



UNIVERSITY OF LEEDS

This is a repository copy of *Enhancing sales benefits of radical product innovation capability in internationalizing small and medium-sized firms: A multi-country empirical examination*.

White Rose Research Online URL for this paper:  
<http://eprints.whiterose.ac.uk/99633/>

---

**Article:**

Boso, N, Story, VM, Cadogan, JW et al. (3 more authors) (2016) Enhancing sales benefits of radical product innovation capability in internationalizing small and medium-sized firms: A multi-country empirical examination. *Journal of Business Research*, 69 (11). pp. 5040-5045. ISSN 0148-2963

<https://doi.org/10.1016/j.jbusres.2016.04.077>

---

© 2016. This manuscript version is made available under the CC-BY-NC-ND 4.0 license  
<http://creativecommons.org/licenses/by-nc-nd/4.0/>

**Reuse**

Unless indicated otherwise, fulltext items are protected by copyright with all rights reserved. The copyright exception in section 29 of the Copyright, Designs and Patents Act 1988 allows the making of a single copy solely for the purpose of non-commercial research or private study within the limits of fair dealing. The publisher or other rights-holder may allow further reproduction and re-use of this version - refer to the White Rose Research Online record for this item. Where records identify the publisher as the copyright holder, users can verify any specific terms of use on the publisher's website.

**Takedown**

If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing [eprints@whiterose.ac.uk](mailto:eprints@whiterose.ac.uk) including the URL of the record and the reason for the withdrawal request.



[eprints@whiterose.ac.uk](mailto:eprints@whiterose.ac.uk)  
<https://eprints.whiterose.ac.uk/>

**Enhancing the sales benefits of radical product innovativeness in internationalizing  
small and medium-sized enterprises**

Nathaniel Boso\*

University of Leeds, Leeds University Business School, Leeds, LS2 9JT, United Kingdom

Email: [N.Boso@Leeds.ac.uk](mailto:N.Boso@Leeds.ac.uk)

Vicky M. Story

Loughborough University, Loughborough, Leicestershire LE11 3TU, United Kingdom

Email: [V.M.Story@Lboro.ac.uk](mailto:V.M.Story@Lboro.ac.uk)

John W. Cadogan

Loughborough University and Lappeenranta University of Technology, Loughborough,  
Leicestershire LE11 3TU, United Kingdom

Email: [j.w.cadogan@Lboro.ac.uk](mailto:j.w.cadogan@Lboro.ac.uk)

Jonathan Annan

Kwame Nkrumah University of Science and Technology, Accra Road, Kumasi, Ghana

Email: [jothananan@yahoo.com](mailto:jothananan@yahoo.com)

Selma Kadić-Maglajić

University of Sarajevo, Obala Kulina bana 7/II, Sarajevo 71000, Bosnia and Herzegovina

Email: [selma.kadic@efsa.unsa.ba](mailto:selma.kadic@efsa.unsa.ba)

Milena Micevski

University of Vienna, Universitätsring 1, 1010 Wien, Austria

Email: [milena.micevski@univie.ac.at](mailto:milena.micevski@univie.ac.at)

\*Please send correspondence to: Nathaniel Boso, University of Leeds, Leeds University Business School, Leeds, United Kingdom. Tel.: +441133432636; Email: [N.Boso@Leeds.ac.uk](mailto:N.Boso@Leeds.ac.uk)

March 2016

The authors are grateful to contributions from Professor Yaw Debrah, Swansea University and Dr. Joseph Amankwah-Amoah, University of Bristol for their careful reading and suggestions on revising this article.

**Abstract**

This study draws on resource-based theory to examine the strategic orientation conditions under which radical product innovation capability is more or less beneficial. To test these relationships, this study conducts multiple survey studies among international small and medium-sized enterprises (SMEs) in developed and developing economies. This study finds that, although a positive association exists between radical product innovativeness and sales performance in the context of a developed economy, the relationship is non-significant in a developing market context. In addition, across both the developed and developing economy contexts, when high levels of radical product innovativeness exist, as well as when entrepreneurial orientation increases in magnitude, a corresponding increase in sales performance occurs. Similarly, this study finds that, across both contexts, high market-orientation levels strengthen the effect of radical product innovativeness on sales performance.

Keywords: radical product innovation capability; strategic orientation; sales performance; developed economy; developing economy.

## 1. Introduction

Extant literature on product innovation suggests that a radical product innovation capability provides firms with the benefits of first-mover and pioneer advantage (Zhang, Xufei, & Yue, 2012). It is argued that a radical product innovation capability allows firms to obtain faster market penetration, premium prices, accelerated cash flows, reduced volatility and vulnerability of cash flows, greater customer loyalty, substantial cost reductions, and the capacity to extend operations to new markets, relative to more incrementally innovative firms (Tellis, Prabhu, & Chandy, 2009). However, empirical findings regarding the effect of radical product innovativeness on performance have been inconsistent (Evanschitzky, Eisend, Calantone, & Jiang, 2012; Rosenbusch, Brinckmann, & Bausch, 2011).

