaswami et al., 2009). Some recent research has focused on capability domain and not exclusively on product development (Uotila et al., 2009).

Moreover, despite the increase of the interest in the perspective of dynamic capability, empirical research on how firms build their capability is still considered as an underdeveloped research area (Zhou and Li, 2010). Previous research has been conducted on market orientation, willingness to cannibalise, constructive conflict, failure tolerance, and environmental scanning as the sources for exploitation and exploration (Danneels, 2008). However, the previous research has failed to assess the role of entrepreneurial orientation to leverage the new product development and market-related exploitative and explorative capability. This is a surprising result since entrepreneurship is often considered an innovative agent of change and viewed as the parent of innovation (Miles and Arnold, 1991). This is a strategic orientation that reflects firms' willingness to engage in trial-and-error innovation (Wiklund and Shepherd, 2005), pursue new market opportunities, and update existing areas of operation (Hult and Ketchen, 2001).

Furthermore, even though the exploitation and exploration have caught the attention of researchers, it has mostly been in the domestic market setting (Atuahene-Gima, 2005) and the studies conducted in the international domain were very limited (Luo, 2000) This is interesting since, firstly, communication development, transportation, and information technology combined with free growth from world trade and domestic tough competition (Spencer, 2003) secondly exploitation and exploration capability could provide the aids for exporting firms to overcome the liabilities such as the benefits from indigenous competitors in term of national culture similarities, industry structural, government regulations, regulatory and business partners (Nachum, 2003), as well as the interest to examine the intersection of entrepreneurial and international business (Weerawardena and O'Cass, 2004).

Figure 1 Proposed model



Based on the aforementioned background, the current research would first like to introduce the new domain of green exploration and green exploitation capability in the market, secondly examine the role of entrepreneurial orientation driving the capability with product development, thirdly assess the impact of new product development and market-related exploitative and explorative capabilities on product differentiation and market effectiveness. Figure 1 shows the proposed model.

The sequence of the current research is as follows: first a literature tracing of the theoretical background and development of the hypotheses, second, a description of the data collection method and measures, and thirdly, the description of the results of research. Additionally, there will be a discussion of findings and implications, acknowledgement of limitations, and implications for future research.

2 Theoretical background and hypotheses

Defining variation in the success of the firm which refers on the degree and quality of firm knowledge and competence has become the main focus in a substantial body of research within strategic management, marketing, and organisational theory (Zollo and Winter, 2002). Existing literature converges in a summary which highlights that dynamic capabilities among firms could define the differential firm performance and force firms to continuously obtain, integrate, and reconfigure organisational skills, resources, and functional competence as appropriate with environmental conditions in order to manage firms and stay up to date, as well as to achieve competitive advantage (Eisenhardt and Martin, 2000). A firm's capabilities, embedded through operations, structure, culture and process as well as the firm's capability to continuously innovate, are the function of how firms manage organisational structure, people, and the process to integrate and create knowledge (O'Reilly and Tushman, 2007).

Renewal capability, knowledge creation, and innovation process determine the firm's skills regarding reconfiguration, resources, and the ability to exploit existing technology, as well as the opportunity to explore new technology and market places (Helfat and Raubitschek, 2000). These capabilities are called exploration and exploitation. Exploitation is concerned with the refinement of existing paradigms and skills (March, 1991). Exploitation of new product development is referred to as existing product improvement, while exploitation capability is market-related regarding there enforcement of the firm's current position and existing market relationships. Explorative capability tends to search for new options to gain benefits from unexplored opportunities (March, 1991). The explorative product development capability requires the new product development to be done in relation to the market by searching for and developing new market relationships.

The degrees of firm process, practices as well as decision making style are reflected in an entrepreneurial orientation that acted as a base for managerial decisions (Lumpkin and Dess, 2001). Though one conceptual argument claims that entrepreneurial orientation leads to higher performance, empirical research findings claimed more inconsistency (Rauch et al., 2009). Aligning with these works, several findings showed a significant relationship between entrepreneurial orientation and performance (Hult et al., 2003), as well as weak relationship between entrepreneurial orientation and performance (Zahra, 1991; Lumpkin and Dess, 2001), and other findings with insignificant effect (Covin

et al., 1994). To interpret these inconsistency findings, the mediating variable is proposed to link these two constructs (Matsuno et al., 2002; Baker and Sinkula, 2009).

Entrepreneurial orientation creates a conducive environment that enhances firms' ability to develop innovative capability (Kusumawardhani, 2013). Firms are searching for methods to perpetuate and accentuate their strengths in innovation and flexibility to exploit opportunities and goals (Naman and Slevin, 1993). Entrepreneurial orientation consists of innovation, proactiveness, and risk-taking (Covin and Slevin, 1989). The innovation tends to support new ideas and changes (Rauch et al., 2009). This covers the creativity and experiments in new product development, technology adoption, and internal process (Li and Liu, 2010). Proactiveness is an opportunity-seeking perspective (Ahuja and Lampert, 2001; Rauch et al., 2009). It reflects the anticipation of future market changes (Baker and Sinkula, 2009) and pioneering methods, techniques, and products (Lee and Lee, 2003; Li and Liu, 2010). Risk taking involves the taking unknown opportunities (Rauch et al., 2009). This is such offering the resources for new projects and chasing the changes (Baker and Sinkula, 2009), yet for uncertainty results (Li and Liu, 2010).

