

Export intensity, scope, and destinations: Evidence from Brazil



Dirk Michael Boehe^{a,*}, Gongming Qian^b, Mike W. Peng^c

^a University of Adelaide, Business School, 10 Pulteney Street, Level 10, Office 10.31, Adelaide, SA 5005, Australia

^b Chinese University of Hong Kong Business School, Department of Management, Room 816, 8/F, Cheng Yu Tung Building, No. 12, Chak Cheung Street, Shatin, N.T., Hong Kong

^c Jindal School of Management, University of Texas at Dallas, 800 West Campbell Road, SM43, Richardson, TX 75080, USA

ARTICLE INFO

Article history:

Received 13 January 2015

Received in revised form 29 October 2015

Accepted 22 January 2016

Available online 4 February 2016

Keywords:

Emerging economies

Export intensity

Export scope

Developed economies

International marketing strategy

Firm performance

ABSTRACT

How do the three dimensions of geographic export diversification—namely, (1) export intensity, (2) export scope, and (3) export destinations—interact in determining firm performance? How does the export intensity–performance relationship change considering export scope and destinations? Drawing on institution-based and resource-based lenses, we argue that differences between home and destination country institutional environments are amplified by the scope or variety of export destinations. As firm resources nurtured in the home country may not fit an increasing number of different foreign institutional environments, the export intensity–firm performance relationship turns negative. Conversely, our panel data analysis suggests a positive relationship between export intensity and performance when exporters from an emerging economy increase their exports to a limited number of other emerging economies. Thus, our findings extend conventional wisdom on the export intensity–firm performance relationship and suggest that the international marketing strategy literature needs to simultaneously incorporate three dimensions (including export destinations) into the geographic export diversification construct.

© 2016 Elsevier Inc. All rights reserved.

1. Introduction

While most research on geographic diversification deals with multinationals (Goerzen & Beamish, 2003; Qian et al., 2010; Rugman & Verbeke, 2004), many firms are active in exporting, but have not become multinationals (due to their lack of foreign direct investment [FDI]). Such exporters nevertheless have to confront a crucial but underexplored attention: How can they manage geographic export diversification?

A typical measure for geographic export diversification is export intensity, which refers to the ratio of export sales to total sales (Zhao & Zou, 2002). Some research shows a positive relationship between export intensity and firm performance. The reason is twofold: (1) more productive, competitive and knowledgeable firms export a higher proportion of sales (Bernard & Jensen, 1999; Ling-Yee, 2004), and (2) exporters that are more engaged in foreign (compared to domestic) markets learn more and thus become more competitive (Ellis et al., 2011; Salomon & Jin, 2008). However, other studies document a negative relationship. This negative relationship has been explained by reduced export price competitiveness due to widespread country-level drivers such as the home country currency appreciation, rising wages, competition by lower cost countries that lead to lower

margins overseas, among other factors (Gao et al., 2010; Ito, 1997; Lu & Beamish, 2001).

These conflicting claims suggest a gap in our understanding of the drivers of the relationship between export intensity and firm performance. We argue that the firm-level dimension, export intensity, needs to be concurrently analyzed within the context of country-level dimensions that take the form of export scope and export destinations. Export scope refers to the dispersion of activities across foreign countries (Chen & Hsu, 2010; Goerzen & Beamish, 2003), which is also known under the export market concentration versus diversification debate. This debate has long proposed that the costs and benefits of export scope are contingent on situational factors. Empirical evidence, however, has so far been inconclusive (Dean et al., 2000; Nath et al., 2010; Piercy, 1981). Export destination countries provide such situational factors.

However, prior research has hardly addressed destination country characteristics (for exceptions, see Cavusgil et al., 2004; Natarajarathinam & Nepal, 2012). Therefore, we address two research questions: (1) How do the three distinct dimensions of geographic export diversification—namely, export intensity, export scope, and export destinations—interact in determining firm performance? (2) How does the export intensity–performance relationship change when export scope and destinations are included into analyses? These questions are important because their analysis can help export managers to understand how their export strategies contribute to firm performance.

* Corresponding author.

E-mail addresses: dirk.boehe@adelaide.edu.au (D.M. Boehe), qian@baf.msmail.cuhk.edu.hk (G. Qian), mikepeng@utdallas.edu (M.W. Peng).

Drawing on the institution-based and resource-based theories, our study aspires to make three contributions. First, it integrates the three dimensions of geographic export diversification in a comprehensive framework and thus sharpens the geographic export diversification construct. While there is widespread literature on each individual dimension, their combined effects have rarely been addressed. Shedding light on this gap in understanding is important given the persistent disagreements with respect to the conceptualization and operationalization of the geographic diversification construct (Hennart, 2007; Verbeke & Forootan, 2012). Thus, an underexplored opportunity lies in combining export intensity with export scope and export destination, which results in a three-dimensional geographic export diversification construct. In what follows, we emphasize the novel destination country dimension of the three-dimensional geographic diversification construct.

Second, we build on prior institution-based work that has suggested that the international success or failure of firms is contingent on the institutional conditions of the internationalizing firms' home and destination countries (Cuervo-Cazurra & Genc, 2008; Hoskisson et al., 2013; Meyer & Peng, 2005; Peng, 2012; Wan, 2005). We derive hypotheses that relate geographic export diversification strategies to firm performance for EE firms that choose DEs or other EEs as their export destinations. By uncovering a significant destination country effect, this study broadly supports the institution-based view. Thus, the institution-based view extends existing explanations for geographic export diversification (Piercy, 1981; Dean et al., 2000).

By shedding light on the inherent trade-offs between different dimensions of export diversification, this study extends existing learning by exporting theory that has proposed linear relationships between export intensity and firm performance (Ellis et al., 2011; Ling-Yee, 2004). We argue that this relationship can change contingent on the variety (export scope) and the institutional properties of export destinations. Making progress in the learning by exporting literature therefore requires incorporating the institution-based and resource-based underpinnings of the export destination dimension.

2. Institution-based and resource-based theories

The three dimensions (Fig. 1) represent distinct properties of geographic diversification, i.e. diversification away from the home market (export intensity), across foreign markets (export scope) and across economically or institutionally dissimilar markets (export destinations). The implications of institutional differences between home and destination countries are the emphasis of this section. The subsequent section addresses how such institutional differences affect firm performance when export intensity and scope vary. Our approach builds on the incipient understanding that both export intensity and the export scope relationships require a contextual explanatory variable—export destinations—to properly explain firm performance (Dean et al., 2000; Piercy, 1981; Trofimenko, 2008; Wagner, 2012).

Although some scholars have advocated the use of only one dimension as a geographic diversification measure—foreign sales to total sales (FSTS) for multinationals or export intensity for exporters (Contractor

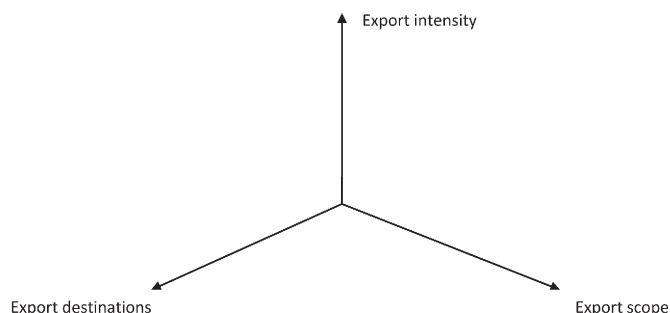


Fig. 1. The three-dimensional geographic export diversification construct.

et al., 2007; Rugman & Oh, 2011)—the choice of a three dimensional construct is more than a simple measurement issue. Different types of destination countries expose exporters to different institutional environments and consequently to different market challenges to which exporters have to adjust by proficiently deploying their resources and capabilities.

Prior research has suggested that the home country's institutional environment shapes firm resources and capabilities (Cuervo-Cazurra & Genc, 2008; Ramamurti & Singh, 2009; Wan, 2005), because institutions essentially work through incentives that prompt firms to learn, innovate and thus adapt to competitive challenges (Acemoglu et al., 2005; North, 1990). The resulting resources and capabilities explain why firms from particular EEs perform differently in particular destination countries (Aulakh, Kotabe, & Teegen, 2000; Cuervo-Cazurra et al., 2007; Peng et al., 2008; Hoskisson et al., 2013; Xu & Meyer, 2013). The literature distinguishes between weak and strong institutional environments (Peng, 2003; Shinkle & Kriauciunas, 2010). Whereas weak institutional environments imply that competition is impaired, strong ones reflect well-functioning market mechanisms. Weak institutional environments at home, often characterized by protectionism, insufficient protection of intellectual property rights (IPR), oligarchic or monopolistic market structures (Acemoglu et al., 2005), are likely to create insufficient incentives for firms to develop resources and capabilities to excel in foreign markets. For instance, protectionism limits domestic firms' exposure to international competition and thus the incentive to upgrade resources and capabilities. Lack of IPR protection limits the opportunities for firms to appropriate the gains of their investments and thus reduces the propensity to innovate (Khoury & Peng, 2011).

Weaker institutional environments at home may even impose further burdens on exporters. For example, excessive red tape increases the costs of doing business. Likewise, institutional voids, such as the lack of intermediaries that connect buyers and suppliers through information, product and service flows, tend to raise transaction costs and thus the costs of doing business (Khanna et al., 2005). There is empirical evidence that firms from EEs that have delayed market-oriented reforms are less internationalized than firms from EEs that have liberalized their economies earlier (Sol & Kogan, 2007).

However, despite such obvious disadvantages of weak institutional environments, some EE firms may develop “adversity advantages”—competitive advantages created by knowing how to work around institutional voids or by doing business in environments characterized by infrastructure and resource constraints (Ramamurti & Singh, 2009). In export markets, EE firms need competitive advantages based on valuable, rare, and difficult-to-imitate resource combinations (Barney, 1991; Kaleka, 2002) to compensate for their liability of foreignness. Adversity advantages embody context-specific knowledge resources and capabilities that can result in competitive advantage in some countries and disadvantages in others (Cuervo-Cazurra et al., 2007). For instance, EE firms can address resource and infrastructure constraints in their home country and their EE export destinations by developing products and services for populations with lower educational, income, and health levels or by introducing efficiency innovations and process improvements (Jiang et al., 2015; Ramamurti & Singh, 2009).

