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Export strategy, export intensity and learning: Integrating the resource perspective and institutional perspective

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ABSTRACT

Export intensity (EI) has been widely examined as a performance outcome of exporting firms. To date, studies on the determinants of EI have generated mixed and even contradictory results. To reconcile such inconsistencies, this study dichotomizes export strategy in emerging economies into two distinctive types, expansion-oriented vs. escape-oriented, with the former inspired by exploiting firm-specific competencies as portrayed by the RBV and the latter motivated by avoiding the domestic institutional deficiencies as informed by the institutional perspective. Different from prior findings in the International Business literature, this research finds that a firm's extremely high EI might not result from their superior competencies. Instead, high EI firms might focus on export mainly for the purpose of escaping from their home country's deficient institutional environment that places extra burdens in terms of costs of doing business. Such escape-oriented exporters are more sensitive and responsive to changes in the environment while they do not enhance their learning as much as those expansion-oriented exporters. Furthermore, institutional environment has heterogeneous impacts on firms with different ownership types. Our study helps integrate the insights from both the RBV and the institutional perspective, and our dichotomization of export strategy adds precision and sophistication to the understanding of EI and export performance. Our hypotheses are supported by an empirical study based on a sample of exporting firms in China between 1998 and 2007.

1. Introduction

Export remains an important mean for a firm's internationalization and globalization (Zhao & Zou, 2002). As a commonly used export performance indicator, export intensity (EI), the ratio of a firm's export sales to its total sales revenues, and its relationship with firm's overall performance have been widely examined by scholars in the international business (IB) literature (Fernández-Mesa & Alegre, 2015; Filatotchev, Stephan, & Jindra, 2008; Majocchi, Bacchiocchi, & Mayrhofer, 2005; Pla-Barber & Alegre, 2007; Verwaal & Donkers, 2002; Zhao & Zou, 2002). What determines an exporting firm's EI? How does EI affect a firm's performance? How do these firms learn to innovate by exporting? These are important research questions examined in the IB literature. Unfortunately, results from extant studies seem to be mixed and fragmented at the best (Chen et al., 2016).

First, regarding the determinants of EI, one dominant explanation remains that the higher the exporting firm's superior competencies, the higher its EI (e.g., Gao, Murray, Kotabe, & Lu, 2010; Sousa, Martínez-López, & Coelho, 2008). However, recent evidences from emerging economies suggest that high EI firms, including those with extremely

high EI, may not exactly possess superior competencies (Cheng & Yu, 2008; Shinkle & Kriauciunas, 2010). How do we interpret and deal with such inconsistencies? Second, regarding the relationship between EI and firm performance, extant studies also generated mixed results (Boehe, Qian, & Peng, 2016). While some find a positive relationship between EI and firm performance (Pla-Barber & Alegre, 2007), others reveal a negative relationship (Chiao, Yang, & Yu, 2006; Lu & Beamish, 2001). Still others do not even find a significant relationship between EI and firm performance (Ito, 1997). How do we make sense of such findings?

This paper attempts to make a contribution to the understanding of the determination of EI and its relationship with firm learning from export, one of the major indicator of an exporting firm's performance, an indicator especially relevant and important in the emerging economy setting (Boehe et al., 2016; Ellis, Davies, & Wong, 2011; Salomon & Jin, 2008; Wu, Sinkovics, Cavusgil, & Roath, 2007). Specifically, we propose a new approach toward the treatment of EI. That is, in emerging economies, instead of treating EI as a continuous variable in a linear fashion, we ought to differentiate between two contrasting strategic intentions underlying a firm's exporting behavior, which could

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be dichotomized at certain threshold level of EI. Below the threshold level of EI, we are more likely to see those more traditional exporting firms who pursue an *expansion-oriented* strategy, using the overseas market as an extension to their domestic operation. Above that threshold level, we are more likely to see exporting-dominant firms with high EI that pursue an *escape-oriented* strategy. Contrary to the argument that the more superior a firm's competencies the higher its EI is, these firms focus primarily or even solely on export precisely because of their lack of relevant competencies in the domestic market. They engage in export simply to escape from the underdeveloped and deficient domestic institutional environment that places extra burdens and costs for doing business where they are not competent enough to survive and prosper (Cheng & Yu, 2008; Koed Madsen, 1989).

We believe that the abovementioned mixed results in the export literature in IB could at least be partially explained by the hitherto negligence of this type of exporting firms (i.e., the escape-oriented exporters) in emerging economies. By highlighting the differences between these two strategies, we could examine the determination of EI and the relationship between EI and firm performance with more solid conceptual grounding and methodological precision. This is the incremental contribution this paper seeks to make.