Seemingly, while entrepreneurial orientation merely supports the search for new options to obtain the benefits from unexplored opportunities, exploitative capability could also offer advantages. Exploitative product development can also involve minor changes (modified and improved existing products) that lead to the evolution of the through incremental innovation (Atuahene-Gima, 2005). Based on the aforementioned findings which claim that entrepreneurial orientation offer propitious advantages for new product development exploitation capability, the current study proposes the following hypotheses.

H1. The greater the entrepreneurial orientation adopted in a firm, the greater the capability to exploit green products.

Entrepreneurial firms tend to adopt new ideas and deploy new methods (Barczak et al., 2009; Li and Liu, 2010) and be more ready for changes as well as applications of new perspective (Morgan et al., 2004). These firms also emphasise the need for exploration and new innovation (Zhou et al., 2005). The ability to make new changes, take risks, and innovate are seen in the nature of entrepreneurial firms to pursue new product development, outperform the competition, and maintain existing customers (Slater and Narver, 1995).

H2. The greater the entrepreneurial orientation adopted in a firm, the greater the capability to explore green products.

Entrepreneurial firms are also prone to maintain an environment of scanning continuously for opportunity (Day and Wensley, 1988) which enables them to provide excellent services by being more sensitive and attuned to changes and trends within the business environment (Ahuja and Lampert, 2001). Market-related capability is inherently unbeaten due to their tacit and embedded nature (Grewal and Slotegraaf, 2007). A firm that strengthens the presence and business relations in the marketplace will innovate with the anticipated changes and also will proactively initiate competition (Atuahene-Gima and Ko, 2001a). To conclude, entrepreneurial orientation is considered a base for market-related exploitative capability.

H3. The greater the entrepreneurial orientation adopted in a firm, the greater the exploitation of market penetration.

Entrepreneurial firms conducted innovation and risk taking within product-market strategies (Renko and Brännback, 2009). Similarly, they mobilised to penetrate new markets and explore new possibilities (Hult and Ketchen, 2001). After accounting for a firm's previous experiences with customers, competition, and environment, an entrepreneurial orientation welcomes uncertainty and triggers market-related exploration (Ahuja and Lampert, 2001). Thus, entrepreneurial firms are more prone to search and penetrate new markets and enhance new business relationships.

H4.The greater the entrepreneurial orientation adopted in a firm, the greater the exploration of market penetration.

Product differentiation distinguishes products from competitors' products and represents their unique competitive advantages (Song and Parry, 1997). The exploitative product development capability concerns incremental innovation on existing products and technology as well as path extensions (Atuahene-Gima, 2005). With non-radical changes, some modified features imply there is a degree of product evolution. In that way, an increased number of features will facilitate more product variation in mainstream markets.

H5. The greater the firm's capability to exploit green products, the more unique they will be.

Seeking, assessing, and experimenting are involved in increasing explorative capabilities (March, 1991). They are significantly reflected within what is currently conducted by firms and related with risk-taking, creativity, and flexibility. Product development explorative capability involves new technological knowledge and the development of new products for customers. Developing new products with newly-emerged ideas and different features lead to product differentiation (De Luca and Atuahene-Gima, 2007).

H6. The greater the firm's capability to explore green products, the more unique they will be.

Market effectiveness refers to the extent which a firm's goal was achieved regarding market outcomes, such as sales volume or market share growth (Vorhies and Morgan, 2005). This is such an important element of firm performance (Morgan et al., 2004). Market-related exploitative capabilities is also considered to be a firm's leverage within existed markets. With the presence of a firm's market, market-related exploitative capabilities are prone to increase the efficiency (Matsuno et al., 2002) facilitating adaptation into the current market (Uotila et al., 2009). This guarantees positive results, promptly and successfully maintaining firm's life (Lee and Lee, 2003).

H7. The greater the firm's ability to exploit market penetration, the better the market performance.

Market-related explorative capability is concerned with seeking new marketplaces still unknown by firms and trying to enhance business relationships. Risk-taking firms and those without previous experiences (Hutt et al., 1988) who are not aligned with current

knowledge of the market will result in unpredictable outcomes (Lubatkin et al., 2006) yet, market-related explorative capabilities suggest renewal and adaptation to new situations as well as broad market horizons and portfolios will lead to above-average profits (Wang and Li, 2008).

H8. The greater the firm's exploration of market penetration, the better the market performance.