Finally, larger exporters may use their bargaining power in weak institutional environments to obtain financial resources, such as subsidies, tax breaks, and/or cheap loans, from home-country governments (Shinkle & Kriauciunas, 2010; Sun et al., 2015). We argue that these (adversity) advantages and disadvantages that result from EEs' home country institutional environments affect exporters' competitiveness differently, depending on the characteristics of destination countries (see Table 1). However, the homegrown relationship capability to effectively liaise with EE governments—a likely competitive advantage in other EEs—can become a liability in DEs. Thus, the resource-based view combined with the institution-based view explains why firms from particular countries of origin are differentially competitive in particular destination countries.

Table 1
Exploiting competitive advantages abroad.

Exporters from an emerging economy	Export destination countries	
	Emerging economies	Developed economies
Advantages	<ul style="list-style-type: none"> > Adversity advantages > Products suited to emerging markets > Production and operational excellence 	<ul style="list-style-type: none"> > Production and operational excellence
Disadvantages	<ul style="list-style-type: none"> > Higher costs of doing business due to weaker institutions 	<ul style="list-style-type: none"> > Higher costs of doing business due to need for adaptations > Lack of innovative products > Liability of foreignness and emergingness
Economies of scale	<ul style="list-style-type: none"> > Yes, if export intensity is high and few markets are targeted (low export scope) 	<ul style="list-style-type: none"> > Very limited

Sources: Based on Cuervo-Cazurra and Genc (2008), Ramamurti and Singh (2009), Wan (2005), and Yamakawa et al. (2013).

3. Export intensity, scope, and destination country effects

We treat export intensity as the main effect and consider export scope and destinations as moderators. This is because export intensity has been closely associated with foreign market knowledge, an essential resource for internationalization (Ellis et al., 2011; Ling-Yee, 2004). Notably, the controversy around the relationship between export intensity and firm performance constitutes this study's point of departure and lies thus at the heart of our research interest.

The present study takes place in a home country characterized as a “mid-range” EE (Hoskisson et al., 2013) and distinguishes two types of destination countries, EEs and DEs. We adopt the perspective of an emerging home economy because international expansion from one EE into other EEs or DEs is still an embryonic and therefore underrepresented phenomenon (Ramamurti & Singh, 2009; Yamakawa et al., 2013; Yamakawa et al., 2008), particularly so for exporting (Leonidou et al., 2010). Consequently, not much is known on the relationship between geographic export diversification strategies and firm performance of EE firms. Moreover, EE firms are likely to suffer from the liability of emergingness (Madhok & Keyhani, 2012), which exceeds the typical liability of foreignness discussed in the literature and explains why lessons from DE exporters may not be easily transferred to EE exporters.

If firms from a mid-range EE predominantly target other EEs as their export destination markets, they may enjoy several advantages over firms from DEs, such as EE firms' adversity advantages and products suited to low income populations (Table 1). Limited empirical evidence suggests that EE firms tend to be more successful in other EEs (Cuervo-Cazurra & Genc, 2008). Equipped with adversity advantages, EE firms may achieve higher market shares than competitors (e.g., those from DEs) without such advantages.

By achieving a higher market share within a particular EE, EE firms may be more likely to economize on scale. Economies of scale can dilute the up-front sunk costs of exporting and therefore lead to higher efficiency. Consequently, raising export intensity and thus economies of scale in foreign markets may increase firm performance. Moreover, higher export intensity reflects more export market knowledge and higher commitment to foreign compared to domestic markets, which may reduce the liability of foreignness and thus positively affect firm performance (Ellis et al., 2011; Qian et al., 2013).

However, the potential to achieve economies of scale may be rather limited. Specifically, the greater the number of export destinations the firm targets (high export scope) at a given level of export intensity, the lower the sales volume in each individual country market (Hennart, 2007). Exporters may intentionally do so to reduce risk, build up real options for future expansion, to easily gain small market shares and due to product specialization (Piercy, 1981). This comes at a cost as different types of institutional and market diversities require firms to adapt their marketing mix to specific export destinations, in particular, cultural diversity (Alden, Hoyer, & Lee, 1993; Lim, Acito, & Rusetski, 2006; Schilke, Reimann, & Thomas, 2009; Sousa & Lengler, 2009), administrative diversity (Katsikeas, Samiee, & Theodosiou,

2006; O'Cass & Julian, 2003), and economic diversity (Calantone, Kim, Schmidt, & Cavusgil, 2006). Due to the costs of marketing mix adaptations to individual country markets, it is likely that beyond a certain limit, economies of scale and firm performance may decrease. The more diverse the requirements to adapt products, the more challenging the task of coordinating potentially conflicting demands. Such coordination costs are likely to become disproportionate once the number of export destination countries becomes too large (Hutzschenreuter & Guenther, 2008).

In addition, diseconomies of scale may arise with increasing export scope due to increasing logistics costs in EEs. Although EE firms can count on some adversity advantages that may assist them to cope with weak infrastructure to a certain extent, poor roads, insufficient seaport or airport capacities, and weak security may lead to losses or damages of merchandise. Thus, at a high level of export scope, performance is likely to decrease.

Moreover, institutional voids increase transaction costs (Khanna et al., 2005). Transaction costs may be significant particularly in countries passing through institutional transitions, which increase information ambiguity and thus raise the complexity of transactions (Filatotchev et al., 2008). Accordingly, weak institutional environments require firms to emphasize relationship-based exchange instead of rule-based exchange. However, establishing trust-based social networks for relationship-based exchange takes more time than rule-based exchange (Peng, 2003). Hence, once exporters target an increasing number of EEs, the additional costs of creating relationship-based exchange in so many countries may outweigh the benefits. As a result, by spreading sales in a large number of EEs, substantially increased costs may offset the competitive advantages enjoyed by EE firms.

H1a. Export scope moderates the relationship between export intensity and firm performance. For EE firms that predominantly target other EEs, the relationship between export intensity and firm performance tends to be positive at low levels of export scope.

H1b. Export scope moderates the relationship between export intensity and firm performance. For EE firms that predominantly target other EEs, the relationship between export intensity and firm performance tends to be negative at high levels of export scope.

The picture is different if EE firms export predominantly to DEs where the competitive environment is tough given strong institutions, accessible infrastructure, and factor markets (Aulakh et al., 2000; Wan, 2005; Yamakawa et al., 2013). EE firms are generally disadvantaged in DEs due to weak institutional environments in their home countries, which result in a lack of innovative products that are competitive with products launched by DE firms (Acemoglu et al., 2005). Specifically, EE firms may not yet comply with the technical standards of DEs (Bartlett & Ghoshal, 2000; Schmitz & Knorringa, 2000). In addition, EE firms may be disadvantaged as they have insufficient resources and capabilities to overcome the liability of emergingness (Madhok & Keyhani, 2012). Therefore, EE firms may have more difficulties in achieving high

market shares than their DE counterparts. Therefore, EE firms may forgo economies of scale in individual DEs.

To be successful, exporters that target DEs in spite of a more difficult competitive environment need to adapt their products, services, and marketing strategies in order to satisfy more demanding technical, safety, and quality standards (Bartlett & Ghoshal, 2000) and to overcome their liability of emergingness (Peng, 2012). By successfully adapting to a DE institutional environment, EE firms signal their legitimacy (Brouthers et al., 2005; Yamakawa et al., 2013). In addition, adaptation helps EE firms to avoid the loss of their homegrown competitive advantages (Cuervo-Cazurra et al., 2007). However, as noted above, adaptations come at a significant cost, putting strain on financial performance.

Furthermore, transaction and logistics costs in DEs tend to be lower given fewer institutional voids, better transportation infrastructure, and reduced risks of security hazards. Strong institutional environments thus make it less costly and more attractive to expand across several DEs (Yamakawa et al., 2008, 2013). Conversely, easier market access likely entails fiercer competition both from DE and also other EE firms. This also limits the chances for EE firms from mid-range EE to achieve higher market shares and to economize on scale. Therefore, EE firms entering DEs bear the burden of higher unit costs due to forgone economies of scale and product adaptations, resulting in lower levels of firm performance compared to EE firms that predominantly enter EEs.

H2a. Export scope moderates the relationship between export intensity and firm performance. For EE firms that predominantly target DEs, the positive relationship between export intensity and firm performance at low levels of export scope is weaker (less positive) than for EE firms that predominantly target other EEs.

H2b. Export scope moderates the relationship between export intensity and firm performance. For EE firms that predominantly target DEs, the negative relationship between export intensity and firm performance at high levels of export scope is stronger (more negative) than for EE firms that predominantly target other EEs.

Fig. 2 summarizes our four hypotheses. Fig. 2 organizes the baseline export intensity–firm performance relationship along two dimensions, low–high export scope on the vertical axis and destination countries, ranging from predominantly emerging to predominantly developed economies on the horizontal axis.

4. Methods

4.1. Data

We chose Brazilian exporters because the Latin American region has been considered as under-researched (Aulakh et al., 2000; Cuervo-Cazurra & Dau, 2009; Xu & Meyer, 2013; Vassolo, de Castro, & Gomez-Mejia, 2011). As one of the BRICS nations, Brazil's institutional characteristics allegedly have resulted in high costs of doing business (Fleury & Fleury, 2009) and likely adversity advantages when Brazilian exporters sell abroad. Accordingly, this study uses archival firm-level export data from the Brazilian Ministry of Development, Industry, and Foreign Trade with information on export volumes per export destination for the period 2001–2010 (inclusive). We also obtained firm-level accounting indicators for the largest Brazilian-owned and controlled firms from the accounting department at the University of Sao Paulo. The final database included an average of more than 160 observations per year. With regard to industrial sector breakdown (using 2-digit SIC classification), close to 12% belong to the agricultural industry, 15% the food industry, 10% the metal mechanical industry, 8% the chemical industry, 7% the service industry, 5% the electronics and also 5% the automotive industry.