This paper also attempts to add insights to the emerging economy literature in IB by examining how the institutional environment in emerging economies, which often means unclear and unstable "rules of games", shapes a firm's export strategy and behavior (Hoskisson, Eden, Lau, & Wright, 2000; Peng, 2003; Peng, Wang, & Jiang, 2008; Wright, Filatotchev, Hoskisson, & Peng, 2005). It turns out that firms with fewer competencies are more sensitive to the institutional deficiency and institutional changes, suggesting a heterogeneous effect of the institutional environment and its changes on different types of exporting firms that operating in emerging economies.

We conduct our empirical analyses based on a sample of exporting firms (from 1998 to 2007) in China, a typical emerging economy witnessing some fundamental transitions in its institutional environment (Chang, Chung, & Jungbien Moon, 2013; Li & Li, 2014; Xia & Walker, 2015). Our hypotheses are supported by the empirical results.

This paper is organized as follows. We first briefly review the export literature in IB, and then present our theory development and hypotheses, followed by the description of the empirical study and the discussion of the results. Concluding remarks ensue that summarize the contributions of this study, its limitations, as well as suggested avenues for future research.

2. Brief review of the literature

Two dominant perspectives on export in the IB literature help explain the determination of EI. While the resource based view (RBV) focuses primarily on the internal working and firm-specific attributes of the exporting firm (Sousa et al., 2008; Zou & Stan, 1998), the institutional based view (IBV) emphasizes the impact of the institutional context where the exporting firm comes from (Peng et al., 2008). In the RBV motivated studies, the typical arguments clearly favor those idiosyncratic firm resources and capabilities (hereafter referred to as *competencies* throughout this paper) that confer competitive advantage (Chen et al., 2016; Sousa et al., 2008; Zou & Stan, 1998), and assume implicitly that the competitive (market) environment and the institutional (non-market) environment the exporting firms face are somewhat homogeneous, stable, and consistent, i.e., commensurate to a great extent (cf. Peng et al., 2008). The greater the firm competencies, the higher the EI, the better the export performance of a firm. Most of these studies are conducted in settings of developed countries, citing large scale, strong competencies, and more experiences as major determinants of EI (Majocchi et al., 2005; Pla-Barber & Alegre, 2007; Verwaal & Donkers, 2002).

On the other hand, prior studies inspired by the IBV tend to focus more on the varying institutional contexts as impediments or barriers to

the exporting firms, and examine how these contexts affect a firm's export intention, strategy, and their subsequent impact on its EI performance (Cheng & Yu, 2008; Koed Madsen, 1989). Many of these studies are conducted in those transitional or emerging economies where exporting firms are constantly coping with various under-developed institutional arrangements as well as their ongoing fluxes (Chen et al., 2016). Research results indicate that improvements in the institutional environment are likely to facilitate the exporting process and thus will enhance an exporting firm's EI (LiPuma, Newbert, & Doh, 2013).

That is to say, the two perspectives differ on their explanation of the determinants of EI, with RBV touting firm competencies and IBV citing the quality of the institutional environment in the exporting firm's home country. While each perspective has garnered their own supportive evidences and attempts do exist to encompass both perspectives (Boehe et al., 2016; Gao et al., 2010), however, their necessary integration, to date, is still lacking, which hinders our understanding of the exporting firms.

In fact, there are often two drastically different types of exporting firms in emerging economies, namely the expansion-oriented exporters (Wu et al., 2007) and the escape-oriented exporters (Cheng & Yu, 2008). They feature different motivations and intensions to export. Fitting the description offered by the RBV, an expansion-oriented firm engages in export so as to further grow and expand, to fully utilize its competencies, and hence further enhancing its EI. Escape-oriented exporting firms, attracting relatively less attention in the export literature, engage in the export business not exactly because they are competent enough to outperform their rivals. Quite to the contrary, they often do not possess the competencies and advantages necessary to survive in the domestic environment. That is, in order to survive in the harsh domestic market, a firm has to be competent enough to not only withstand the onslaught of competitive rivalry but also overcome the extra-burdens imposed on them in the form of added costs and troubles by the deficient and changing institutional environment. Such harsh domestic market environment is likely to force those less competent firms to look into overseas markets for better chances of survival. Hence, there emerges escape-oriented export strategy, through which exporting firms intentionally choose to escape from the unfavorable institutional environment domestically (Koed Madsen, 1989; Cheng & Yu, 2008).