Additionally, although SMEs attempting to compete in foreign markets face multiple resource and legitimacy challenges, the extant literature both under-recognizes and under-researches how such firms radically innovate in their international market operations (Tomlinson & Fai, 2013). To this end, this study proposes the examination of two important contingency factors: (1) the firms' complementary resources and (2) institutional and infrastructural conditions under which internationalizing SMEs innovate. The research purpose, therefore, is to examine the moderating effects of complementary firm resources (focusing on strategic orientations) on the radical product innovativeness-performance relationship in both more and less developed institutional settings. By doing so, this study shows why these contingencies are important boundary conditions that help enrich the understanding of how radical product innovation capability is more or less beneficial for SMEs performance.

Consequently, this paper seeks to make two theoretical and contextual contributions. First, by addressing calls to further research on the interface between innovation, entrepreneurship, and marketing domains (Avlonitis & Salavou, 2007; Li, Zhao, Tan, & Liu, 2008), this study

extends scholarly understanding of the consequences of radical innovation efforts, by examining the moderating effects of entrepreneurial orientation (EO) and market orientation (MO) on the radical product innovativeness-performance relationship. To this end, this study extends knowledge on how a firm's capacity to combine resources in unique ways helps create and commercialize successful, inventive new products (Augier & Teece, 2007). Additionally, this study enriches literature on how the success of radical product innovation depends on a firm's willingness and proclivity to generate, share, and respond to market information (Jaworski & Kohli, 1993).

Second, this study notes that variations in institutional development across nations may condition the effectiveness of firms' business activities (van Waarden, 2001) because firms "are both constrained and enabled by the institutions in their environment" (Bruton, Ahlstrom, & Li, 2010, p. 426). Acknowledging potential variation in the levels of institutional development—in terms of resources, possibilities, and limitations—as well as their implications for the outcomes of radical product innovation activities across more and less developed institutional environments (van Waarden, 2001), this study investigates the role that differences in institutional development may play in shaping the nature of the radical product innovativeness-performance relationship. As a result, this study tests the conceptual model, displayed in Figure 1, with primary data from internationalizing SMEs operating in developed and developing market economies.

Figure 1 here.

## **2. Theoretical foundation and hypotheses**

Radical innovativeness is the degree to which a firm's innovation activities depart from existing products and/or technologies (McDermott & O'Connor, 2002). Radically innovative products have the capacity to render existing products and technologies obsolete and

transform industries and markets (Troilo, De Luca, & Atuahene-Gima, 2013). Further, the multi-dimensionality of innovativeness is well recognized (e.g., Garcia & Calantone, 2002) and, while definitions highlight a number of dimensions, this paper focuses on past research regarding the degree of radicalness (or newness) of firms' new products (e.g., Kyrgidou & Spyropoulou, 2013).

The literature suggests a number of reasons for the positive relationship between radical product innovativeness, a firm's ability to develop and commercialize original innovations relative to the competition, and the firm's business success (Calantone, Cavusgil, & Zhao, 2002). First, this innovativeness enables firms to create dramatic product and process differentiations (Tellis et al., 2009), enabling them to alter the nature of the competition, and to compete in areas in which they have the upper hand relative to competitors (Calantone et al., 2002; Garcia & Calantone, 2002). Second, high levels of innovation novelty help firms build robust brand images and reputation assets (McDermott & O'Connor, 2002). Third, radical innovations help firms to meet sales and profitability objectives more quickly than less innovative competitors because novelty effects and high customer trials lead to greater adoption rates (Tellis et al., 2009).

However, empirical findings regarding the value of firm innovativeness, in general, and radical innovativeness, in particular, have been inconsistent; performance outcomes are positive in some studies and negative in others (see Rosenbusch et al., 2011). Indeed, some studies show that firms who are incremental in their product innovation efforts also enjoy performance benefits; their new product portfolios are more familiar to customers, have less uncertainty, and fit better within existing new product development routines and market frameworks (e.g., Calantone et al., 2002). In addition, other studies fail to reveal a direct effect (e.g., Zhang et al., 2012). This study argues that the examination of key firm resources and institutional contextual contingencies may provide answers for these inconsistencies.

## 2.1. Moderating effect of strategic orientations

In line with Miller and Friesen (1982) and Lumpkin and Dess (1996) this work argues that a firm's EO may help amplify the likelihood of radical product innovativeness enhancing performance. EO refers to a firm's proclivity to be innovative, risk seeking, proactive, competitively aggressive, and supportive of autonomous decision-making (Lumpkin & Dess, 1996). Accordingly, Miller and Friesen (1982) argue that firms with greater EO are willing to take considerable risks to pioneer novel innovations. In addition, firms with superior EO innovate in a more proactive and aggressive manner, enabling them to connect to new customer needs more successfully. Furthermore, firms that are receptive to autonomous decision-making tend to develop organic structures that make converting novel new product ideas to revenue generating new products easier. Therefore, under high levels of EO, the effect of higher levels of radical innovativeness on performance should be amplified (Wu, Chang, & Chen, 2008). Thus, this study posits that:

H1: The relationship between radical product innovativeness and firm performance is more positive when levels of EO increase in magnitude.

MO relates to a firm's willingness to generate, disseminate, and respond to market information (Jaworski & Kohli, 1993). Interestingly, although studies suggest a significant positive relationship between MO and innovation (e.g., Deshpandé, Farley, & Webster, 1993), evidence showing negative (e.g., Bennett & Cooper, 1981; Zhou, Yim, & Tse, 2005) and non-significant (e.g., Baker & Sinkula, 2007) relationships abound. Based on resource-based theory (e.g., Day, 1994), this study argues that MO, as a firm-level resource, may facilitate the radical innovativeness-performance relationship through a moderating effect.