4.2. Measures

4.2.1. Dependent variables

Export marketing strategy studies have used export performance (Aulakh et al., 2000) and also firm performance as dependent variables (Ellis et al., 2011). However, export performance and firm performance are distinct constructs, because firm performance includes domestic market performance while export performance does not (Katsikeas

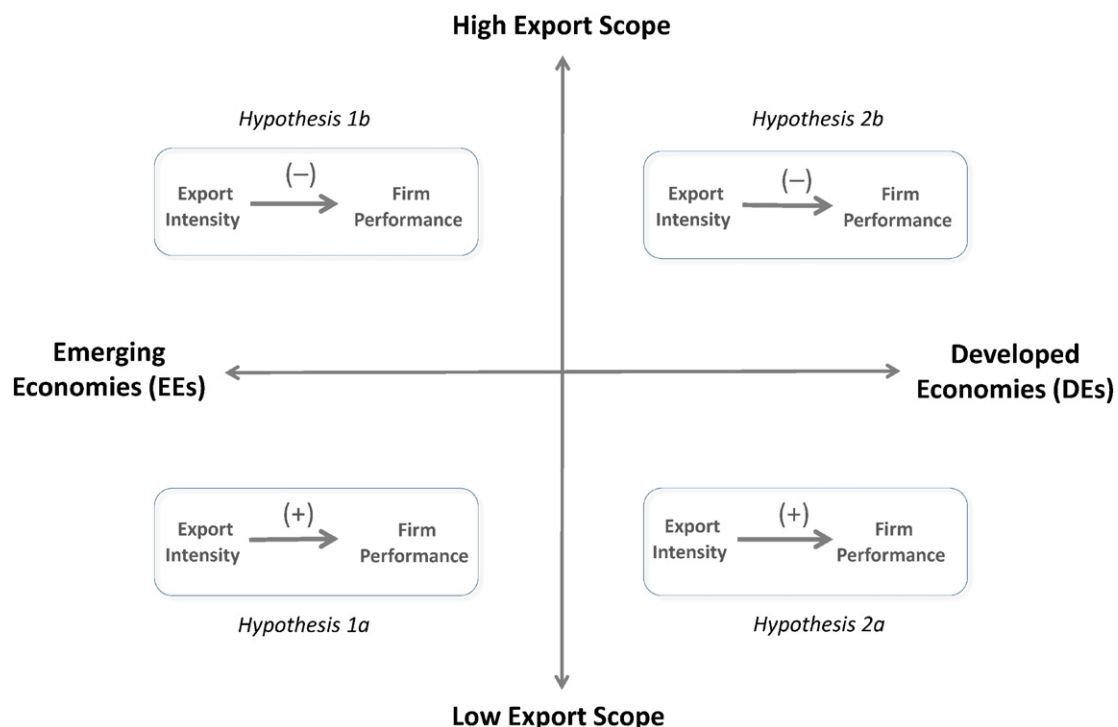


Fig. 2. Hypotheses.

et al., 2000). Moreover, export and domestic market performance seem to be interdependent and jointly affect firm performance (Salomon & Shaver, 2005). Therefore, firm performance provides a more comprehensive picture of the effects of geographic diversification. Specifically, we used return on sales (ROS) to assess firm performance. The ROS measure incorporates returns on export sales and thus has an obvious advantage over alternative firm performance measures, such as Tobin's Q (a market value measure) or overall capital efficiency measures, such as return on assets (ROA). Notwithstanding, we used ROA as a dependent variable in robustness tests (regression tables available upon request). These measures were adjusted for industry effects (standardization using industry means and standard deviations) because industry specificity may bias results (Hawawini et al., 2003).

4.2.2. Independent and moderating variables

Export intensity was measured as the ratio of export sales to total sales. It is a count measure of all export destination countries of a firm per year (Murray et al., 2011).

Export scope is a useful measure as it represents the variety of different regulatory environments and thus the need for marketing mix adaptations, particularly, modifications in products, labelling and packaging. Additional costs in logistics and distribution will also arise when crossing national borders. In line with previous research, we include the linear and the quadratic term of export scope (Li, Qian, & Qian, 2015). This is because export and international scope have presented curvilinear relationships with firm performance in numerous previous studies (Aulakh et al., 2000; Chen & Hsu, 2010; Gomes & Ramaswamy, 1999; Lu & Beamish, 2001; Palich et al., 2000). Both diversification measures (export intensity and export scope) were mean centered to mitigate potential multicollinearity concerns when these indicators are interacted with each other (Aiken & West, 1991).

Given the lack of consensus on the definition of EEs (as opposed to DEs), we used an empirically derived approach based on income levels. To measure the income levels of the export destination countries, we used the logarithm of the export destination country's purchasing power parity (PPP) adjusted per capita GDP (GDP p.c.). Per capita GDP is strongly correlated with institutional development (Acemoglu et al., 2005), which is central to our argument. We obtained the yearly country data from unstats.un.org. GDP p.c. was weighted by the proportion of each export target country in the firm's total exports. This composite index was used to split the sample by its median in a subsample of firms that export predominantly to DEs (composite index scores above US\$17,032 per capita GDP at PPP) and to EEs (composite index scores below US\$17,032 per capita GDP at PPP). For instance, while some firms may export to both EEs and DEs, a firm that exports 80% of its sales to DEs and 20% to EEs, fell into the DE group. This approach allows for the possibility that firms change groups over time depending on the composition of its exports.

Our categorization approach is realistic because some EE focused exporters may nevertheless target a few importers in DEs as this permits EE exporters to accompany emergent trends in the developed world, e.g., regarding technical norms, product requirements or international marketing strategies. Thus, even a minor presence in another type of destination market can be a form of learning by exporting (Salomon, 2006; Ellis et al., 2011). Other firms exporting mainly to EEs may explore future export opportunities in DEs with limited shipments, similar to a real options approach (Chung et al., 2013). Moreover, some shipments to EEs of predominantly DE focused exporters may be due to unsolicited orders from EE importers (Liang & Parkhe, 1997).

DEs can include transition economies because emerging economies tend to have a higher GDP at PPP than their nominal GDP whereas DEs tend to have a lower GDP at PPP than their nominal GDP. While some countries may have factor market and institutional characteristics compatible with either category (see, for instance, Hoskisson et al., 2013, for a detailed analysis of different types of emerging economies), we need to place them into exclusive categories for analytical purposes.

This is in line with previous studies that have adopted similar categorization approaches (e.g., Collins, 1990). Nonetheless, our additional robustness tests used the log-scaled GDP p.c. composite index as a continuous moderator (see Table 5).

4.2.3. Control variables

In regard to the firm-specific control variables, we included the logarithm of each exporter's total assets. To avoid potential misspecification, we used the logarithm of total sales for robustness tests with ROA as a dependent variable. This value controls for both firm size and scale economies (Hennart, 2007).

Because financial leverage can significantly affect firm performance (Opler & Titman, 1994), we inserted the debt-to-equity ratio as a control variable. Exchange rates are essential to understand exporters' performance (Aulakh et al., 2000). We calculated firm-specific bilateral real effective exchange rates for most of the 224 possible export destinations (except for the smaller islands for which the IMF and the World Bank databases do not provide data). High exchange rate index values represent disadvantageous conditions for Brazilian exporters.

We also controlled for import intensity because firms may increase their imports of intermediate products to raise their competitiveness in times of appreciating home country exchange rates and thus mitigate negative performance impacts (Abeyasinghe & Yeok, 1998).

We introduced additional controls—cultural, administrative, geographic and economic (CAGE) distance—to capture trade costs that encompass logistics, transaction costs, trade barriers, and other costs. Together, the four types of distance reflect the four dimensions of Ghemawat's (2001) CAGE framework. The indicators used for all four measures were obtained from Berry, Guillen, and Zhou (2010). To consider industry-specific characteristics (e.g., certain industries target certain countries to a larger extent than others), we also standardized the four distance measures by industry.

4.3. Analyses

We used panel regression with firm and period fixed effects (FE) to control for unobserved heterogeneity across the firms caused by various factors, such as exporters' internal resources and differentiated capabilities as well as unobserved temporal shocks (e.g., economic and political crises or other types of external impacts). This adjustment should reduce the potential endogeneity concerns due to the omission of variable bias and self-selected geographic diversification strategies. The Hausman specification test also suggests fixed effects models due to the rejection of the Null hypothesis ($p < 0.05$). We estimate Eq. (1) for the EE and DE subsamples and Eq. (2) for the entire sample. Consequently, Eq. (2) needs to include the composite index of per capita GDP instead of the GDP-based EE/DE split samples:

$$\begin{aligned} \text{ROS}_{it} = & \beta_0 + \beta_1 \text{Export intensity}_{it} + \beta_2 \text{Export scope}_{it} \\ & + \beta_3 \text{Export scope squared}_{it} \\ & + \beta_4 \text{Export intensity}_{it} \times \text{Export scope}_{it} \\ & + \beta_5 \text{Export intensity}_{it} \times \text{Export scope squared}_{it} \\ & + \beta_6 \text{GDP p.c.} (\log)_{it} + \beta_7 \text{Controls}_{it} + \beta_{13} \text{Firm FE} \\ & + \beta_{14} \text{Period FE} \times \text{Industry} + \varepsilon_{it} \end{aligned} \quad (1)$$

$$\begin{aligned} \text{ROS}_{it} = & \beta_0 + \beta_1 \text{Export intensity}_{it} + \beta_2 \text{Export scope}_{it} \\ & + \beta_3 \text{Export scope squared}_{it} \\ & + \beta_4 \text{Export intensity}_{it} \times \text{Export scope}_{it} + \beta_5 \text{Export intensity}_{it} \\ & \times \text{Export scope squared}_{it} \\ & + \beta_6 \text{GDP p.c.} (\log)_{it} + \beta_7 \text{GDP p.c.} (\log)_{it} \times \text{Export intensity}_{it} \\ & + \beta_8 \text{GDP p.c.} (\log)_{it} \times \text{Export scope}_{it} + \beta_9 \text{GDP p.c.} (\log)_{it} \\ & \times \text{Export scope squared}_{it} \\ & + \beta_{10} \text{GDP p.c.} (\log)_{it} \times \text{Export intensity}_{it} \times \text{Export scope}_{it} \\ & + \beta_{11} \text{GDP p.c.} (\log)_{it} \times \text{Export intensity}_{it} \times \text{Export scope squared}_{it} \\ & + \beta_{12} \text{Controls}_{it} \\ & + \beta_{13} \text{Firm FE} + \beta_{14} \text{Period FE} \times \text{Industry} + \varepsilon_{it} \end{aligned} \quad (2)$$

In Eq. (2), the GDP p.c. composite index represents destination countries' development level. Given our conceptual starting point—the relationship between export intensity and firm performance—we treat export intensity as our independent variable and export scope as well as export scope squared as our moderator variables. This operationalization of the interaction effects is in line with Aiken and West (1991), page 68, Fig. 5.2., c.(2). Alternatively, it is, of course, possible to treat export scope as main effect and export intensity as a moderator. Thus, a study could examine how the curvilinear effect of export scope varies contingent on export intensity and destinations (discussed later, see Section 6.2.).