As such, although the expansion-oriented firms could enhance their EI thanks to their more superior competencies, there will be a certain ceiling that they will likely reach because they usually do not intend to depend solely on the export market. The escape-oriented firms, however, usually bank their very existence primarily or even entirely on export. Hence they usually possess a typically much higher EI, as compared to the case of the expansion-oriented firms. That is, in emerging economies, with the increase in EI, the likelihood of spotting an escape-oriented exporting firm increases. Above certain threshold level of EI, escape-oriented firms will dominate the population. By dichotomizing these two types of export strategy with different motivations and intensions, we believe that we could better make sense of EI and its determinants, as well as how EI affects exporting firms' performance such as learning in international competition (Wu et al., 2007; Zhang, Tansuhaj, & McCullough, 2009).

Regarding the relationship between EI and firm performance, extant studies also generated mixed results (Martineau & Pastoriza, 2016). Those studies with findings of a positive relationship between EI and firm performance often posit that a firm's competencies underlie both its higher EI and performance (Pla-Barber & Alegre, 2007). With higher EI, it means that a firm could also learn more due to its broad exposure to the global economy (Ellis et al., 2011). Studies citing institutional factors as the dominant motivations for export, however, typically do not find such a positive relationship (Chiao et al., 2006; Ito, 1997; Lu & Beamish, 2001). On surface, the two sets of findings seem inconsistent and directly opposing each other. With our dichotomy of the two types

of export strategy featuring different motivations and corresponding competencies, we could better make sense of the seemingly contradictory findings. Firms with higher EI may not turn in high performance precisely because they choose to engage in export in order to escape from domestic institutional deficiencies, and they typically do not have much superior competencies to begin with (Cheng & Yu, 2008; Elango & Pattnaik, 2007; Koed Madsen, 1989; Lu, Xu, & Liu, 2009).

Simply put, EI should not be treated continuously but rather categorically. Under certain threshold level of EI, it's the domain of the expansion-oriented strategy. The higher the EI, the more a firm's competencies. Above that threshold level, it becomes the domain of the escape-oriented strategy. The higher the EI, the fewer a firm's competencies; and the stronger the intention to escape from the deficient domestic institutional environment.

3. Theory development

3.1. Dichotomy of export strategy in emerging economies

Different from extant research which treats EI as a continuous index, we dichotomize firm's EI in emerging economies at a certain threshold level and differentiate between two distinctive types of export strategy: expansion-oriented and escape-oriented. These two types of strategy associate with different motivations and intentions for engaging in export. We now compare and contrast the two strategies on the dimensions of their motivation, their intended goals, firm competencies, as well as the performance outcomes. See Table 1.

Traditionally, most researchers assume that exporting firms adopt the expansion-oriented strategies, as only those more productive, competitive and knowledgeable firms could go international (Bernard & Jensen, 1999; Boehe et al., 2016; Chen et al., 2016; Ling-Yee, 2004; Melitz, 2003). Usually, export is a convenient and natural way for a firm to explore new markets, enhance its scale and performance. Yet export also means that a firm has to deal with the various complexity and uncertainty in the foreign market, facing the so-called liability of foreignness (Eden & Miller, 2004; Mezias, 2002; Zaheer, 1995). To overcome such liability of foreignness, it requests a firm possess superior firm-specific competencies (cf. Barney, 1991). That is, we expect that the more superior competencies a firm possesses, the more likely it will successfully overcome the burden of liability of foreignness and prevail in overseas markets. As such, for these expansion-oriented firms, the greater their competencies, the higher the EI.

Moreover, the EI of such expansion-oriented exporters generally has certain limit that is usually not exceeded, as the export markets are merely the expansion of their domestic operations. Results in studies of exporters from developed countries largely attest to the overall moderate level of EI. For examples, firms with an EI greater than 0.5 accounted for no more than 30% of all the exporting firms in the study offered by Bonaccorsi (1992), and the average EI of the sample in Majocchi et al. (2005) is about 0.2, while the average EI in the study of

Pla-Barber and Alegre (2007) even goes as low as 0.18.

However, in emerging economies, besides those expansion-oriented exporting firms, there are often plenty of exporters that pursue the escape-oriented strategy, which is hitherto largely unsubstantiated and often ignored in the literature. In prior empirical studies, firms adopting the escape-oriented strategy are simply lumped together with those adopting the expansion-oriented strategy, which we suspect could at least partially explain the mixed results we encounter in the IB literature about the relationship between EI and firm performance. In reality, these firms have drastically different motivations and intended goals for engaging in export activities (Gao et al., 2010).