Some researchers have found that product differentiation and firm performance is positively related (Bayus et al., 2003). Accordingly, firms which are able to innovate and launch new distinguished products to markets gained competitive advantage compared with their competitors, as well as experienced higher sales and profits (Song and Parry, 1997). Product differentiation is commonly followed by skimming prices or premiums, attracting more customer demand, enhanced profit margin, and lower customer acquisition (Bayus et al., 2003). Based on these finding, firms offer differentiated products due to their market effectiveness.

H9. The more unique the green product adopted by firms is, the better the market performance.

3 Method

3.1 Survey development and pretest

Indonesia serves as the research setting because of its large domestic market which pressures firms to develop their international activities. Economic growth in Indonesia depends heavily on the exporting success of its firms. The importance of the country's exporting activities has risen since it entered free trade.

3.2 Survey development and pretest

Based on the seminal work of Nunnally and Bernstein's (1994) multi-item scales, the domain of each construct's concept was specified and developed. Through an extensive literature review, the item of each construct was derived as well as a series of pre-tests to assess content and face validity of the constructs and measures (Hair et al., 2006).

3.3 Measurement

Innovativeness was measured with three items, as well as proactiveness and risk taking based on the work of Covin et al. (1994). Here, the constructs of innovative capabilities highlighted the firm's processes during operation. Furthermore, exploitation of product development capabilities was measured with six items and explorative product development capabilities eight items (Danneels, 2008), while market-related exploitative and explorative capabilities were generated with six items (Morgan et al., 2004). Product differentiation as the consequence of new product development was measured with three items (Ramaswami et al., 2009).

Market effectiveness items were adapted from the seminal works of Vorhies and Morgan (2005). To hedge the unexpected finding, control variables were considered such as technological turbulence, market turbulence (De Luca and Atuahene-Gima, 2007), firm size and firm age, where larger firms have the benefit of more resources for innovation and gain superior performance (Zhou et al., 2007). Meanwhile small firms experience the lack of natural disadvantage and the scope of inefficiencies (Ramaswami et al., 2009). Tragically, a young growth firm suffers from the liability of newness due to the lack of knowledge (Ramaswami et al., 2009). Mature firms own industry-specific knowledge and strong goodwill among customers as well as a stable environment (Matsuno et al., 2002). On the other hand, turbulent environments require massive changes in technologies and customers demand. To fulfil these, experimentation and flexibility should be well managed (Olson et al., 2005).

3.4 Data collection

Data was gained through an email survey. Due to the high complexity and dynamism, an exporter firm was selected for this current study, supported by literature on export marketing (Morgan et al., 2004). Due to the distinctive nature of firms, service firms were excluded from this study (Zou and Cavusgil, 2002).

3.5 Non-response and common method bias

Non response bias was tested by comparing early and late respondents regarding years of operational, full-time employees and also number of export markets. Insignificant differences were not detected.

A confirmatory factor model with all manifest items loading on a single latent factor indicated an extremely poor fit (chi-square of 699.169, 397 d.f., $p < .000$, comparative fit index (CFI) of .943, incremental fit index (IFI) of .944, Tucker-Lewis fit index (TLI) of .938, and root mean square error of approximation (RMSEA) of .044).

4 Analysis

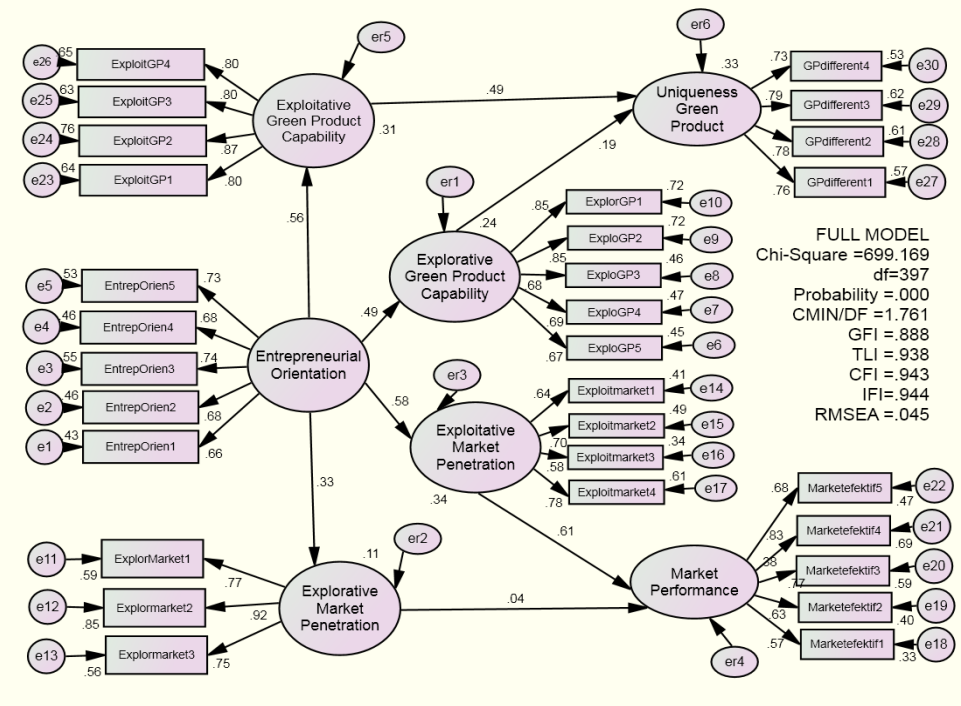
4.1 Sample characteristics

The sample consists of small, medium, and large scale enterprises of manufacturing. A full-time employee is considered as one of firms' nature as well as the involving in international market and the length of operational. Those firms with all the characters owned is indicate to participate as the sample of the current research.