As a major source of ideas for new products and services, MO enables companies to act differently in response to market conditions (Jaworski & Kohli, 1993). Indeed, in firms where MO is a predominant orientation, radical innovation activities are emphasized more than incremental innovation (Baker & Sinkula, 2009) because such firms create conducive climates for in-depth understanding of the target market (e.g., Day 1994), making new product failures less likely. Accordingly, this study argues that:

H2: The relationship between radical product innovativeness and firm performance is more positive when levels of MO increase in magnitude.

## 2.2. Differential effects across developed and developing institutional environments

The institutional environment plays a role in shaping business success (Williamson, 1985), and the extant literature suggests that variations in institutional development levels across nations may explain why some nations have greater innovation outputs than do others (Beck, Demirgüç-Kunt, & Maksimovic, 2008; van Waarden, 2001). In addition, the conventional wisdom is that firms in developed economies are predominantly the ones that undertake radical innovations, primarily because of the superiority of the institutions in developed nations, when compared to those in developing countries. Therefore, this study posits that variations in the levels of institutional development across both developed and less developed economies may account for the differences in the effectiveness of radical product innovation strategies across firms.

Several reasons for this claim exist. This study draws on institutional theory to argue that variations in institutional development levels may affect the economic values that accrue to firms, as a result of investments in radical innovation activities. In addition, researchers have argued that institutions (e.g., laws and regulations) should act to reduce the risks and uncertainties linked to innovation efforts (Bruton et al., 2010). As a result, the expectation is



that innovation success rates will increase when institutions become more developed and function as anticipated (van Waarden, 2001). From this perspective, under differing institutional contexts, firms' innovation as well as strategic entrepreneurial and market-oriented activities vary (e.g., Beck et al., 2008; Manolova, Eunni, & Gyoshev, 2008).

Further, developed economies typically have long histories of strong legal and financial systems, fair competition, and well-developed institutions and infrastructure. In contrast, developing economies tend to have institutions that are less developed (Manolova et al., 2008). Thus, this study argues that:

H3: H1 and H2 will be significantly different across developed and developing economies.

### **3. Research methodology**

#### **3.1. Study settings**

To examine the study's conceptual model, data is collected from exporting SMEs in developed (i.e., UK and Ireland) and developing (i.e., Ghana and Bosnia and Herzegovina (B&H)) economies via a structured questionnaire. To ensure consistency, this study conceptualizes all variables at the export level. Because each country offers specific opportunities and limitations, the actual data collection procedures vary slightly across locations (Aulakh, Kotabe, & Teegen, 2000). Based on the work of Wiklund and Shepherd (2011), this study only focuses on firms that meet key requirements: (1) firms that are independent local entities and not part of any company group or chain, (2) firms that employ a minimum of five full-time employees, (3) manufacturers of physical products or service providers that engage in export marketing activities (excluding those involved in the export of raw materials), (4) firms with a minimum of five years of exporting experience, and (5) firms with complete contact information for the Chief Executive Officer (CEO) or someone with comparable seniority.

This study uses the FAME database to obtain samples in the UK and Ireland. With regard to the UK, after contacting 830 exporting firms, from an initial list of 1,081, excluding ineligible firms (251), this study yields 198 completed questionnaires (response rate of 24.0%). With regard to Irish firms, after contacting 700, and after discounting ineligible firms (90), this study yields 127 valid responses (response rate of 21.0%). The firms in both samples operate in multiple industries including computer, aviation, textile and garment, food and beverage, and financial services. On average, the UK firms have 256 full-time employees, US\$ 749 million annual sales, and 40.7% of total annual revenue. Further, the Irish firms have similar characteristics: 186 full-time employees, US\$ 418 million in total annual sales, and 52% of sales come from export market operations.

In Ghana, this study develops the sampling frame from the Ghana Export Promotion Authority (GEPA) database and Ghana business directory, and contacts the CEOs of all 750 exporting firms listed in the database and directory, obtaining 164 useable responses (21.8% response rate). These firms operate in multiple industries, such as cookware, processed food and beverages, crafts, agro-processing, textiles and garments, security services, financial services, and engineering, which are representative of those of most developing economies. The firms are mainly SMEs that employ an average of 156 employees, with an average turnover of US\$ 3.2 million, and foreign sales accounting for 63% of total annual sales on average.

For B&H, because the official business language is not English, in order to ensure questionnaire transferability and equivalence, this study uses a back-to-back translation procedure (by native speakers) to minimize the potential effects of the linguistic differences, and collects the data from companies listed in the Register of the Foreign Trade Chamber of B&H. The sampling frame contains 555 randomly selected exporting firms from a wide spread of product/industry sectors, including wholesalers, IT, textiles and garments, fast-

moving consumer goods, agriculture, automotive, tobacco, and energy, and 117 usable responses are received (21.1% response rate). The firms employ an average of 251 employees, have an average turnover of US\$ 20.5 million, and have export sales accounting for 40% of total annual sales on average. In comparing early and late respondents by applying Armstrong and Overton's (1977) non-response test in all settings, this study finds no significant differences.