In general, their primary motivation is to escape from the irregular and underdeveloped institutional environment (Peng, 2003; Peng et al., 2008). Relatedly, the specific goal of these firms is to reduce the cost of doing business, given the often prohibitively high institutional costs in the domestic market, where it is at competitive disadvantage as it lacks the extra cushion of deep pockets like those firms that do boast superior competencies. Although the foreign markets they export to also feature great uncertainty, there might still be room for escaping, as the costs of doing business overseas are still comparatively lower than that in the domestic market (Cheng & Yu, 2008). For apparent cost control reasons, such escape-oriented firms will put a dominant emphasis on export. They could survive by simply relying on the export market, and sometimes relying solely on the export market.

3.2. Institutional environment change and EI change

As explained above, export strategy in emerging economies is largely related to the institutional environment. When institutional environment changes, a firm's strategy will also change accordingly. In reality, the institutional environment change could go either way, improving or declining. Such changes could reflect in multiple dimensions and various indicators (Chen et al., 2016; Sousa et al., 2008). It is also possible that some dimensions see improvements while others see institutions worsening. Fortunately, in the literature on the study of the emerging economies, China especially, there is a widely accepted conceptualization as well operationalization of the institutional environment and its changes, the indices developed by National Economic Research Institute (NERI) (Fan, Wang, & Zhu, 2011; Li, Griffin, Yue, & Zhao, 2011; Li & Qian, 2013; Wang & Qian, 2011).

The NERI way of gauging the institutional environment hinges on five aspects of institutional situation, including (1) the relationship between the government and the market, (2) the development of the non-state sector, (3) the development of the factor markets, (4) the development of the product markets, and (5) the development of market intermediaries and the legal environment (Li & Qian, 2013; Li et al., 2011). Overall, they capture the degree of completeness, formalization, openness, as well as transparencies of the institutional environment. The better the status on these dimensions, the better the quality of the institutional environment. When any or all of the five dimensions see progress, it is reasonable to assume that the institutional environment is improving. Overall, relating to the purpose of our study, improvement in institutional environment means that the government reduces intervention and control of the market. The non-state sector takes a higher proportion in the country. The factor markets, the product markets, the market intermediaries and the legal functions become more formal, complete, and effective. With less restrictions and more opening-up, firms are freer to enter the market and make their own decisions.

First, if the institutional environment in the home country improves, the corresponding cost of doing business will decrease thanks to the reduction of trade frictions and government restrictions. More firms will enter the market, resulting in more intensified market competition including price-quality competition, know-how and timing competition, strongholds competition, and deep pockets competition (D'Aveni, 1994; Hermelo & Vassolo, 2010). Those firms that pursue an expansion-

Table 1

A Brief Comparison of the Two Types of Export Strategy.

	Expansion-Oriented	Escape-Oriented
Motivation	Seek Growth and Expansion in International Markets	Avoid Deficiencies and Burdens of Domestic Institutional Environment
Goal	Enhance Scale and Performance	Reduce Cost
Firm Competencies	High EI Correlates with High Competencies	High EI Correlates with Low Competencies
Performance	Less Sensitive to Domestic Environmental Changes Less Changes in EI High EI Typically Indicates More Learning	Sensitive to Domestic Environmental Changes More Changes in EI High EI Typically Means Less Learning

oriented strategy will find the domestic market to be more attractive, further rewarding their competencies at home.

Second, escape-oriented firms, on the other hand, facing even stronger competition in domestic markets, would tend to rely more on their experience in the export market and further consolidate their positions overseas. Moreover, the more opening-up policies will often reduce the policy and/or tax burdens previously levied on exporting firms, further reducing the costs associated with export and making export even more attractive to escape-oriented firms. As such, we expect that improvement in the institutional environment will enhance the EI of those firms adopting the escape-oriented export strategy more than the EI of those adopting expansion-oriented strategy (Boehe et al., 2016; LiPuma et al., 2013).

In sum, when the EI exceeds certain threshold level, firms are much more likely to be escape-oriented ones. The more the domestic institutional environment improves, the greater the enhancement of EI. Below that level, firms are more likely to be expansion-oriented strategy adopters. The improvement in institutional environment domestically will not enhance their EI as significantly as in the case of escape-oriented exporters.

Different from the escape-oriented strategy, firms adopting the expansion-oriented strategy treat export as an extension of or supplement to their domestic business. The very reason for them to engage in export is to further expand their market to reap in more profit, extending their competencies into the international arena. When the domestic institutional environment improves, firms with expansion-oriented export strategy will become more competitive in the domestic market due to their more superior competencies. Such competencies will help them reduce operating costs, making the export market less attractive (Shinkle & Kriauciunas, 2010).