4.2 Measurement validation

The measurement model results presented in Table 1 showed fit (chi-square of 699.169, 397 d.f., $p < .000$, CFI=.943, IFI=.944, TLI=.938, RMSEA=.045). All constructs had good levels of composite reliability. The large standardised loadings of each item on its intended construct (the average loading size was .70) provides evidence of convergent validity. All constructs had good internal and all possible pairs of constructs.

Figure 2 Measurement weight model



Tables 1 Scale and measurement – construct validity

Constructs and items standardised	*Loading t-value*
Entrepreneurial Orientation	
• Our firm strongly emphasise on new and innovative product development	66
• Our firm strongly emphasise on innovation, advanced technology and R&D	68
• Our firm continuously develops new products or services	74
• Our firm strongly initiate actions to which competitors then respond	68
• Our firm always is the first in launching new products/services, techniques, technologies	73
Exploitative Green Product Capabilities	
• Firm's ability to improve green products, services and process quality	80
• Firm's ability to upgrade green technologies for green products and green services	80
• Firm's ability to enhance skills in exploiting sophisticated technologies to gain green products	87
• Firm's ability to upgrade skills in product development processes with green practices	80

Tables 1 Scale and measurement – construct validity (continued)

Constructs and items standardised	*Loading t-value*
Exploitative Market Penetration	
• Firm's ability to strengthen overseas distributor relationships.	79
• Firm's ability to capture of important market information of existing markets	59
• Firm's ability to monitor competitive products in current export markets	71
• Firm's ability to response overseas customer requirements	63
Explorative Green Product Capabilities	
• Our firm is firstly deployed green technology	67
• Our firm capability to learn green product and process development skills which is new to the industry	69
• Our firm capability to learn new green skills on technology, staffing, training and development of R&D	68
• Our firm capability to strengthen green innovation skills with no prior experience	85
• Our firm capability to choose new green approaches to export products, services, and processes different from those used in the past	85
Exploitative Market Penetration	
• Our firm capability to acquire export market-related information of new markets	77
• Our firm capability to assess the potential of new markets	92
• Our firm capability to research new competitors and new customers	75
Uniqueness Green Product	
• Our new green products difficult for competition to imitate	73
• Our new green product designs are unique	78
• Our new green products have higher advantage compared with competitors	78
• Our new green products have versatile functions compared with competitors	75
Market Performance	
• Our firm export market's sales volume growth higher than previous periods	56
• Our firm growth in export market sales revenue higher than previous periods	62
• Our firm export market's market share growth higher than previous periods	76
• Our firm's acquiring new export market customers higher than previous periods	82
• Our firm's increasing sales to current export customers higher than previous periods	68

4.3 Hypothesis testing

Current research deployed structural equation modelling to test hypotheses. Table 2 shows standardised parameter estimates, CR, and significance levels for the hypothesised paths. The statistical output described H1, that the higher the degree of entrepreneurial orientation adopted by a firm, the higher the degree of explorative green product development is supported (t = 7.158). H2 stated that the higher the degree of entrepreneurial orientation adopted by firm, the higher the exploitative green product development also supported (t = 8.440). Aligning with H3, the higher the degree of entrepreneurial orientation adopted by firm, the higher the degree of market-related explorative capabilities accepted (t = 5.239). H4, the higher the degree of entrepreneurial orientation adopted by the firm, the higher the market-related exploitative capabilities also accepted (t = 7.454). In addition, for H5 and H6, the higher the degree of explorative and exploitative of green product development, the higher the degree of product differentiation supported (t = 8.064; t = 3.636) respectively. H7 stated that the higher the degree of green product differentiation, the higher the degree of market effectiveness also accepted (t = 6.242). Surprisingly, once a firm's explorative market-related capability does not affect its market effectiveness, H8 is not supported. On the other hand, once a firm exploits its market-related capability, the higher the degree of its market effectiveness, and H9 is accepted.