### 3.2. Measures

This study assesses sales performance using the objective international sales revenues from the firms, a meaningful firm performance indicator for young and small internationalizing firms (Dencker & Gruber, 2014). To account for skewness and minimize any fluctuations in sales revenues, this study uses the average sales from 2011 to 2014, after calculating their natural logs. To validate the objective sales figures, this study collects perceptual performance data, which includes the finance managers' satisfaction with their firms' market share, sales revenue, and sales revenue growth. A seven-point rating scale (1 = extremely dissatisfied and 7 = extremely satisfied) measures each item. After correlating the objective and perceptual performance data, this study obtains strong correlations in both developed ( $r = .50$ ;  $p < .01$ ) and developing ( $r = .48$ ;  $p < .01$ ) market samples (see Table 1).

Table 1 here.

To operationalize the radical product innovativeness construct, this study uses a seven-point scale (1 = not at all and 7 = to an extreme extent) by Tellis et al., (2009). Additionally, the study draws on Jambulingam, Kathuria, and Doucette's (2005), as well as Boso, Story, and Cadogan's (2013), scale to assess EO. Further, the study uses Cadogan, Kuivalainen, and Sundqvist's (2009) export MO behavior scale to assess MO. To control for possible

confounds, this study includes several control variables (i.e., firm size, industry type, firm experience, and R&D expenses).

To account for bias, this study performs the correlational marker variable test for common method bias (CMB). Furthermore, the fact that the model contains multiple interactive relationships implies high unlikeliness of respondents' ability to predict complex relationships involved in this study, which in combination with correlational marker variable test, suggests that CMB is unlikely to be an issue for this study.

## 4. Analyses

### 4.1. Measurement model assessment

For each country, this study conducts a confirmatory factor analysis (CFA) of all items using LISREL 8.5 as well as a maximum likelihood estimation procedure. All four samples obtain acceptable model fits: UK:  $\chi^2$  (d.f.) = 828.32 (563), RMSEA = .05, NNFI = .93, CFI = .94, and SRMR = .05; Ireland:  $\chi^2$  (d.f.) = 708.23 (563); RMSEA = .05; NNFI = .91; CFI = .92; and SRMR = .06; Ghana:  $\chi^2$  (d.f.) = 663.65 (563); RMSEA = .04; NNFI = .94; CFI = .95; and SRMR = .04; and B&H:  $\chi^2$  (d.f.) = 735.07 (563); and RMSEA = .06; NNFI = .90; CFI = .90; and SRMR = .08. Given the acceptable CFA model fit, this study evaluates the items using the equivalence of measurement items across markets following the hierarchical tests approach recommended by Steenkamp and Baumgartner (1998). Accordingly, this study conducts a multi-group CFA of all items following the maximum likelihood estimation procedure. The findings indicate that configural, metric, scalar, factor variance, and error variance invariances exist for all constructs across all samples, and the items are equally reliable across all samples.

Subsequently, this study merges the UK and Ireland samples to create a developed market sample, as well as the Ghana and B&H samples to create a developing market sample. Then,

the study conducts an additional CFA, with findings indicating an acceptable model fit for the developed ( $\chi^2$  (d.f.) = 1103.54 (563), RMSEA = .06; NNFI = .91; CFI = .93; and SRMR = .04) and developing market ( $\chi^2$  (d.f.) = 840.01 (528); RMSEA = .05; NNFI = .93; CFI = .94; and SRMR = .05) samples.

Next, combining the datasets creates a single sample for the purposes of conducting reliability, convergent validity, and discriminant validity tests. Specifically, the scores for composite reliability and average variance extracted exceed the required benchmarks of .70 and .50, respectively, confirming reliability and convergent validity (Fornell & Larcker, 1981). Additionally, the average variance extracted for each construct is superior to the highest shared variance of that construct with any of the other constructs in the model, confirming discriminant validity. Further, this study obtains significant standardized factor loadings for each item (ranging from .67 to .92), further supporting the constructs' validity.

#### 4.2. Structural model estimation and findings

To reduce model complexity (Ping, 1995), this study takes averages across the multi-items constructs to create composite scores and uses the single-item scores in a multi-group structural equation modeling. In addition, this study orthogonalizes all variables involved in multiplicative interactions to minimize multicollinearity problems.

Next, this study creates developed and developing market models and, following hierarchical procedures, tests three multi-group models with all structural paths allowed to vary across the developed and developing market groups. Model 1 contains only the control variables, Model 2 adds the direct effect and moderating effect variables, and Model 3 includes the interaction effect variables. Furthermore, this study constructs an additional model (Model 4) to determine whether constraining the structural paths and  $R^2$  values in Model 3 to be equal across the two groups would lead to a reduction in model fit. The study

finds that in both groups, Model 3 has the smallest chi-square and  $R^2$  values; thus, this study uses Model 3 to interpret the hypotheses. Table 2 presents the summary of the findings.

Table 2 here.