5. Results

5.1. Descriptive statistics

Tables 2, 3a and 3b present basic statistics. The generally low level of intercorrelation suggests that multicollinearity is not a significant problem. We also conducted an additional diagnosis using the variance-inflating factor (VIF). The results (the highest value of the VIF is 8.52 for the highest order coefficient in the EE economies subsample) was below the common rule of thumb of 10 (Mason & Perreault, 1991), further suggesting little significant problem of multicollinearity.

5.2. Regression results

Table 4 reports regression analyses. The analyses are composed of two sets of data, each including four models. The first four models (Models 1–4) are used for EE markets and the last four (Models 5–8) for DE markets. Models 1 and 5 are the basic models that include all control variables. Models 2 and 6 add the export intensity variable while Models 3 and 7 introduce both the linear and quadratic export scope variables. Finally, Models 4 and 8 add the two interaction terms (i.e., one term being the interaction between export intensity and export scope, and the other being the interaction between export intensity and export scope squared). Thus, Models 4 and 8 test H1a and H1b as well as H2a and H2b for the firms that target EEs and DEs, respectively.

Before testing the hypotheses on the interaction effects of export intensity and export scope, we first investigated how and to what degree export intensity and export scope individually influence performance. The results on the export intensity variable (in Model 2) is non-significant and highly significant in Model 6 (negative in sign), which clearly dissent from those of the previous studies (De Loecker, 2007; Gao et al., 2010). The unexpectedly weak or inconsistent relationship between export intensity (the predictor variable) and performance

(the outcome variable) highlights the importance of our study as it provides an ideal platform on which we explore the moderating effects — when or under what conditions export intensity influences firm performance. The results on the linear export scope variable (in Models 3 and 7) indicate that its coefficients are negative and non-significant for EEs and positive and significant for DEs ($p < 0.1$). In contrast, those on the quadratic export scope variable (in the same models) are negative (non-significant for EEs but significant for DEs [$p < 0.05$]).

Model 4, which tests H1a and H1b, predicts that export scope moderates the relationship between export intensity and firm performance in that the relationship is negative when the level of export scope is high but positive when it is low. The results support the hypotheses as evidenced by the sign and the significance level of the two interaction terms; the first term (export intensity \times export scope) being negative and significant ($\beta = -0.117$, $p < 0.01$), and the second (export intensity \times export scope squared) being positive and significant ($\beta = 0.00248$, $p < 0.01$). Interestingly, we also find that the sign of the interaction effect (squared term) is opposite to that of the individual effects — the effects of when export intensity and export scope function individually.

This effect was plotted in Fig. 3 in line with Aiken and West (1991), page 68, Fig. 5.2., c.(2). The margins plot displays a positive slope for exporters who target few primarily EE destination countries. For instance, for exporters with an export intensity of 65% that ship to a single EE, the return on sales is 15%. However, for exporters with an export intensity of 65% that ship to 40 export destination countries, primarily located in the emerging world, the return on sales drops to little more than 1%.

Regarding EE exporters who target primarily DEs, H2a and H2b, which are tested in Model 8, predict that the performance effect of export intensity will be less positive when the level of export scope is low and more negative when the level of export scope is high. They are not supported as the results on the interaction terms are non-significant. Therefore, we conclude that the export scope variable (taking a linear or a squared term) does not have a moderating effect on the relationship between export intensity and performance for the DE subsample. Meanwhile, it is interesting to find that the coefficients of the individual term of the export scope squared variable are significant at the 0.05 level (Models 7 and 8), respectively. This lends support to the proposition that high export scope reduces firm performance regardless of export intensity for EE firms exporting to DEs.

All models are also significant. The addition of the main and moderator variables into the base models increases the explanatory power of Model 4 but not that of Model 8 as shown in the likelihood ratio test, the former being significant at the 0.001 level ($\chi^2 = 18.49$).

Table 2
Descriptive statistics.

Variable	Emerging economies (subsample)					Developed economies (subsample)				
	Obs	Mean	S.D.	Min	Max	Obs	Mean	S.D.	Min	Max
ROS (adj)	759	0.063438	0.8826	-4.06247	7.390911	758	-0.01361	0.892719	-7.32665	5.077115
ROA (adj)	759	0.031781	0.788414	-3.27166	3.298374	758	-0.07689	0.961909	-6.09542	11.52618
Export intensity	759	0.116209	0.138278	0.000165	0.733656	758	0.136299	0.131424	0.000194	0.690478
Export scope	759	20.55599	20.28443	1	98	758	23.24538	23.31339	1	120
Export scope squared	759	833.4651	1,483.063	1	9,604	758	1,083.145	2,006.331	1	14,400
Sales (log)	759	5.897535	0.822954	4.355555	9.051396	758	6.195499	1.034342	4.445705	10.39392
Assets (log)	759	5.623901	1.067547	3.014808	9.564716	758	6.045909	1.37824	1.984133	11.62209
Debt ratio (adj)	759	-0.01971	0.786662	-3.36328	13.10316	758	0.008003	1.090657	-12.5711	9.787562
GDP p.c. index (log)	759	9,372.343	4,574.229	216.27	17,016.31	758	27,471.76	8,205.404	17,048.65	77,386.22
Exchange rate index (lag)	759	1.197857	0.328762	0.402444	2.689408	758	0.898836	0.236542	0	1.543983
Import intensity	759	0.058173	0.057422	0	0.412609	758	0.055282	0.072213	0	0.845739
Cultural distance (adj)	759	-0.14681	0.696631	-0.68861	3.060021	758	0.234424	1.287822	-0.68861	4.821222
Administrative distance (adj)	759	-0.12355	0.910289	-1.70608	2.453664	758	0.13717	1.098958	-1.70608	2.929372
Geographic distance (adj)	759	-0.17332	0.976731	-1.41524	2.712099	758	0.265311	1.028459	-1.41524	2.801732
Economic distance (adj)	759	-0.36023	0.596917	-1.01496	3.467678	758	0.452337	1.18316	-1.01496	4.262817

Note: Unstandardized variables; adj. means adjustment for industry differences; median split sample based on GDP p.c. composite index at purchasing power parity.

Table 3a
Correlations – Subsample of Brazilian exporters predominantly targeting emerging economies (EEs).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 ROS (adj)	1														
2 ROA (adj)	0.8208	1													
3 Export intensity	-0.0505	-0.0955	1												
4 Export scope	-0.0563	-0.1033	0.6693	1											
5 Export scope squared	-0.063	-0.0955	0.5748	0.9334	1										
6 Sales (log)	0.0901	0.0585	-0.2715	0.0029	0.02	1									
7 Assets (log)	0.1419	-0.0256	-0.104	0.127	0.1342	0.834	1								
8 Debt ratio (adj)	-0.1573	-0.2034	-0.0226	-0.0063	-0.0041	0.0664	-0.0061	1							
9 GDP p.c. index (log)	-0.0802	-0.0928	0.4	0.5312	0.3993	-0.0149	0.0448	0.0387	1						
10 Exchange rate index (lag)	0.0682	0.0769	-0.2443	-0.2917	-0.2213	0.1459	0.1022	-0.0015	-0.3508	1					
11 Import intensity	-0.025	-0.0332	0.0003	0.0052	0.0231	-0.2632	-0.1558	-0.0325	0.0477	-0.0541	1				
12 Cultural distance (adj)	-0.024	0.0032	0.3132	0.1627	0.123	-0.151	-0.1296	-0.0476	0.2034	-0.4447	-0.085	1			
13 Administrative distance (adj)	-0.026	-0.0007	0.1517	0.0533	0.0537	-0.2308	-0.2384	-0.0451	-0.0132	-0.3619	0.0447	0.4949	1		
14 Geographic distance (adj)	-0.0695	-0.0365	0.3535	0.2143	0.1687	-0.161	-0.1612	0.0002	0.1615	-0.4033	-0.1217	0.6674	0.7192	1	
15 Economic distance (adj)	-0.0784	-0.0949	0.2864	0.3119	0.2523	-0.1567	-0.1175	-0.0616	0.3868	-0.4098	0.0122	0.4164	0.5253	0.5873	1

Note: Unstandardized variables; coefficients larger than 0.078 are significant at 5%; adj. means adjustment for industry differences; median split sample based on GDP p.c. composite index at purchasing power parity.

5.3. Robustness tests

We conducted several robustness tests (e.g., using unstandardized or mean-centered indicators, regressions with and without industry effects, among others). As we cannot include firm and industry fixed effects in the same equations, we conducted robustness tests with different specifications by including period fixed effects and industry \times firm fixed effects. Both hypotheses hold under these alternative specifications.