Tables 2 Regression weights and hypotheses testing

Hypothesised Variables			*Estimate*	*S.E.*	*C.R*	*P*	*Hypotheses Test*
Explorative Green Product Development	←	Entrepreneurial Orientation	.549	.077	7.158	***	Supported
Exploitative Green Product Development	←	Entrepreneurial Orientation	.660	.078	8.440	***	Supported
Explorative Market-Related Capability	←	Entrepreneurial Orientation	.407	.078	5.239	***	Supported
Exploitative Market-Related Capability	←	Entrepreneurial Orientation	.461	.062	7.454	***	Supported
Green Product Differentiation	←	Exploitative Green Product Development	.502	.062	8.064	***	Supported
Green Product Differentiation	←	Explorative Green Product Development	.216	.059	3.636	***	Supported
Market Effectiveness	←	Green Product Differentiation	.321	.051	6.242	***	Supported
Market Effectiveness	←	Explorative Market-Related Capability	.021	.043	.483	.629	Not Supported
Market Effectiveness	←	Exploitative Market-Related Capability	.604	.088	6.843	***	Supported

5 Discussion and conclusion

Innovation is the main key for firms concerning growth and success. To be able to compete globally, firms have to develop their technical and non-technical innovation. So far, the related literature states that firm mostly emphasise technology and new product development. The other factor that is still considered a key driver has been somehow neglected. This current research was started from a previous study proposing green explorative and exploitative product development. Thus these findings enrich the green exploitation and exploration during product development.

The findings also claim that entrepreneurial orientation is a main driver to new product development with green practices and green exploitation and exploration. These constructs have a strong relationship with marketplaces. These findings also suggest the export firms adopt an entrepreneurial orientation to leverage their innovation. Accepting new ideas on products, processes, proactiveness, and the willingness to take risks with green product development will defeat the competition as well as broaden the market share. It is also strongly encouraged that entrepreneurial orientation be used to strengthen the relationship between green product development and market-related explorative and exploitative capabilities.

The previous findings claimed that product development exploitative capabilities were insignificantly related to product differentiation. Any single product modification and incremental product improvements were insufficient to obtain product advantages that came out with quality, design, and other unique features compared with competitors (Song and Parry, 1997). Current research has proved that those capabilities significantly affect green product differentiation.

Current research also reveals that green explorative product development plays a crucial role in green product differentiation, which aligns with previous findings. Exploration is strongly related with experimentation and creativity in firms. Having more investment in green product development will enrich new features, facilitate sophisticated innovation, and at the end, encourage loyal customer development and enhance market effectiveness.

To sum up, though the current findings are considered important, the study has some limitations as others studies have. Firstly, this current empirical study was semi-replicated by adding and enriching the name of the variable. Secondly, diverse firm characteristics will means these findings cannot be generalised since small, medium, and large scale enterprises mixed.

References

Ahuja, G. and Lampert, C.M. (2001) 'Entrepreneurship in the large corporation: a longitudinal study of how established firms create breakthrough inventions', *Strategic Management Journal*, Vol. 22, pp.521–543.

Anderson, B.S. and Eshima, Y. (2013) 'The influence of firm age and intangible resources on the relationship between entrepreneurial orientation and firm growth among Japanese SMEs', *Journal of Business Venturing*, Vol. 28, pp.413–429.

Andriyansah and Sufian, S. (2017) 'Technology and consumer relationship management: a study of Indonesian travel agencies', *International Journal of Business Research*, Vol. 17, pp.25–36.

Andriyansah and Zahra, F. (2017) 'Student awareness toward social entrepreneurship: a quality study', *International Journal of Civil Engineering and Technology*, Vol. 8, pp.457–464.

Atuahene-Gima, K. (2005) 'Resolving the capability-rigidity paradox in new product innovation', *Journal of Marketing*, Vol. 69, pp.61–83.

Atuahene-Gima, K. and Ko, A. (2001a) 'An empirical investigation of the effect of market orientation and entrepreneurship orientation alignment on product innovation', *Organization Science*, Vol. 12, pp.54–74.

Atuahene-Gima, K. and Ko, A. (2001b) 'An empirical investigation of the effect of market orientation and entrepreneurship orientation alignment on product innovation', *Organization Science*, Vol. 12, pp.54–74.

Atuahene-Gima, K. and Murray, J.Y. (2007) 'Exploratory and exploitative learning in new product development: a social capital perspective on new technology ventures in China', *Journal of International Marketing*, Vol. 15, pp.1–29.

Avlonitis, G.J. and Salavou, H.E. (2007) 'Entrepreneurial orientation of SMEs, product innovativeness, and performance', *Journal of Business Research*, Vol. 60, pp.566–575.

Bagozzi, R.P. (1980) *Causal Models in Marketing*, John Wiley, New York.

Baker, W.E. and Sinkula, J.M. (2009) 'The complementary effects of market orientation and entrepreneurial orientation on profitability in small businesses', *Journal of Small Business Management*, Vol. 47, pp.443–464.

Barczak, G., Griffin, A. and Kahn, K.B. (2009) 'Trends and drivers of success in NPD practices: results of the 2003 PDMA best practices study', *Journal of Product Innovation Management*, Vol. 26, pp.3–23.

Bayus, B.L., Erickson, G. and Jacobson, R. (2003) 'The financial rewards of new product introductions in the personal computer industry', *Management Science*, Vol. 49, pp.197–210.