This study finds that the radical product innovativeness and EO interaction term has a positive relationship with performance among developed ( $\gamma = .12$ ;  $t = 1.86$ ;  $p < .05$ ) and developing ( $\gamma = .12$ ;  $t = 1.99$ ;  $p < .05$ ) market firms, providing support for H1. In support of H2, results show that the interaction term for MO and radical product innovativeness has a positive relationship with performance in both developed ( $\gamma = .15$ ;  $t = 1.95$ ;  $p < .05$ ) and developing ( $\gamma = .12$ ;  $t = 1.88$ ;  $p < .10$ ) market firms. The results do not support the test of whether the two hypotheses are variant across both groups because when the estimated structural paths are equally constrained across both groups, significant changes are observed in the model fit ( $\Delta\chi^2 = 6.94$ ;  $\Delta d.f. = 5$ ;  $p > .05$ ) and  $R^2$ . Thus, this study rejects H3 in favor of the alternative argument that the relationships are invariant across both contexts. Figures 2 and 3 provide the surface plots of the interaction terms across both settings.

Figures 2 and 3 here.

## **5. Theoretical and managerial implications**

This research aims to explain the strategic orientation and institutional conditions under which the variations in radical product innovativeness are more or less beneficial for internationalizing SMEs. First, the study departs from previous studies by arguing that the effect of radical product innovativeness on SME performance is more positive when strategic orientation activities are stronger. The study finds that a key reason for the inconsistencies in the literature regarding the benefit of radical innovation is due to a lack of understanding of the roles of firms' strategic orientations; this finding suggests that radical product

innovativeness is most beneficial for SMEs when they are also increasingly entrepreneurial and market-oriented in their business operations.

Second, the study demonstrates that the value of radical product innovativeness and moderating effects of firms' strategic orientations are invariant across developed and developing market contexts. This finding is a direct contradiction to conventional wisdom that suggests that firms in industrialized nations benefit more from radical innovations than those in developing markets. While contradicting this normative assumption, this finding is in line with the argument that firms often have a propensity to adapt to the institutional environment within which they operate. For example, Arnold and Quelch (1998) argue that although only little market data, distribution systems, communication channels, regulatory discipline, and affluence consumption exist in developing countries to support commercial viability of radical product innovations, local firms adapt to the market challenges to operate successfully. Thus, given these results, this study extends the existing radical product innovation frameworks, formulated and applied with a developed economy mindset, to developing market settings.

The study concludes that with the right levels of EO and MO, radical product innovativeness benefits developed market SMEs based on the assumption that adopters and users of radical products in industrialized economies possess the full knowledge and skills required to use radical product innovations, and that institutional disciplines to protect such innovations from anti-market erosion exist. Similarly, with the right levels of EO and MO, radical product innovativeness benefits developing market SMEs because such firms develop the capacity to understand and adapt to the idiosyncrasies of their developing market system.

## **6. Limitations and direction for further research**

This study has some limitations. First, this study uses SMEs with operations in two developed and two developing market economies; hence, generalization from the findings should proceed cautiously. For example, one could argue that the behavior of internationally focused SMEs may be different from more domestic –focus SMEs. Thus, future research that compares findings across internationally and domestic-focus SMEs would help extend the extant literature. Second, the cross-sectional nature of this study limits the ability to make causal inferences; thus, future research that uses a longitudinal research design to investigate the relationships could add valuable new insights to the literature. Additionally, to accept the notion that radical innovativeness is a major determinant of firm success, managers must know what they can do to increase radical innovation activities. Accordingly, studies examining antecedents to radical product innovativeness would be useful. Furthermore, certain EO and MO activities may hold greater value for firms than do others. For instance, autonomous activities implemented within organic structures may lead to greater radical innovation outcomes than would a more conservative and mechanistic approach. Therefore, additional research on EO and MO activities, as well as their specific roles in supporting radical innovation activities, would help extend the literature on radical product innovation.



## References

- Armstrong, J. S., & Overton, T. S. (1977). Estimating nonresponse bias in mail surveys. *Journal of Marketing Research*, 14(3), 396–402.
- Arnold, D. J., & Quelch, J. A. (1998). New strategies in emerging markets. *MIT Sloan Management Review*, 40(1), 7–20.
- Augier, M., & Teece, D. J. (2007). Dynamic capabilities and multinational enterprise: Penrosean insights and omissions. *Management International Review*, 47(2), 175–192.
- Aulakh, P. S., Kotabe, M., & Teegen, H. (2000). Export strategies and performance of firms from emerging economies: Evidence from Brazil, Chile, and Mexico. *Academy of Management Journal*, 43(3), 342–361.
- Avlonitis, G. J., & Salavou, H. E. (2007). Entrepreneurial orientation of SMEs, product innovativeness, and performance. *Journal of Business Research*, 60(5), 566–575.
- Baker, W. E., & Sinkula, J. M. (2007). Does market orientation facilitate balanced innovation programs? An organizational learning perspective. *Journal of Product Innovation Management*, 24(4), 316–334.
- Baker, W. E., & Sinkula, J. M. (2009). The complementary effects of market orientation and entrepreneurial orientation on profitability in small businesses. *Journal of Small Business Management*, 47(4), 443–464.
- Beck, T., Demirgüç-Kunt, A., & Maksimovic, V. (2008). Financing patterns around the world: Are small firms different? *Journal of Financial Economics*, 89(3), 467–487.
- Bennett, R. C., & Cooper, R. G. (1981). The misuse of marketing: an American tragedy. *Business Horizons*, 24(6), 51–61.
- Boso, N., Story, V. M., & Cadogan, J. W. (2013). Entrepreneurial orientation, market orientation, network ties, and performance: Study of entrepreneurial firms in a