We also tested our hypotheses by interacting the continuous GDP per capita composite index, which represents export destination country characteristics, with export intensity and export scope and their respective higher order terms. The results for our main dependent variable (ROS) are presented in Table 5.

The highest order interaction effect in Model 17 is significant, which empirically supports the case for an interaction between export intensity, export scope and export destinations. In consonance with Aiken and West (1991), the interactions have been plotted in Fig. 4 and are in line with the results presented in Table 4 and Fig. 3. The plot in Fig. 4 also indicates a declining and weaker export intensity–performance relationship, which is largely in line with our argument that exporters from a mid-range EE face increasing disadvantages when exporting to DEs, leading to weaker performance. The results for our alternative dependent variable (ROA) are consistent with our results for ROS as a dependent variable (regression output are available upon request).

Table 3b
Correlations – subsample of Brazilian exporters predominantly targeting developed economies (DEs).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 ROS (adj)	1														
2 ROA (adj)	0.6916	1													
3 Export intensity	-0.1419	-0.0718	1												
4 Export scope	-0.0285	-0.1096	0.4303	1											
5 Export scope squared	-0.0359	-0.1014	0.2883	0.9259	1										
6 Sales (log)	0.1703	0.0374	-0.1905	0.3570	0.3564	1									
7 Assets (log)	0.2346	-0.0764	-0.1205	0.3370	0.3210	0.8740	1								
8 Debt ratio (adj)	-0.0876	0.0256	0.0368	0.1161	0.1090	0.0556	-0.0663	1							
9 GDP p.c. index (log)	0.0229	0.0641	-0.2246	-0.4499	-0.3166	-0.0995	-0.0732	-0.0901	1						
10 Exchange rate index (lag)	-0.0264	-0.0691	0.0538	0.3534	0.2417	0.2041	0.1783	0.0701	-0.3748	1					
11 Import intensity	-0.0496	-0.045	-0.0092	-0.0799	-0.0734	-0.1955	-0.1520	-0.0212	-0.0366	0.0306	1				
12 Cultural distance (adj)	0.0608	0.0644	0.048	-0.2108	-0.1532	-0.2433	-0.1755	-0.0702	0.0488	-0.5010	0.052	1			
13 Administrative distance (adj)	-0.0604	-0.0428	0.1069	-0.1438	-0.1103	-0.1905	-0.1747	-0.0052	0.0279	-0.3973	-0.0097	0.3628	1		
14 Geographic distance (adj)	-0.0696	-0.0495	0.1686	-0.0700	-0.0448	-0.1366	-0.1421	0.0261	-0.0209	-0.3610	-0.0641	0.3446	0.9230	1	
15 Economic distance (adj)	-0.0022	-0.0026	0.0448	-0.1745	-0.0998	-0.2387	-0.1978	-0.0551	0.1960	-0.4931	0.015	0.6397	0.6897	0.6578	1

Note: Unstandardized variables; coefficients larger than 0.071 are significant at 5%; adj. means adjustment for industry differences; median split sample based on GDP p.c. composite index at purchasing power parity.

Table 4
Effects of export intensity and scope of geographic diversification on firm performance (return on sales – ROS) for two subsamples of exporters that predominantly target emerging economies (EEs) or developed economies (DEs).

Model	1	2	3	4	5	6	7	8
	EE	EE	EE	EE	DE	DE	DE	DE
Export intensity		−0.897 (0.687)	−0.631 (0.677)	−0.606 (0.755)		−1.480** (0.577)	−1.919*** (0.673)	−1.985*** (0.620)
Export scope			−0.00692 (0.00686)	−0.00911 (0.00684)			0.0161* (0.00926)	0.0171* (0.0103)
Export scope squared			−3.35e−05 (0.000130)	−8.97e−05 (0.000112)			−0.000331** (0.000144)	−0.000361** (0.000166)
Export intensity × export scope				−0.117*** (0.0380)				0.0285 (0.0510)
Export intensity × export scope squared				0.00248*** (0.000672)				−0.000206 (0.000844)
Assets (log)	0.0740 (0.115)	0.0888 (0.116)	0.107 (0.116)	0.135 (0.120)	0.241 (0.148)	0.225 (0.142)	0.188 (0.140)	0.194 (0.140)
Debt to equity ratio (adj.)	−0.155*** (0.0520)	−0.152*** (0.0527)	−0.151*** (0.0524)	−0.152*** (0.0508)	−2.14e−05 (0.0724)	−0.00364 (0.0731)	−0.00792 (0.0732)	−0.00639 (0.0732)
Exchange rate index	−0.322 (0.218)	−0.329 (0.217)	−0.374* (0.220)	−0.357 (0.219)	−0.0406 (0.214)	−0.0327 (0.211)	−0.192 (0.195)	−0.197 (0.193)
Import intensity	0.579 (0.694)	0.774 (0.705)	0.610 (0.689)	0.634 (0.710)	−0.602 (0.720)	−0.465 (0.719)	−0.321 (0.708)	−0.381 (0.708)
Cultural distance (adj.)	0.00882 (0.0819)	0.0174 (0.0826)	0.0191 (0.0849)	−0.0227 (0.0809)	0.0607 (0.0404)	0.0633 (0.0391)	0.0721* (0.0387)	0.0804* (0.0429)
Administrative distance (adj.)	0.0336 (0.125)	0.0260 (0.126)	0.0199 (0.128)	0.0467 (0.128)	0.126 (0.121)	0.0871 (0.115)	0.130 (0.122)	0.137 (0.123)
Geographic distance (adj.)	−0.0676 (0.0792)	−0.0493 (0.0782)	−0.0590 (0.0765)	−0.0853 (0.0751)	−0.0649 (0.115)	−0.0338 (0.120)	−0.0573 (0.121)	−0.0496 (0.123)
Economic distance (adj.)	−0.0519 (0.0962)	−0.0485 (0.0976)	−0.0372 (0.0978)	−0.0351 (0.0958)	0.0141 (0.0610)	0.00583 (0.0612)	0.0135 (0.0611)	0.00977 (0.0620)
Period × high/low technology industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	−0.340 (0.636)	−0.394 (0.636)	−0.454 (0.630)	−0.457 (0.636)	−1.107 (0.829)	−0.957 (0.794)	−0.432 (0.796)	−0.467 (0.795)
Observations	759	759	759	759	758	758	758	758
Number of groups	185	185	185	185	204	204	204	204
R ²	0.117	0.120	0.123	0.144	0.107	0.119	0.132	0.134
R ² adjusted	0.0738	0.0756	0.0764	0.0961	0.0638	0.0749	0.0861	0.0857
F	3.471***	3.594***	3.605***	3.504***	3.064***	2.935***	3.003***	2.937***
Likelihood-ratio test for ΔR^2 (χ^2)	–	2.50	2.77	18.49***	–	10.08***	11.34***	1.81
p-Value Likelihood-ratio test for ΔR^2	–	0.1135	0.2497	0.0001	–	0.0015	0.0035	0.4044

Notes: Robust standard errors in parentheses; adj. means adjustment for industry differences; median split samples based on GDP p.c. composite index at purchasing power parity; mean centered indicators were used for the export intensity and export scope variables using their respective (sub-)sample means.

* $p < 0.1$.

** $p < 0.05$.

*** $p < 0.01$.

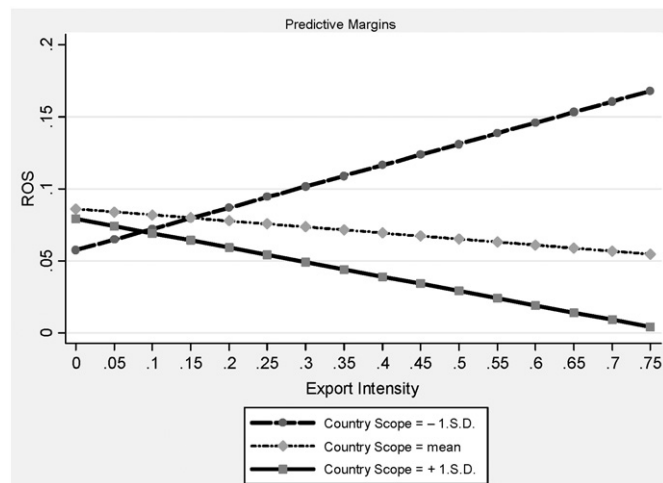


Fig. 3. Interaction plot (Hypotheses 1a and 1b) – subsample of Brazilian exporters entering emerging economies (EEs) (based on regression results presented in Table 4). A country scope of −1 S.D. stands for exporters targeting few different export destination countries; a country scope of +1 S.D. denotes that exporters ship to many export destination countries. To facilitate the interpretation of this plot, we used unstandardized independent variables for the interaction plots: export intensity of 0.6 means that 60% of total sales are generated abroad.

6. Discussion

Joining the debate on the relationship between geographic diversification and firm performance, our results suggest that export intensity positively affects firm performance if EE firms serve a limited number of export destination countries in other EEs. However, export intensity negatively affects firm performance if EE firms serve a large number of export destination countries in other EEs. Concerning DEs, the relationship between export intensity and firm performance is negative but not significant for EE firms. However, the significant squared export scope term indicates that firm performance tends to be negatively affected by increasing export scope independently of export intensity. This implies that the costs of entering a high number of DEs combined with the reduced potential to economize on scale strongly negatively affect firm performance.

6.1. Contributions

Taken together, three general contributions for the international marketing strategy literature emerge. First, we suggest that geographic export diversification as a construct encompasses three dimensions: export intensity, export scope, and export destinations. This is important because prior research has treated them separately and often in a way dissociated from geographic diversification. Our study underscores

Table 5

Robustness tests – effects of export intensity, export scope and export destinations (per capita GDP composite index) on firm performance (return on sales – ROS) for the entire sample.