Bonner, J.M. and Walker, O.C. (2004) 'Selecting influential business-to-business customers in new product development: relational embeddedness and knowledge heterogeneity considerations', *Journal of Product Innovation Management*, Vol. 21, pp.155–169.

Covin, J.G. and Slevin, D.P. (1989) 'Strategic management of small firms in hostile and benign environments', *Strategic Management Journal*, Vol. 10, pp.75–87.

Covin, J.G., Slevin, D.P. and Schultz, R.L. (1994) 'Implementing strategic missions: effective strategic, structural, and tactical choices', *Journal of Management Studies*, Vol. 31, pp.481–503.

Danneels, E. (2008) 'Organizational antecedents of second-order competences', *Strategic Management Journal*, Vol. 29, pp.519–543.

Day, G.S. and Wensley (1988) 'Assessing advantage: a framework for diagnosing competitive superiority', *Journal of Marketing*, Vol. 52, pp.1–20.

De Luca, L.M. and Atuahene-Gima, K. (2007) 'Market knowledge dimensions and crossfunctional collaboration: examining the different routes to product innovation performance', *Journal of Marketing*, Vol. 71, pp.95–112.

Dimitratos, P., Plakoyiannaki, E., Pitsoulaki, A. and Tüselmann, H.J. (2010) 'The global smaller firm in international entrepreneurship', *International Business Review*, Vol. 19, pp.589–606.

Eisenhardt, K.M. and Martin, J.A. (2000) 'Dynamic capabilities: What are they?' *Strategic Management Journal*, Vol. 21, pp.1105–1121.

Erikson T. (2002) 'Entrepreneurial capital the emerging venture's most important asset and competitive advantage', *Journal of Business Venturing*, Vol. 17, pp.275–190.

Fadhilah, M. and Andriyansah (2017) 'Strategic implementation of environmentally friendly innovation of small and medium-sized enterprises in Indonesia', *European Research Studies Journal*, Vol. 20(4B), pp.134–148.

Garri, M. and Konstantopoulos, N. (2013) 'Market information acquisition: a prerequisite for successful strategic entrepreneurship', *Procedia – Social and Behavioral Sciences*, Vol. 73, pp.643–651.

Grewal, R. and Slotegraaf, R.J. (2007) 'Embeddedness of organizational capabilities', *Decision Sciences*, Vol. 38, pp.451–488.

Hacioglu, G., Eren, S.S., Eren, M.S. and Celikkan, H. (2012) 'The effect of entrepreneurial marketing on firms' innovative performance in Turkish SMEs', *Procedia – Social and Behavioral Sciences*, Vol. 58, pp.871–878.

Hair, J.F., Bush, R.P. and Ortinau, D.J. (2006) *Marketing Research: Within a Changing Information Environment*, McGraw-Hill, Boston.

Helfat, C.E. and Raubitschek, R.S. (2000) 'Product sequencing: co-evolution of knowledge, capabilities and products', *Strategic Management Journal*, Vol. 21, p.961.

Huang, S.K. and Wang, Y.-L. (2011) 'Entrepreneurial orientation, learning orientation, and innovation in small and medium enterprises', *Procedia – Social and Behavioral Sciences*, Vol. 24, pp.563–570.

Hughes, M. and Morgan, R.E. (2007) 'Deconstructing the relationship between entrepreneurial orientation and business performance at the embryonic stage of firm growth', *Industrial Marketing Management*, Vol. 36, pp.651–661.

Hult, G.T.M. and Ketchen, D.J. (2001) 'Does market orientation matter? A test of the relationship between positional advantage and performance', *Strategic Management Journal*, Vol. 22, pp.899–906.

Hult, G.T.M., Snow, C.C. and Kandemir, D. (2003) 'The role of entrepreneurship in building cultural competitiveness in different organizational types', *Journal of Management*, Vol. 29, pp.401–426.

Hutt, M.D., Reingen, P.H. and Ronchetto, J.R. (1988) 'Tracing emergent processes in marketing strategy formation', *Journal of Marketing*, 52, 1, pp.4–19.

Javalgi, R.G. and Todd, P.R. (2011) 'Entrepreneurial orientation, management commitment, and human capital: the internationalization of SMEs in India', *Journal of Business Research*, Vol. 64, pp.1004–1010.

Karlsson, T. and Moberg, K. (2013) 'Improving perceived entrepreneurial abilities through education: exploratory testing of an entrepreneurial self efficacy scale in a pre-post setting', *The International Journal of Management Education*, Vol. 11, pp.1–11.

Keh, H.T., Nguyen, T.T.M. and Ng, H.P. (2007) 'The effects of entrepreneurial orientation and marketing information on the performance of SMEs', *Journal of Business Venturing*, Vol. 22, pp.592–611.

Kusumawardhani, A., McCarthy, G. and Perera, N. (2009) 'Framework of entrepreneurial orientation and networking: a study of SMEs performance in a developing country', *Proceedings of the Australian and New Zealand Academy of Management Conference*, Australian and New Zealand Academy of Management, Adelaide, Australia.