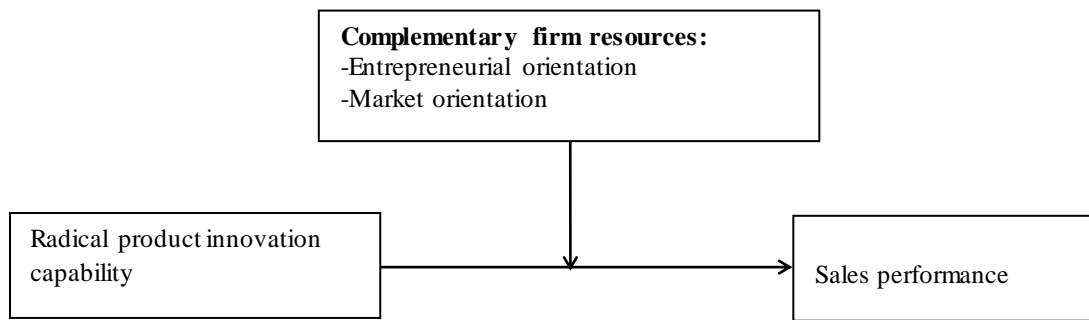
- developing economy. *Journal of Business Venturing*, 28(6), 708–727.
- Bruton, G. D., Ahlstrom, D., & Li, H. L. (2010). Institutional theory and entrepreneurship: Where are we now and where do we need to move in the future? *Entrepreneurship Theory and Practice*, 34(3): 421–440.
- Cadogan, J. W., Kuivalainen, O., & Sundqvist, S. (2009). Export market-oriented behavior and export performance: Quadratic and moderating effects under differing degrees of market dynamism and internationalization. *Journal of International Marketing*, 17(4), 71–89.
- Calantone, R., Cavusgil, S. T., & Zhao, Y. (2002). Learning orientation, firm innovation capability, and firm performance. *Industrial Marketing Management*, 31(6), 515–524.
- Day, G. S. (1994). The capabilities of market-driven organizations. *Journal of Marketing*, 58(4), 37–52.
- Dencker, J. C., & Gruber, M. (2014). The effects of opportunities and founder experience on new firm performance. *Strategic Management Journal*, 36(7), 1035–1052.
- Deshpandé, R., Farley, J. U., & Webster Jr, F. E. (1993). Corporate culture, customer orientation, and innovativeness in Japanese firms: A quadrad analysis. *Journal of Marketing*, 57(1), 23–37.
- Evanschitzky, H., Eisend, M. Calantone, R. J., & Jiang, Y. (2012). Success factors of product innovation: An updated meta-analysis. *Journal of Product Innovation Management*, 29(S1), 21–37.
- Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research*, 18(3), 362–368.
- Garcia, R., & Calantone, R. (2002). A critical look at technological innovation typology and innovativeness terminology: A literature review. *Journal of Product Innovation*

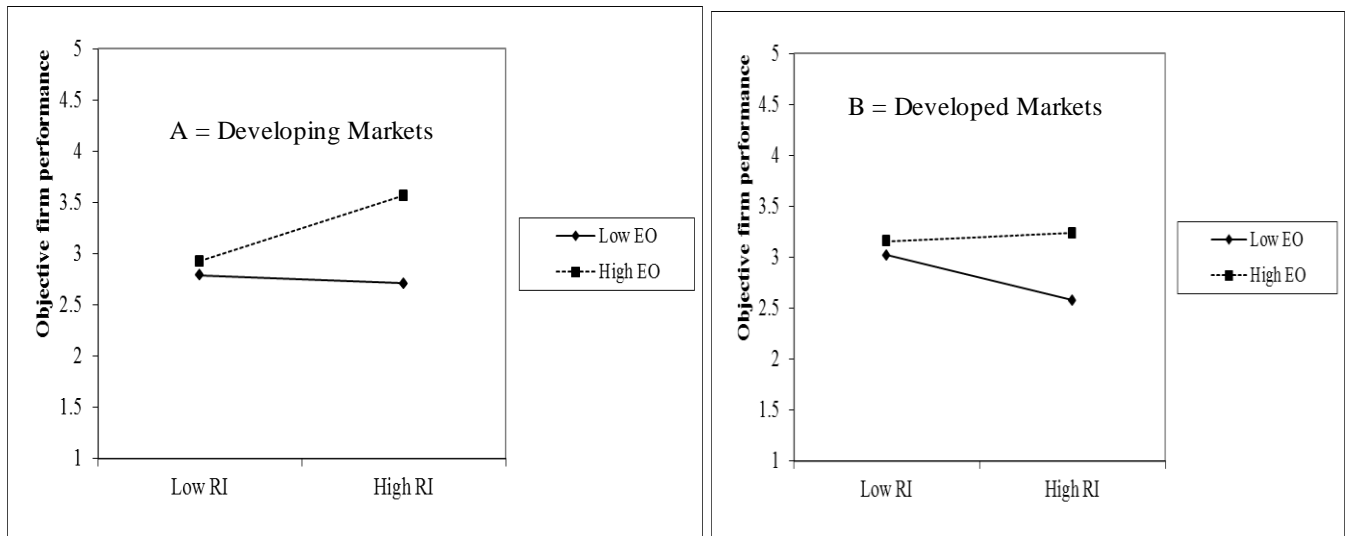
- Management, 19(2), 110–32.
- Jambulingam, T., Kathuria, R., & Doucette, W. R. (2005). Entrepreneurial orientation as a basis for classification within a service industry: The case of retail pharmacy industry. *Journal of Operations Management*, 23(1), 23–42.
- Jaworski, B. J., & Kohli, A. K. (1993). Market orientation: Antecedents and consequences. *Journal of Marketing*, 57(3), 53–70.
- Kyrgidou, L. P., & Spyropoulou, S. (2013). Drivers and performance outcomes of innovativeness: An empirical study. *British Journal of Management*, 24(3), 281–298.
- Li, Y., Zhao, Y., Tan, J., & Liu, Y. (2008). Moderating effects of entrepreneurial orientation on market orientation–performance linkage: Evidence from Chinese small firms. *Journal of Small Business Management*, 46(1), 113–133.
- Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, 21(1), 135–172.
- Manolova, T. S., Eunni, R. V., & Gyoshev, B. S. (2008). Institutional environments for entrepreneurship: Evidence from emerging economies in Eastern Europe. *Entrepreneurship: Theory and Practice*, 32(1), 203–218.
- McDermott, C. M., & O'Connor, G. C. (2002). Managing radical innovation: An overview of emergent strategy issues. *Journal of Product Innovation Management*, 19(6), 424–438.
- Miller, D., & Friesen, P. H. (1982). Innovation in conservative and entrepreneurial firms: Two models of strategic momentum. *Strategic Management Journal*, 3(1), 1–25.
- Ping Jr, R. A. (1995). A parsimonious estimating technique for interaction and quadratic latent variables. *Journal of Marketing Research*, 32(3), 336–347.