Of course, improved institutional environment and opening up policies that favor export will also provide impetus for expansion-oriented firms to further their export (LiPuma et al., 2013; Mariz-Pérez & García-Álvarez, 2009). However, even though both the domestic market and export market provide opportunities for firms with greater competencies, the motivation to export will be offset by domestic market attractiveness, which is more salient to expansion-oriented exporters and less apparent (or even lacking) to those escape-oriented exporters. On balance, we should expect that expansion-oriented firms would not enhance their EI facing improvement in institutional environments as sensitively as those escape-oriented firms (Shinkle & Kriauciunas, 2010).

Hypothesis 1. *In emerging economies, when domestic institutional environment improves, firms with higher current level of EI increase their EI more than firms with lower current level of EI.*

3.3. Export intensity and learning

One of the major performance variable for an exporting firm is its learning (Wu et al., 2007; Zhang et al., 2009). This is especially germane and important for exporting firms in the emerging economies where they aspire to learn from foreign countries in terms of advanced practice in management, marketing, and technology, etc. (Barkema & Vermeulen, 1998; Elango & Pattnaik, 2007). Through their export activities, exporting firms are able to access new information, obtain new knowledge, and utilize them in their production and trade, further enhancing their overall growth (Alvarez & Robertson, 2004; Golovko & Valentini, 2011; Grossman & Helpman, 1990, 1991). As such, a major indicator of learning from exporting is the new knowledge and practice a firm is able to acquire through its export activities (Salomon & Shaver, 2005), which could, to certain extent, be observed by their new products sales value (Love & Ganotakis, 2013; Zhou & Li, 2008).

Regarding the relationship between a firm's international involvement and its performance outcome, the export literature also provides mixed results. While many studies document a positive relationship

(Golovko & Valentini, 2011; Qian & Li, 2003), others find curvilinear relationships, either U-shaped (Sousa & Novello, 2014) or inverted-U-shaped (Chiao et al., 2006). Again, we believe such inconclusive results could at least be partially explained by the previous negligence of the escape-oriented strategy. We explain below through the lens of absorptive capacity.

In general, the actual learning of an exporter is constrained by its absorptive capacity. A firm's absorptive capacity, defined as the ability to recognize the value of new, external information, assimilate it, and apply it to commercial ends (Cohen & Levinthal, 1990), largely determines its learning outcome (Cohen & Levinthal, 1990; Lane & Lubatkin, 1998; Zahra & George, 2002). With a higher level of absorptive capacity, firms are more likely to engage in learning, and to learn effectively when exposed to new knowledge. However, a firm's absorptive capacity depends greatly on their prior related knowledge and competencies (Cohen & Levinthal, 1990).

For expansion-oriented exporters, the enhancement of EI not only means higher level of international involvement, more chances to access new information and more opportunities to enjoy knowledge spillover in overseas market, but also implies more superior competencies to overcome liability of foreignness successfully. Such logic tends to suggest that expansion-oriented exporters typically enjoy greater absorptive capacity when competing in the export market. Confronting with new consumer needs and different product requirements in export markets, expansion-oriented exporters are expected to be more proficient at learning from export and better at obtaining gains through their corresponding innovation (Ellis et al., 2011; Ganotakis & Love, 2012).

On the contrary, for escape-oriented firms, due to their lack of superior competencies, they choose to focus on export to escape from the more stringent and unfavorable domestic institutional environment. They export simply because of the convenience and conduciveness offered by the overseas market as compared to their domestic market. They usually do not have the necessary competencies nor the incentives to learn from export and improve themselves like their expansion-oriented counterparts (Penner Hahn & Shaver, 2005; Vanneste & Puranam, 2010). Their dominant logic is to escape from domestic institutional deficiencies and try to survive and make a living by focusing on export to overseas markets (Cheng & Yu, 2008). In most cases, they engage in exports merely by taking advantage of the lower costs of labor and materials in their emerging economy home country. Especially for those export dependent firms, they are essentially intermediaries for exports and are not even full-blown firms that could learn and innovate by themselves product wise. As such, they are expected to have lesser absorptive capacity necessary for learning from export. Consequently, they will benefit less from learning in terms of innovation and new product development and sales, even though they are highly dependent on the export market. As such, for escape-oriented firms, enhancement of EI will typically not increase their learning, and may even limit or constrain such learning.