Kusumawardhani, A. (2013) *The role of entrepreneurial orientation in firm performance: a study of Indonesian SMEs in the furniture industry in Central Java*, PhD Thesis, Sydney Business School, University of Wollongong.

Lee, J., Lee, J. and Lee, H. (2003) 'Exploration and exploitation in the presence of network externalities', *Management Science*, Vol. 49, pp.553–570.

Lee, J. and Slater, J. (2007) 'Dynamic capabilities, entrepreneurial rent-seeking and the investment development path: the case of Samsung', *Journal of International Management*, Vol. 13, pp.241–257.

Li, Y.-H., Huang, J.-W. and Tsai, M.-T. (2009) 'Entrepreneurial orientation and firm performance: the role of knowledge creation process', *Industrial Marketing Management*, Vol. 38, pp.440–449.

Li, Y., Wei, Z. and Liu, Y. (2010) 'Strategic orientations, knowledge acquisition, and firm performance: the perspective of the vendor in cross-border outsourcing', *Journal of Management Studies*, Vol. 47, pp.1457–1482.

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

Lumbanbatu, K. and Aryanto, V.D.W. (2015) 'Green practices implementation as prerequisite to sustain firm competitive advantages: the empirical study from Indonesia large scale enterprises (LSEs)', *International Journal of Social Ecology and Sustainable Development*, Vol. 6, pp.34–53.

Lumpkin, G.T.T. and Dess, G.G. (2001) 'Linking two dimensions of entrepreneurial orientation to firm performance: the moderating role of environment and industry life cycle', *Journal of Business Venturing*, Vol. 16, pp.429–451.

Luo, Y. (2000) 'Dynamic capabilities in international expansion', *Journal of World Business*, Vol. 35, pp.355–378.

Mair, J. and Martí, I. (2006) 'Social entrepreneurship research: a source of explanation, prediction, and delight', *Journal of World Business*, Vol. 41, pp.36–44.

March, J.G. (1991) 'Exploration and exploitation in organizational learning', *Organization Science*, Vol. 2, pp.71–87.

Matsuno, K., Mentzer, J.T. and Özsomer, A. (2002) 'The effects of entrepreneurial proclivity and market orientation on business performance', *Journal of Marketing*, Vol. 66, pp.18–32.

Menguc, B. and Auh, S. (2010) 'Development and return on execution of product innovation capabilities: the role of organizational structure', *Industrial Marketing Management*, Vol. 39, pp.820–831.

Miles, M.P. and Arnold, D.R. (1991) 'The relationship between market orientation and entrepreneurial orientation', *Entrepreneurship Theory and Practice*, Vol. 15, pp.49–65.

Morgan, N.A., Kaleka, A. and Katsikeas, C.S. (2004) 'Antecedents of export venture performance: a theoretical model and empirical assessment', *Journal of Marketing*, Vol. 68, pp.90–108.

Muzychenko, O. (2008) 'Cross-cultural entrepreneurial competence in identifying international business opportunities', *European Management Journal*, Vol. 26, pp.366–377.

Nachum, L. (2003) 'Liability of foreignness in global competition? Financial service affiliates in the city of London', *Strategic Management Journal*, Vol. 24, pp.1187–1208.

Naman, J.L. and Slevin, D.P. (1993) 'Entrepreneurship and the concept of fit: a model and empirical tests', *Strategic Management Journal*, Vol. 14, pp.137–153.

O'reilly, C. and Tushman, M. (2007) 'Ambidexterity as a dynamic capability: resolving the innovator's dilemma', in Staw, B. and Brief, A. (Eds): *Research in Organizational Behavior*, Vol. 29.

Olson, E.M., Slater, S.F. and Hult, G.T.M. (2005) 'The performance implications of fit among business strategy, marketing organization structure, and strategic behavior', *Journal of Marketing*, Vol. 69, pp.49–65.

Porter, M.E. (1990) *The Competitive Advantage of Nations*, The Free Press, New York.

Prahalad, C.K. and Hamel, G. (1990) 'The core competence of the corporation', *Harvard Business Review*, Vol. 68, pp.79–91.

Ramaswami, S.N., Srivastava, R.K. and Bhargava, M. (2009) 'Market-based capabilities and financial performance of firms: insights into marketing's contribution to firm value', *Journal of the Academy of Marketing Science*, Vol. 37, pp.97–116.

Rauch, A., Wiklund, J., Lumpkin, G.T.T. and Frese, M. (2009) 'Entrepreneurial orientation and business performance: an assessment of past research and suggestions for the future', *Entrepreneurship Theory and Practice*, Vol. 33, pp.761–787.

Renko, M., Carsrud, A. and Brännback, M. (2009) 'The effect of a market orientation, entrepreneurial orientation, and technological capability on innovativeness: a study of young biotechnology ventures in the United States and in Scandinavia', *Journal of Small Business Management*, Vol. 47, pp.331–369.