- Rosenbusch, N., Brinckmann, J., & Bausch, A. (2011). Is innovation always beneficial? A meta-analysis of the relationship between innovation and performance in SMEs. *Journal of Business Venturing*, 26(4), 441–457.
- Steenkamp, J. B. E. M., & Baumgartner, H. (1998). Assessing measurement invariance in cross-national consumer research. *Journal of Consumer Research*, 25(1), 78–107.
- Tellis, G. J., Prabhu, J. C., & Chandy, R. K. (2009). Radical innovation across nations: The preeminence of corporate culture. *Journal of Marketing*, 73(1), 3–23.
- Tomlinson, P. R., & Fai, F. M. (2013). The nature of SME co-operation and innovation: A multi-scalar and multi-dimensional analysis. *International Journal of Production Economics*, 141(1), 316–326.
- Troilo, G., De Luca, L. M., & Atuahene-Gima, K. (2013). More innovation with less? A strategic contingency view of slack resources, information search, and radical innovation. *Journal of Product Innovation Management*, 31(2), 259–277.
- van Waarden, F. (2001). Institutions and innovation: The legal environment of innovating firms. *Organization Studies*, 22(5), 765–795.
- Wiklund, J., & Shepherd, D. (2011). Where to from here? EO-as-experimentation, failure, and distribution of outcomes. *Entrepreneurship Theory and Practice*, 35(5), 925–946.
- Williamson, O. E. (1985). *The economic institutions of capitalism*. New York: Simon and Schuster.
- Wu, W-Y., Chang, M-L., & Chen, C-W. (2008). Promoting innovation through the accumulation of intellectual capital, social capital, and entrepreneurial orientation. *R&D Management*, 38(3), 265–277.
- Zhang, X., Xufei, M., & Yue, W. (2012). Entrepreneurial orientation, social capital, and the internationalization of SMEs: Evidence from China. *Thunderbird International Business Review*, 54(2), 195–210.

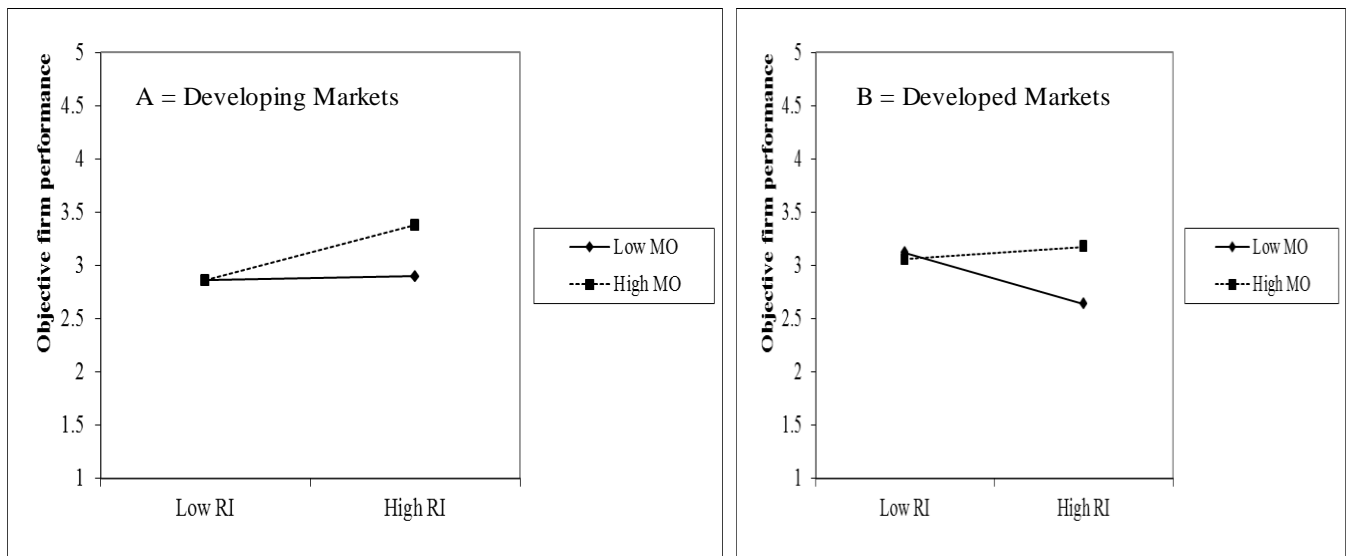
Zhou, K. Z., Yim, C. K., & Tse, D. K. (2005). The effects of strategic orientations on technology-and market-based breakthrough innovations. *Journal of Marketing*, 69(2), 42-60.