Overall, we expect an inverted-U-shaped relationship between EI and learning. That is, below a certain threshold level of EI where expansion-oriented firms tend to populate, the higher the EI, the greater the learning. Above the threshold level (inflection point) where escape-oriented firms tend to prevail, the higher the EI, the less the learning (see Fig. 1).

Hypothesis 2. *In emerging economies, the relationship between EI and the outcome of firms' learning to innovate follows an inverted U-shaped curve.*

3.4. The moderating effect of type of ownership

The institutional based view (IBV) is useful in helping us to make sense of a firm's international business strategy, especially in the setting of the emerging economies (Peng et al., 2008). Firms are embedded in various institutional arrangements that make up their environmental

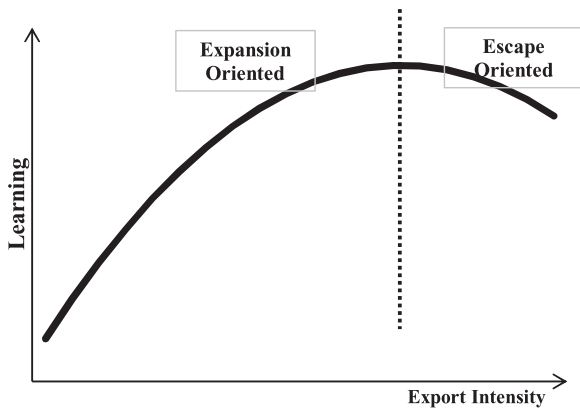


Fig. 1. Relationship between EI and Learning.

context. In particular, the ownership structure of a firm is often a direct reflection of the nature and characteristics of its institutional environment (Peng, Tan, & Tong, 2004; Shenkar & Von Glinow, 1994; Xu, Lu, & Gu, 2014). Two types of ownership structures are prevalent and dominant in exporting firms from emerging economies, state-owned enterprises (SOEs) and privately-owned enterprises (POEs). These different types of ownership mean different institutional constraints firms face and different competencies that they would typically possess (Ju & Zhao, 2009; Peng et al., 2004; Xia & Walker, 2015; Xu et al., 2014). We expect that these different types of ownership will result in different patterns of relationship between changes in institutional environment and EI and between EI and learning.

In emerging economies, POEs often face much inferior institutional environment along with more restrictions and burdens that hinder their normal operations (Ahlstrom & Bruton, 2001). Lacking protection from the underdeveloped legal system and support from government policies, POEs face more barriers and hurdles in accessing resources (Tan, 2002). Export therefore becomes a viable choice for many of them to avoid or reduce institutional environment related costs of doing business (Cheng & Yu, 2008). That is, escape incentives are more likely to be found among POEs. Moreover, POEs often feature more flexible organization systems, which, along with their typical small or medium sizes, will allow them to be more responsive to environmental changes (Peng et al., 2004). As such, because of the higher incentives and fewer restrictions for POEs to become escape-oriented exporters, we expect that the effects in H1 and H2 will be more germane to POEs.

Unlike POEs, SOEs in emerging economies are usually large in size, organized with sophisticated bureaucracies, and enjoy ready and favorable access to various resources handed out by the government (Li & Zhang, 2007; Peng et al., 2004). They generally will face less challenges and pressures caused by underdeveloped institutional environment. Meanwhile, SOEs are also the official carriers or instruments through which government policies are implemented. They usually follow very

strict standard operating procedures and decision processes (Li & Zhang, 2007; Peng et al., 2004; Tan, 2002). Therefore, they often lack the managerial latitude in making decisions freely according to the changing market conditions. With less motivations and less managerial discretion, it is unlikely that SOEs will adopt the escape-oriented export strategy even when they have a relatively high EI. Thus, the relationship between institutional change and EI and the relationship between EI and the learning from export as Hypothesized in H1 and H2, respectively, will not be present or salient.

Simply put, the dichotomy logic we have advanced is essentially far less relevant to the SOEs than to the POEs. Specifically, H3a predicts that the relationship between institutional environment change and EI as hypothesized in H1 will be present for POEs but not for SOEs, as there are less likely escape-oriented exporters among SOEs. H3b states that there will less likely be noticeable drops in learning when the EI moves up to the extremely higher range for SOEs, again, given the fact that there are essentially no escape-oriented exporters among SOEs even in the high EI range. Hence, there will likely be no noticeable curvilinear relationship between EI and learning for SOEs. Fig. 2 illustrates our overall theoretical framework for this paper and the placement of the individual hypotheses.