Variables	9	10	11	12	13	14	15	16	17
Export intensity	−1.102** (0.501)	−1.244** (0.502)	−1.243** (0.495)	−1.368** (0.539)	−1.567*** (0.536)	−1.567*** (0.535)	−1.500*** (0.544)	−1.310** (0.511)	−1.199** (0.509)
Export scope	−0.00529 (0.00405)	0.00100 (0.00548)	0.00102 (0.00547)	0.00146 (0.00569)	−8.53e−05 (0.00601)	1.37e−06 (0.00619)	−0.000535 (0.00621)	−0.00145 (0.00608)	−0.00132 (0.00605)
Export scope squared		−0.000159** (7.25e−05)	−0.000159** (7.26e−05)	−0.000173** (7.69e−05)	−0.000169** (7.63e−05)	−0.000172** (8.75e−05)	−0.000140 (9.09e−05)	−0.000115 (9.39e−05)	−0.000123 (9.24e−05)
Export intensity × export scope				0.000971 (0.0170)	−0.0351 (0.0319)	−0.0348 (0.0324)	−0.0395 (0.0322)	−0.0390 (0.0317)	−0.0359 (0.0320)
Export intensity × export scope squared					0.00104** (0.000471)	0.00104** (0.000472)	0.00103** (0.000473)	0.00107** (0.000452)	0.000925* (0.000472)
GDP p.c. (log)	−0.0152 (0.0657)	−0.0194 (0.0647)	−0.0471 (0.0739)	−0.0430 (0.0718)	−0.0510 (0.0725)	−0.0453 (0.0865)	0.0198 (0.103)	−0.00919 (0.108)	−0.0550 (0.113)
GDP p.c. (log) × export intensity			−0.343 (0.526)	−0.298 (0.495)	−0.348 (0.515)	−0.381 (0.680)	−0.533 (0.721)	−0.558 (0.734)	−0.0584 (0.720)
GDP p.c. (log) × export scope						0.000570 (0.00541)	0.00300 (0.00585)	0.00368 (0.00598)	0.00523 (0.00621)
GDP p.c. (log) × export scope squared							−0.000130 (0.000103)	−0.000224* (0.000118)	−0.000183 (0.000115)
GDP p.c. (log) × export intensity × export scope								0.0357 (0.0281)	0.0687* (0.0366)
GDP p.c. (log) × export intensity × export scope squared									−0.00125** (0.000572)
Assets (log)	0.0317 (0.121)	0.0165 (0.123)	0.0148 (0.123)	0.0122 (0.123)	0.0196 (0.123)	0.0194 (0.123)	0.0189 (0.122)	0.0316 (0.124)	0.0192 (0.122)
Debt-equity-ratio (adj)	−0.0657 (0.0539)	−0.0649 (0.0530)	−0.0645 (0.0530)	−0.0644 (0.0531)	−0.0620 (0.0533)	−0.0623 (0.0538)	−0.0620 (0.0534)	−0.0607 (0.0529)	−0.0628 (0.0528)
Exchange rate index (lag)	−0.176 (0.192)	−0.170 (0.187)	−0.168 (0.189)	−0.170 (0.189)	−0.171 (0.188)	−0.172 (0.186)	−0.180 (0.185)	−0.191 (0.188)	−0.184 (0.188)
Import intensity	−0.190 (0.530)	−0.107 (0.531)	−0.103 (0.533)	−0.130 (0.534)	−0.0291 (0.536)	−0.0326 (0.540)	−0.0660 (0.543)	−0.0469 (0.541)	−0.110 (0.540)
Cultural distance (adj.)	0.0679* (0.0403)	0.0704* (0.0406)	0.0711* (0.0409)	0.0735* (0.0415)	0.0692 (0.0419)	0.0694 (0.0421)	0.0712* (0.0425)	0.0695* (0.0420)	0.0680 (0.0419)
Administrative distance (adj.)	0.0861 (0.106)	0.101 (0.108)	0.107 (0.109)	0.105 (0.108)	0.112 (0.109)	0.112 (0.109)	0.114 (0.109)	0.120 (0.110)	0.125 (0.110)
Geographic distance (adj.)	−0.0598 (0.0617)	−0.0710 (0.0632)	−0.0752 (0.0635)	−0.0722 (0.0628)	−0.0821 (0.0635)	−0.0824 (0.0635)	−0.0851 (0.0638)	−0.0929 (0.0642)	−0.0927 (0.0642)
Economic distance (adj.)	−0.0475 (0.0456)	−0.0444 (0.0455)	−0.0430 (0.0450)	−0.0447 (0.0453)	−0.0426 (0.0456)	−0.0423 (0.0458)	−0.0386 (0.0452)	−0.0356 (0.0450)	−0.0362 (0.0453)
Period × high/low technology industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	−0.121 (0.617)	0.0124 (0.632)	0.00916 (0.628)	0.0206 (0.627)	0.0210 (0.630)	0.0261 (0.621)	0.0337 (0.618)	−0.0394 (0.627)	0.0225 (0.621)
Observations	1518	1518	1518	1518	1518	1518	1518	1518	1518
Number of groups	272	272	272	272	272	272	272	272	272
R-squared	0.063	0.066	0.066	0.066	0.070	0.070	0.071	0.073	0.075
R-squared (adjusted)	0.0385	0.0409	0.0409	0.0405	0.0435	0.0428	0.0431	0.0445	0.0465
F-statistic	2.629***	2.605***	2.687***	2.589***	2.792***	2.792***	2.953***	2.677***	3.201***

Notes: Robust standard errors in parentheses; independent and moderator variables were mean centered; adj. means adjustment for industry differences.

- * $p < 0.1$.
** $p < 0.05$.
*** $p < 0.01$.

that each dimension encompasses distinct properties of geographic diversification, i.e., export intensity represents diversification away from the home market, export scope represents dispersion across foreign markets (variety) and destinations represent diversification across institutionally and economically dissimilar markets (challenges).

Accordingly, this study goes beyond existing research that has advocated the use of only one dimension, such as FSTS or export intensity (Contractor et al., 2007; Rugman & Oh, 2011), or two dimensions by adding the scope of diversification (Allen & Pantzalis, 1996; Piercy, 1981; Qian & Li, 1998; Qian et al., 2010). Adding the destination country dimension is important as competitiveness in foreign markets depends on the familiarity with the destination country context (Ghemawat, 2001). More importantly, it reflects the economic diversity of markets and the associated challenges (Bartlett & Ghoshal, 2000; Douglas & Craig, 2011; Schmitz & Knorrninga, 2000). By considering all three dimensions of geographic diversification, we can reconcile long-standing controversies, such as whether increasing export intensity

positively or negatively affects firm performance (Bernard & Jensen, 1999; De Loecker, 2007; Gao et al., 2010; Salomon & Jin, 2008). Similarly, other controversies—such as whether geographic scope positively or negatively affects firm performance (Allen & Pantzalis, 1996; Rugman & Verbeke, 2004)—can be solved through the combined use of all three dimensions as they seem to compensate each other's weaknesses by simultaneously taking into account the relative importance, diversity and nature of foreign markets.

Second, this study provides evidence (H1a and H1b) for the institution-based claim that the success of an internationalization strategy is contingent on the alignment of institutional conditions between the destination and the home country (Hoskisson et al., 2013; Meyer & Peng, 2005; Peng, 2003, 2012; Peng et al., 2008; Wan, 2005). This implies that the resources and capabilities that EE firms develop in their home country may translate into competitive advantages in those destination countries where the institutional environment is similarly weak. However, when entering destination countries with considerably

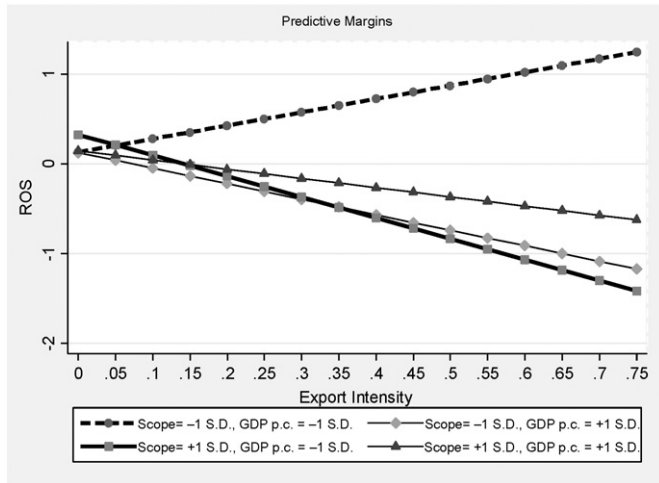


Fig. 4. Interaction plot – complete sample (based on regression results presented in Table 5). These plots are based on Model 17 in Table 5. These models interact all main effects and higher order terms of export intensity and export scope with the log-scaled GDP composite index respectively. GDP = +1 S.D. denotes export destinations with high income, i.e., developed economies (DEs), whereas GDP = -1 S.D. denotes export destinations with low income, i.e., emerging economies (EEs). To facilitate the interpretation of this plot, we used unstandardized independent variables for the interaction plots: for instance, export intensity of 0.6 means that 60% of total sales are generated abroad.

stronger institutional environments, EE firms may suffer from competitive disadvantages. The reason is that competitive advantages developed by EE firms in their home country can be lost or convert into disadvantages when transferred to distinct contexts (Cuervo-Cazurra et al., 2007).

Third, if firm performance in general and sales performance in particular plays out differently according to the configuration of the three-dimensional geographic diversification construct, international marketing strategy needs to differentially address the challenges imbued in each configuration. Coming from a mid-range EE, for instance, exporting a high share of total sales to a small number of other EEs likely requires a different approach to marketing mix standardization and adaptation than exporting a low share of total sales to a large number of DEs. Therefore, our research implies that the literature on export intensity (Ellis et al., 2011; Ling-Yee, 2004) needs to incorporate the trade-offs between all three dimensions of geographic diversification. Correspondingly, while export intensity has previously been associated with learning and foreign market knowledge (Ellis et al., 2011; Ling-Yee, 2004; Salomon & Jin, 2008), learning is also nurtured by scope (variety) (Koka & Prescott, 2002) and the destination characteristics that generate more or less difficult market challenges (Bartlett & Ghoshal, 2000; Trofimenko, 2008). This further strengthens the case for a three-dimensional export diversification construct.