Setiadi, R., Batu, K.L. and Soesanto, H. (2017) 'Does an environmental marketing strategy influence marketing and financial performance? A study of Indonesian exporting firms', *Trziste= Market*, Vol. 29, No. 2, pp.177–192.

Slater, S.F. and Narver, J.C. (1995) 'Market orientation and the learning organization', *Journal of Marketing*, Vol. 59, pp.63–74.

Soininen, J., Martikainen, M., Puumalainen, K. and Kyläheiko, K. (2012) 'Entrepreneurial orientation: growth and profitability of Finnish small- and medium-sized enterprises', *International Journal of Production Economics*, Vol. 140, pp.614–621.

Song, X.M. and Parry, M.E. (1997) 'A cross-national comparative study of new product development processes: Japan and the United States', *Journal of Marketing*, Vol. 61, pp.1–18.

Spencer, J.W. (2003) 'Firms' knowledge-sharing strategies in the global innovation system: empirical evidence from the flat panel display industry', *Strategic Management Journal*, Vol. 24, pp.217–233.

Suroso, A., Anggraeni, A.I. and Andriyansah (2017) 'Optimizing SMEs' business performance through human capital management', *European Research Studies Journal*, No. 4B, pp.588–599.

Tang, J., Kacmar, K.M. and Busenitz, L. (2012) 'Entrepreneurial alertness in the pursuit of new opportunities', *Journal of Business Venturing*, Vol. 27, pp.77–94.

Tayauova, G. (2011) 'The impact of international entrepreneurial orientation on strategic adaptation', *Procedia – Social and Behavioral Sciences*, Vol. 24, pp.571–578.

Teece, D.J., Pisano, G. and Shuen, A. (1997) 'Dynamic capabilities and strategic management', *Strategic Management Journal*, Vol. 18, pp.509–533.

Uotila, J., Maula, T. and Zahra, K.A.S.A. (2009) 'Exploration, exploitation, and financial performance: analysis of S&P 500 CORPORATIONS', *Strategic Management Journal*, Vol. 30, pp.221–231.

Ürü, F.O., Çalıskan, S.C., Atan, Ö. and Aksu, M. (2011) 'How much entrepreneurial characteristics matter in strategic decision-making?' *Procedia – Social and Behavioral Sciences*, Vol. 24, pp.538–562.

Valliere, D. (2013) 'Towards a schematic theory of entrepreneurial alertness', *Journal of Business Venturing*, Vol. 28, pp.430–442.

Van Sluisveld, M.A.E. and Worrell, E. (2013) 'The paradox of packaging optimization – a characterization of packaging source reduction in the Netherlands', *Resources, Conservation and Recycling*, Vol. 73, pp.133–142.

Vorhies, D.W. and Morgan, N.A. (2005) 'Benchmarking marketing capabilities for sustainable competitive advantage', *Journal of Marketing*, Vol. 69, pp.80–94.

Wang, H. and Li, J. (2008) 'Untangling the effects of overexploration and overexploitation on organizational performance: the moderating role of environmental dynamism', *Journal of Management*, Vol. 34, pp.925–951.

Weerawardena, J. (2003) 'The role of marketing capability in innovation-based competitive strategy', *Journal of Strategic Marketing*, Vol. 11, pp.15–35.

Weerawardena, J. and O'Cass, A. (2004) 'Exploring the characteristics of the market-driven firms and antecedents to sustained competitive advantage', *Industrial Marketing Management*, Vol. 33, No. 5, pp. pp.419–428.

Wiklund, J. and Shepherd, D. (2005) 'Entrepreneurial orientation and small firm performance: a configurational approach', *Journal of Business Venturing*, Vol. 20, pp.71–91.

Williams, C. and Lee, S.H. (2009) 'Resource allocations, knowledge network characteristics and entrepreneurial orientation of multinational corporations', *Research Policy*, Vol. 38, pp.1376–1387.

Zahra, S.A. (1991) 'Predictors and financial outcomes of corporate entrepreneurship: an exploratory study', *Journal of Business Venturing*, Vol. 6, pp.259–285.

Zhou, K.Z., Brown, J.R., Dev, C.S. and Agarwal, S. (2007) 'The effects of customer and competitor orientations on performance in global markets: a contingency analysis', *Journal of International Business Studies*, Vol. 38, pp.303–319.

Zhou, K.Z. and Li, C.B. (2010) 'How strategic orientations influence the building of dynamic capability in emerging economies', *Journal of Business Research*, Vol. 63, pp.224–231.

Zhou, K.Z., Yim, C.K. and Tse, D.K. (2005) 'The effects of strategic orientations on technology- and market-based breakthrough innovations', *Journal of Marketing*, Vol. 69, pp.42–60.

Zollo, M. and Winter, S.G. (2002) 'Deliberate learning and the evolution of dynamic capabilities', *Organization Science*, Vol. 13, pp.339–351.

Zou, S. and Cavusgil, S.T. (2002) 'The GMS: a broad conceptualization of global marketing strategy and its effect on firm performance', *Journal of Marketing*, Vol. 66, pp.40–56.