Hypothesis 3a. *The propensity of firms with higher current levels of EI to increase EI more than firms with lower current levels of EI holds true for POEs but not for SOEs.*

Hypothesis 3b. *In emerging economies, the hypothesized inverted U-shaped relationship between EI and the outcome of firms' learning to innovate holds true for POEs but not for SOEs.*

4. Methods

4.1. Sample and data

We constructed our empirical analysis based on Annual Census on Industrial Enterprises (ACIE) Database (1998–2007) from the National Bureau of Statistics of China (NBSC). The NBSC collects financial information from industrial enterprises including all non-SOEs with annual sales of at least 5 million RMB and all SOEs every year since 1998. According to Chinese regulations, all those firms in China must provide their information in this investigation (Xu et al., 2014). Containing detailed information on a firm's identification, annual sales, ownership structure, year of establishment and exported shipments, this census is the most comprehensive, reliable, and consistent national survey conducted in China (Chow, 1993; Xu et al., 2014) and has been widely used in prior management studies (Chang & Xu, 2008; Li & Li, 2014; Nie, Jiang, & Yang, 2012; Xu et al., 2014). Since we focus on export behavior and learning outcome of exporting firms in this paper, only exporting firms, which take about 20% of the total database, were selected from the database.

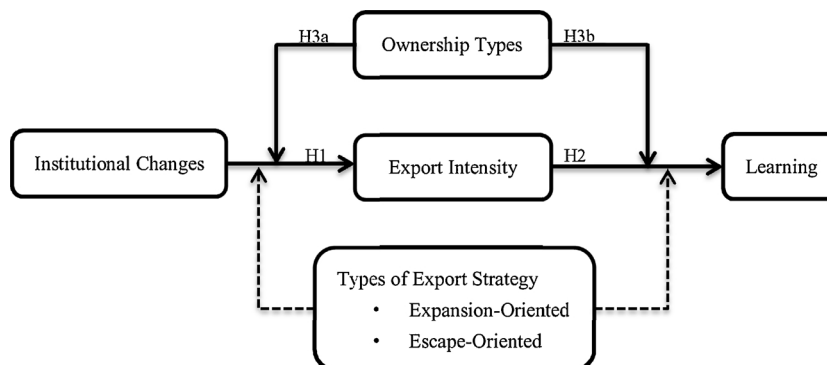


Fig. 2. An Overall Theoretical Framework and Hypotheses.

Also, research has long been discussing the differences between foreign firms and domestic firms (e.g., Xu et al., 2014). To rule out the complex incentive and decision process of foreign firms and to make our empirical setting clearer, we only kept domestic firms. This step cut about 20% firms out of exporting firms. We then had 448,443 firm-year observations. Specifically, as we try to compare the outcomes of firms' learning, it is necessary to control their exporting experience. We dropped the firms that already have export engagement in 1998 since we cannot know their prior export history as our date is left truncated at 1998, and kept the sample from 1999. After that, 312,586 firm-year observations were left. Finally, we cleared out the observations with missing information on the key variables. The remaining valid 142,644 firm-year observations constructed our sample, covering the time span from 1999 to 2007.

4.2. Dependent variables

4.2.1. Export intensity change

Following the export literature in International Business (e.g., Bonaccorsi, 1992; Majocchi et al., 2005; Pla-Barber & Alegre, 2007), export intensity (EI) in our study equals to the ratio of export sales to total sales by a firm in a specific year. Since we want to look at its changes, we employed both export intensity change value (ΔEI_t) and export change rate (rEI_t) as our dependent variables.¹

$$\Delta EI_t = EI_t - EI_{t-1}$$

$$rEI_t = (EI_t - EI_{t-1})/EI_{t-1}$$

4.2.2. Learning outcome: innovation gains

A major indicator of learning from exporting is the new knowledge and practice a firm is able to acquire through its export activities (Salomon & Shaver, 2005). Following the convention in prior studies, we used the value of new product sales to represent innovation (Love & Ganotakis, 2013; Zhou & Li, 2008). The annual new product sales were collected by NBSC in the ACIE Database. According to NBSC, a product would be defined as new in this province if it is created by new scientific principles, technologies, new designs or has a great improvement and breakthrough compared to the existing product in structure, texture, or manufacture processes. Sales of these new products that have certification within the validity period or product without valid certification but created within one year were classified as new product sales (National Bureau of Statistics of China, 2008). Each registered firm has to report their new product sales information to NBSC every year.