6.2. Limitations and future research directions

Most existing work on EE firms' internationalization focuses on firms from China (Gao et al., 2010; Peng, 2012), India (Gubbi et al., 2010), or both (Sun et al., 2012; Yamakawa et al., 2013). Firms from Latin America are rarely covered (see Sol and Kogan (2007) for an exception). Even rarer are studies focusing on EE firms from Latin America that are exporters and are not multinationals (see Aulakh et al. (2000) for an exception). Although Brazil is an important member of BRICS, relatively little knowledge about Brazilian firms' internationalization exists. Our focus on Brazilian exporters thus helps fill an important gap in our knowledge (Vassolo et al., 2011). However, this strength of our study is also a limitation, because it is not evident whether our findings can be applied to EE firms in other countries and regions.

Future studies should test the validity of the findings in other research contexts.

While our results have been robust to the inclusion of industry effects (period \times industry dummies) as well as to industry adjustments of key variables, several significant industry effects suggest that industry matters. For instance, additional robustness tests indicate that the results for high technology firms in EEs follow that of all firms in DEs. Future studies with larger samples may further disentangle potential industry effects.

While we controlled for unobserved heterogeneity using firm fixed effects, future research might advance international diversification research by directly measuring the number of distributors and clients in destination countries. Likewise, future studies, especially survey research, might try to obtain information on manufacturing capacity utilization. Both measures can provide finer-grained proxies about the costs of marketing mix adaptation and manufacturing and thus on the profitability of international expansion. This study only examined one out of several possible combinations among the three geographic diversification dimensions. Future research may focus on different main effects. Treating export scope as main effect and export intensity as a moderator, for instance, would allow the examination of how the curvilinear effect of export scope becomes weaker or stronger contingent on destination country characteristics and export intensity.

Moreover, future in-depth research may contribute to this conversation by uncovering the nature of adversity advantages that allow EE firms to be successful in other EEs and less successful in DEs. The three-dimensional geographic export diversification construct is flexible to be adapted to diverse contexts, such as by covering different value chain elements.

Our study also sparks new research questions that may further advance the field. Future research may examine why particular firms exclusively export to EEs versus DEs. Finally, future research on this topic might also address additional characteristics of the business context, such as the industry structure, production factor munificence and the macro-economic environment.

6.3. Implications for managers

How can firms manage geographic export diversification? Many export managers limit their strategic choices to the decision of whether to export or not or to the decision of how to allocate their sales between the domestic market and overseas (Estrin et al., 2008; Gao et al., 2010; Salomon & Shaver, 2005). This view is definitely insufficient to assess the performance effects of export strategies. Instead, export managers need to carefully examine the strategic and performance implications concealed behind the trade-offs between export intensity, scope and export destination choices. Specifically, managers need to be aware of the underlying dilemmas between scale economies in individual markets versus the costs of learning, marketing mix adaptations and the transferability of their homegrown competitive advantages to emerging versus developed economies. What makes the challenge even bigger is that the trade-offs between the three dimensions may look different depending on the finer-grained institutional and resource characteristics of the home and destination countries (Hoskisson et al., 2013). Accordingly, managers need to implement a systematic three-dimensional analytic approach moving beyond conventional practice. Based on our analysis, managers can estimate the performance impact, including absolute profits, of changes in all three dimensions of geographic export diversification, using the results in Figs. 3 and 4 as a yardstick.

7. Conclusion

The central message of this study is that future conceptual and empirical research on geographic diversification and export marketing strategies may need to adopt three dimensions—export intensity, scope and destinations. Destinations and their respective institutional

environments can determine the extent to which homegrown firm resources translate into competitive advantages abroad. While research on the complex interactions among the three dimensions of geographic diversification is still in its infancy, their further investigation will most likely transform and enhance our understanding of the crucial and intriguing relationship between geographic diversification and performance and its implications for international marketing strategies.

Acknowledgments

We thank Professor Arivaldo dos Santos, University of São Paulo, for providing accounting data, and we thank Erica Emilia Leite, Aline Tiemi Falchetti and Gabriela Brogiolo Da Silva, at Insper São Paulo, for research assistance. We are grateful to Insper São Paulo and the Jindal Chair at UT Dallas for financial assistance.

References

- Abeysinghe, T., & Yeok, T. L. (1998). Exchange rate appreciation and export competitiveness: The case of Singapore. *Applied Economics*, 30, 51–55.
- Acemoglu, D., Johnson, S., & Robinson, J. A. (2005). Institutions as a fundamental cause of long-run growth. In P. Aghion, & S. Durlauf (Eds.), *Handbook of economic growth* (pp. 386–472). New York: Elsevier.
- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. London: Sage.
- Alden, D. L., Hoyer, W. D., & Lee, C. (1993). Identifying Global and Culture-Specific Dimensions of Humor in Advertising: A Multinational Analysis. *Journal of Marketing*, 57(2), 64–75.
- Allen, L., & Pantzalis, C. (1996). Valuation of the operating flexibility of multinational corporations. *Journal of International Business Studies*, 27, 633–653.
- 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, 342–361.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17, 99–120.
- Bartlett, C. A., & Ghoshal, S. (2000). Going global: Lessons from late movers. *Harvard Business Review*, 78, 132–142.
- Bernard, A. B., & Jensen, J. B. (1999). Exceptional exporter performance: Cause, effect, or both? *Journal of International Economics*, 47, 1–25.
- Berry, H., Guillen, M. F., & Zhou, N. (2010). An institutional approach to cross-national distance. *Journal of International Business Studies*, 41, 1460–1480.
- Brouthers, L. E., O'Donnell, E., & Hadjimarcou, J. (2005). Generic product strategies for emerging market exports into Triad nation markets: A mimetic isomorphism approach. *Journal of Management Studies*, 42, 225–245.
- Calantone, R. J., Kim, D., Schmidt, J. B., & Cavusgil, S. T. (2006). The influence of internal and external firm factors on international product adaptation strategy and export performance: A three-country comparison. *Journal of Business Research*, 59(2), 176–185.
- Cavusgil, S. T., Kiyak, T., & Yenyurt, S. (2004). Complementary approaches to preliminary foreign market opportunity assessment: Country clustering and country ranking. *Industrial Marketing Management*, 33(7), 607–617.
- Chen, H., & Hsu, C. -W. (2010). Internationalization, resource allocation and firm performance. *Industrial Marketing Management*, 39, 1103–1110.
- Chung, C. C., Lee, S. -H., Beamish, P. W., Southam, C., & Nam, D. (2013). Pitting real options theory against risk diversification theory: International diversification and joint ownership control in economic crisis. *Journal of World Business*, 48, 122–136.
- Collins, J. M. (1990). A market performance comparison of US firms active in domestic, developed and developing countries. *Journal of International Business Studies*, 21(2), 271–287.
- Contractor, F. J., Kumar, V., & Kundu, S. K. (2007). Nature of the relationship between international expansion and performance: The case of emerging market firms. *Journal of World Business*, 42, 401–417.
- Cuervo-Cazurra, A., & Dau, L. A. (2009). Promarket reforms and firm profitability in developing countries. *Academy of Management Journal*, 52, 1348–1368.
- Cuervo-Cazurra, A., & Genc, M. (2008). Transforming disadvantages into advantages: Developing-country MNEs in the least developed countries. *Journal of International Business Studies*, 39, 957–979.
- Cuervo-Cazurra, A., Maloney, M. M., & Manrakhan, S. (2007). Causes of the difficulties in internationalization. *Journal of International Business Studies*, 38, 709–725.
- De Loecker, J. (2007). Do exports generate higher productivity? Evidence from Slovenia. *Journal of International Economics*, 73, 69–98.
- Dean, D. L., Mengüç, B., & Myers, C. P. (2000). Revisiting firm characteristics, strategy, and export performance relationship: A survey of the literature and an investigation of New Zealand small manufacturing firms. *Industrial Marketing Management*, 29(5), 461–477.
- Douglas, S. P., & Craig, C. (2011). Convergence and divergence: Developing a semiglobal marketing strategy. *Journal of International Marketing*, 19(1), 82–101.
- Ellis, P. D., Davies, H., & Wong, A. H. -K. (2011). Export intensity and marketing in transition economies: Evidence from China. *Industrial Marketing Management*, 40(4), 593–602.
- Estrin, S., Meyer, K. E., Wright, M., & Foliano, F. (2008). Export propensity and intensity of subsidiaries in emerging economies. *International Business Review*, 17, 574–586.
- Filatovchev, I., Stephan, J., & Jindra, B. (2008). Ownership structure, strategic controls and export intensity of foreign-invested firms in transition economies. *Journal of International Business Studies*, 39, 1133–1148.
- Fleury, A., & Fleury, M. T. L. (2009). Brazilian multinationals: Surfing the waves of internationalization. In R. Ramamurti, & J. V. Singh (Eds.), *Emerging multinationals from emerging markets* (pp. 200–243). Cambridge: Cambridge University Press.
- Gao, G. Y., Murray, J. Y., Kotabe, M., & Lu, J. (2010). A strategy tripod perspective on export behaviors: Evidence from domestic and foreign firms based in an emerging economy. *Journal of International Business Studies*, 41, 377–396.
- Ghemawat, P. (2001). Distance still matters. The hard reality of global expansion. *Harvard Business Review*, 79, 137–147.
- Goerzen, A., & Beamish, P. W. (2003). Geographic scope and multinational enterprise performance. *Strategic Management Journal*, 24, 1289–1306.
- Gomes, L., & Ramaswamy, K. (1999). An empirical examination of the form of the relationship between multinationality and performance. *Journal of International Business Studies*, 30(1), 173–187.
- Gubbi, S. R., Aulakh, P. S., Ray, S., Sarkar, M. B., & Chitoor, R. (2010). Do international acquisitions by emerging-economy firms create shareholder value? The case of Indian firms. *Journal of International Business Studies*, 41, 397–418.
- Hawawini, G., Subramanian, V., & Verdin, P. (2003). Is performance driven by industry-or firm-specific factors? A new look at the evidence. *Strategic Management Journal*, 24, 1–16.
- Hennart, J. -F. (2007). The theoretical rationale for a multinationality–performance relationship. *Management International Review*, 47, 423–452.
- Hoskisson, R. E., Wright, M., Filatotchev, I., & Peng, M. W. (2013). Emerging multinationals from mid-range economies: The influence of institutions and factor markets. *Journal of Management Studies*, 50, 1295–1321.
- Hutzschenreuter, T., & Guenther, F. (2008). Performance effects of firms' expansion paths within and across industries and nations. *Strategic Organization*, 6, 47–81.
- Ito, K. (1997). Domestic competitive position and export strategy of Japanese manufacturing firms: 1971–1985. *Management Science*, 43(5), 610–622.
- Jiang, Y., Peng, M. W., Yang, X., & Mutlu, C. (2015). Privatization, governance, and survival: MNE investments in private participation projects in emerging economies. *Journal of World Business*, 50, 294–301.
- Kaleka, A. (2002). Resources and capabilities driving competitive advantage in export markets: Guidelines for industrial exporters. *Industrial Marketing Management*, 31, 273–283.
- Katsikeas, C. S., Leonidou, L. C., & Morgan, N. A. (2000). Firm-level export performance assessment: Review, evaluation and development. *Journal of the Academy of Marketing Science*, 28(4), 493–511.
- Katsikeas, C. S., Samiee, S., & Theodosiou, M. (2006). Strategy fit and performance consequences of international marketing standardization. *Strategic Management Journal*, 27(9), 867–890.
- Khanna, T., Palepu, K., & Sinha, J. (2005). Strategies that fit emerging markets. *Harvard Business Review*, 83, 63–76.
- Khoury, T. A., & Peng, M. W. (2011). Does institutional reform of intellectual property rights lead to more inbound FDI? Evidence from Latin America and the Caribbean. *Journal of World Business*, 46, 337–345.
- Koka, B. R., & Prescott, J. E. (2002). Strategic alliances as social capital: A multidimensional view. *Strategic Management Journal*, 23(9), 795–816.
- Leonidou, L., Katsikeas, C., & Coudounaris, D. (2010). Five decades of business research into exporting: A bibliographic analysis. *Journal of International Management*, 16(1), 78–91.
- Li, L., Qian, G., & Qian, Z. (2015). Should small, young technology-based firms internalize transactions in their internationalization? *Entrepreneurship: Theory and Practice*, 39(4), 839–862.
- Liang, N., & Parkhe, A. (1997). Importer behavior: The neglected counterpart of international exchange. *Journal of International Business Studies*, 28(3), 495–530.
- Lim, L. K. S., Acito, F., & Rusetski, A. (2006). Development of Archetypes of International Marketing Strategy. *Journal of International Business Studies*, 37(4), 499–524.
- Ling-Yee, L. (2004). An examination of the foreign market knowledge of exporting firms based in the People's Republic of China: Its determinants and effect on export intensity. *Industrial Marketing Management*, 33(7), 561–572.
- Lu, J. W., & Beamish, P. W. (2001). The internationalization and performance of SMEs. *Strategic Management Journal*, 22(6/7), 565–586.
- Madhok, A., & Keyhani, M. (2012). Acquisitions as entrepreneurship: Asymmetries, opportunities, and the internationalization of multinationals from emerging economies. *Global Strategy Journal*, 2, 26–40.
- Mason, C. H., & Perreault, W. D., Jr. (1991). Collinearity, power, and interpretation of multiple regression analysis. *Journal of Marketing Research*, 28, 268–280.
- Meyer, K. E., & Peng, M. W. (2005). Probing theoretically into Central and Eastern Europe: Transactions, resources, and institutions. *Journal of International Business Studies*, 36, 600–621.
- Murray, J. Y., Gao, G. Y., & Kotabe, M. (2011). Market orientation and performance of export ventures: The process through marketing capabilities and competitive advantages. *Journal of the Academy of Marketing Science*, 39(2), 252–269.
- Natarajathinam, M., & Nepal, B. (2012). A holistic approach to market assessment for a manufacturing company in an emerging economy. *Industrial Marketing Management*, 41(7), 1142–1151.
- Nath, P., Nachiappan, S., & Ramanathan, R. (2010). The impact of marketing capability, operations capability and diversification strategy on performance: A resource-based view. *Industrial Marketing Management*, 39(2), 317–329.
- North, D. (1990). *Institutions, institutional change, and economic performance*. Cambridge: Cambridge University Press.