**Figure 1:** Conceptual model and hypotheses



**Figure 2:** Interactive effect of entrepreneurial orientation

Notes: RI = Radical Innovativeness; EO = Entrepreneurial Orientation

**Figure 3:** Interactive effect of market orientation



**Table 1:** Descriptive statistics and inter-construct correlations for samples

	Developed markets		Developing markets		1	2	3	4	5	6	7	8
	Mean	SD	Mean	SD								
1. Industry type	-	-	-	-	1	.00	.34**	.08	-.07	.21**	.00	.09
2. Firm size	3.5	.74	1.9	.58	.11	1	.021	.12*	.01	.30**	-.02	-.08
3. R&D expenses	4.9	.71	1.9	2.67	-.06	-.43**	1	.28**	.03	.24**	.30**	-.02
4. Business experience	49.3	34.39	10.9	11.93	-.09	-.12*	.14*	1	.09	.60**	.02	.02
5. Entrepreneurial orientation	4.4	.85	4.2	.82	.02	.17**	-.30**	.07	1	.25**	.60**	.16**
6. Market orientation	5.1	1.11	5.0	1.12	.17**	.02	-.30**	.07	.40**	1	.19**	.13*
7. Radical product innovation	4.7	.94	4.6	1.08	-.00	.05	-.10	.24**	.31**	.23**	1	.18**
8. Sales performance	4.7	.98	4.4	.927	.11	.22**	-.29**	.07	.14*	.20**	.44**	1

Note: SD = standard deviation. Above the diagonal are correlations for the DM sample (n = 319). Below the diagonal are correlations for the EM sample (n = 277). \* = Correlations are significant at  $p < .05$  (two-tailed), and \*\* = Correlations are significant at  $p < .01$  (two-tailed). Details of the measures used, as well as their respective sources, are available upon request.

**Table 2:** Findings on hypotheses testing

Independent variables	Dependent variable: sales performance (standardized estimates)					
	Model 1		Model 2		Model 3	
	Developed Markets	Developing Markets	Developed Markets	Developing Markets	Developed Markets	Developing Markets
<b>Control paths</b>						
Firm size	.00 (.01)	.11 (1.73)	.03 (.44)	.07 (1.17)	.03 (.42)	.08 (1.25)
Industry type	.02 (.36)	.03 (.34)	.02 (.29)	.07 (.91)	-.00 (-.06)	.12 (1.55)
Business experience	.07 (1.01)	-.23 (-2.60)	.04 (.68)	-.02 (-.210)	.00 (.07)	.09 (.80)
R&D expenses	-.01 (-.19)	.09 (1.41)	-.02 (-.40)	.03 (.58)	-.01 (-.16)	.02 (.35)
Radical product innovation (RI)			.03 (.46)	.14 (1.90)	-.09 (-.95)	.14 (1.47)
Entrepreneurial orientation (EO)			.21 (2.96)	.27 (3.49)	.20 (2.54)	.25 (3.36)
Market orientation (MO)			.13 (2.20)	.12 (1.93)	.12 (1.98)	.12 (1.89)
<b>Hypothesized paths</b>						
<b>H1: RI x EO</b>					.12 (1.86)	.12 (1.99)
<b>H2: RI x MO</b>					.15 (1.95)	.12 (1.88)
<b>Goodness of fit indicators:</b>						
$\chi^2$ (d.f.)	137.80 (61)	120.63 (61)	110.74 (55)	76.68 (55)	99.45 (50)	53.11 (50)
p-value	.00	.00	.00	.03	.00	.33
$\Delta \chi^2$ ( $\Delta$ d.f.)	-	-	27.06 (6)***	43.95 (6)***	11.29 (5)**	23.57 (5)***
RMSEA	.07	.06	.06	.04	.05	.02
NNFI	.91	.90	.93	.96	.94	.99
CFI	.97	.96	.98	.99	.98	1.00
SRMR	.06	.07	.05	.03	.02	.02
R <sup>2</sup>	1.6	14.4	12.0	32.8	15.6	39.6
$\Delta R^2$	-	-	10.4***	18.4***	3.6**	6.8***

Notes: \*\*\* =  $p < .01$ , \*\* =  $p < .05$ , and \* =  $p < .10$ . Critical t-values for hypothesized paths = 1.645 (5%, one-tail tests) and t-values are reported in parentheses.