- O'Cass, A., & Julian, C. (2003). Examining firm and environmental influences on export marketing mix strategy and export performance of Australian exporters. *European Journal of Marketing*, 37(3/4), 366–384.
- Opler, T. C., & Titman, S. (1994). Financial distress and corporate performance. *Journal of Finance*, 49, 1015–1040.
- Palich, L. E., Cardinal, L. B., & Miller, C. C. (2000). Curvilinearity in the diversification-performance linkage: An examination of over three decades of research. *Strategic Management Journal*, 21, 155–174.
- Peng, M. W. (2003). Institutional transitions and strategic choices. *Academy of Management Review*, 28, 275–296.
- Peng, M. W. (2012). The global strategy of emerging multinationals from China. *Global Strategy Journal*, 2, 97–107.
- Peng, M. W., Wang, D. Y. L., & Jiang, Y. (2008). An institution-based view of international business strategy: A focus on emerging economies. *Journal of International Business Studies*, 39, 920–936.
- Piercy, N. (1981). British export market selection and pricing. *Industrial Marketing Management*, 10(4), 287–297.
- Qian, G., & Li, J. (1998). Multinationality, global market diversification, and risk performance for the largest U.S. firms. *Journal of International Management*, 4, 149–170.
- Qian, G., Khoury, T. A., Peng, M. W., & Qian, Z. (2010). The performance implications of intra- and inter-regional geographic diversification. *Strategic Management Journal*, 31, 1018–1030.
- Qian, G., Li, L., & Rugman, A. M. (2013). Liability of country foreignness and liability of regional foreignness: Their effects on geographic diversification and firm performance. *Journal of International Business Studies*, 44, 635–647.
- Ramamurti, R., & Singh, J. V. (2009). *Emerging multinationals from emerging markets*. Cambridge: Cambridge University Press.
- Rugman, A. M., & Oh, C. H. (2011). Methodological issues in the measurement of multinationality of US firms. *Multinational Business Review*, 19, 202–212.
- Rugman, A. M., & Verbeke, A. (2004). A perspective on regional and global strategies of multinational enterprises. *Journal of International Business Studies*, 35, 3–18.
- Salomon, R. (2006). *Learning from exporting: New insights, new perspectives*. Cheltenham: Edward Elgar.
- Salomon, R., & Jin, B. (2008). Does knowledge spill to leaders or laggards? Exploring industry heterogeneity in learning by exporting. *Journal of International Business Studies*, 39, 132–150.
- Salomon, R., & Shaver, J. M. (2005). Export and domestic sales: Their interrelationship and determinants. *Strategic Management Journal*, 26, 855–871.
- Schilke, O., Reimann, M., & Thomas, J. S. (2009). When Does International Marketing Standardization Matter to Firm Performance? *Journal of International Marketing*, 17(4), 24–46.
- Schmitz, H., & Knorringer, P. (2000). Learning from global buyers. *Journal of Development Studies*, 37(2), 177–205.
- Shinkle, G. A., & Kriauciunas, A. P. (2010). Institutions, size and age in transition economies: Implications for export growth. *Journal of International Business Studies*, 41, 267–286.
- Sol, P. D., & Kogan, J. (2007). Regional competitive advantage based on pioneering economic reforms: The case of Chilean FDI. *Journal of International Business Studies*, 38, 901–927.
- Sousa, C. M. P., & Lengler, J. (2009). Psychic distance, marketing strategy and performance in export ventures of Brazilian firms. *Journal of Marketing Management*, 25(5–6), 591–610.
- Sun, S. L., Peng, M. W., Ren, B., & Yan, D. (2012). A comparative ownership advantage framework for cross-border M&As: The rise of Chinese and Indian MNEs. *Journal of World Business*, 47, 4–16.
- Sun, S. L., Peng, M. W., Lee, R. P., & Tan, W. (2015). Institutional open access at home and outward internationalization. *Journal of World Business*, 50, 234–246.
- Trofimenko, N. (2008). Learning by exporting: Does it matter where one learns? Evidence from Colombian manufacturing firms. *Economic Development and Cultural Change*, 56(4), 871–894.
- Vassolo, R. S., de Castro, J. O., & Gomez-Mejia, L. R. (2011). Managing in Latin American: Common issues and a research agenda. *Academy of Management Perspectives*, 25(4), 22–36.
- Verbeke, A., & Forootan, M. Z. (2012). How good are multinationality–performance (m–p) empirical studies? *Global Strategy Journal*, 2, 332–344.
- Wagner, J. (2012). International trade and firm performance: A survey of empirical studies since 2006. *Review of World Economics*, 148(2), 235–267.
- Wan, W. P. (2005). Country resource environments, firm capabilities, and corporate diversification strategies. *Journal of Management Studies*, 42, 161–182.
- Xu, D., & Meyer, K. E. (2013). Linking theory and context: 'Strategy research in emerging economies' after Wright et al. (2005). *Journal of Management Studies*, 50, 1322–1346.
- Yamakawa, Y., Peng, M. W., & Deeds, D. (2008). What drives new ventures to internationalize from emerging to developed economies? *Entrepreneurship: Theory and Practice*, 32, 59–82.
- Yamakawa, Y., Khavul, S., Peng, M. W., & Deeds, D. (2013). Venturing from emerging economies. *Strategic Entrepreneurship Journal*, 7, 181–196.
- Zhao, H., & Zou, S. (2002). The impact of industry concentration and firm location on export propensity and intensity: An empirical analysis of Chinese manufacturing firms. *Journal of International Marketing*, 10(1), 52–71.