In order to compare learning differences among exporters, we employed the differences of new product sales between "after export" and "before export" to test our hypotheses. We first identified the year when the firm had not engaged in export but started export the next year as the year "before export". Then, we calculated the differences of new product sales between current year and the year before export as innovation gains from exporting ($\Delta INNO_t$). And we divided it by the innovation level before export as innovation gains rate ($rINNO_t$). In case when there was no innovation before export, we added 1 to the denominator.²

$$\Delta INNO_t = INNO_t - INNO_0$$

$$rINNO_t = (INNO_t - INNO_0)/(INNO_0 + 1)$$

¹ In both equations, EI_t and EI_{t-1} refer to a firm's EI of current year and last year respectively.

² In both equations here, $INNO_t$ and $INNO_0$ refer to a firm's new product sales of current year and the year before export respectively.

4.3. Independent variables

4.3.1. Institutional environment changes

To measure the institutional environment that firms face with, we used the institutional index developed by the NERI (Fan et al., 2011), which has been well adopted in the management literature to measure the institutional environment in China (Li & Qian, 2013; Li et al., 2011; Wang & Qian, 2011). The NERI indexes captured the progress of institutional development in all 31 Chinese provinces, municipalities, and autonomous regions. It measures five aspects of institutional situation, including (1) the relationship between the government and the market, (2) the development of the non-state sector, (3) the development of the factor markets, (4) the development of the product markets, and (5) the development of market intermediaries and the legal environment (Li & Qian, 2013; Li et al., 2011). A higher score indicates a better institutional environment. An improved score refers to institutional improvements in the above aspects, indicating a more complete, formal, and transparent institutional environment for firms (Fan et al., 2011).

Since we expect to examine the possible outcome of institutional environment improvement, we calculated the institutional index changes rate ($rInstitution_t$) in a three-year span³ by dividing the institutional index changes during three years to the origin institutional index.⁴

$$rInstitution_t = (Institution_t - Institution_{t-2})/Institution_{t-2}$$

4.3.2. Export intensity

Following the export literature, export intensity (EI) in our study equals to the ratio of export sales to total sales by a firm in specific year. In order to allow learning from exporting to be actually reflected in innovation gains, we employed one- and two-year lags of EI to examine the relationship between EI and learning outcome. In this way, it can provide more consistent estimates of coefficients and help to make the causal relationship more credible (Gao et al., 2010; Salomon & Jin, 2008).

4.4. Control variables

In line with conventions in previous research on export behavior, we included the following firm-level, industry-level, and country-level factors in our analyses (LiPuma et al., 2013). Firm specific variables included firm age and firm size, both of which can affect the decisions regarding internationalization and the ability to intensify their foreign activities (Ganotakis & Love, 2012; LiPuma et al., 2013; Pla-Barber & Alegre, 2007). Firm size was measured by the logarithm of total sales, which has been widely used to picture a firm's size (e.g., Chang & Xu, 2008; Li et al., 2011). Besides, scholars have long investigated the relationship between existing innovative productivity and learning by exporting (e.g., Salomon & Shaver, 2005; Salomon, 2006). Therefore, we included the New Product Sales of last year to control contemporary innovative capability.

Research has pointed out industry competition, growth potential and structure as environmental factors to impact the incentive of internationalization and learning (Martineau & Pastoriza, 2015). Hence, we employed several industry indicators to control the effect, including industry growth rate, industry competition, and industry export orientation in three-digit industry level and industry fixed effect in two-digit industry level. The industry growth rate was derived by dividing changes in annual sales by the annual sales for each company. We then identified the median rate across companies within each industry to represent the growth rate at the industry level (Chaudhry, Yuan, Hu, &

³ We also verified our results with market change rate of two-year span. The results are consistent.

⁴ In both equations, $Institution_t$ and $Institution_{t-2}$ refer to institutional index of current year and the year before last respectively.

Table 2
Descriptive Statistics.

Variable	Obs	Mean	Std. Dev.	Min	Max
ΔEI	142,644	-0.0015	0.1883	-0.6732	0.9999
rEI	142,644	0.3075	1.6115	-0.9197	11.8115
$\Delta INNO$	142,644	0.0996	0.6453	-0.0537	5.2020
$rINNO$	142,644	0.0405	0.2881	-0.0000	2.4188
EI	142,644	0.6630	0.3600	0.0026	1.0000
Logarithm of New Product Sales	142,644	1.4056	3.4786	0.0000	12.5471
$rInstitution$	142,644	0.1381	0.0584	0.0142	0.3763
Age	142,644	10.0473	8.4166	1.0000	50.0000
Ownership	142,644	0.0301	0.1707	0.0000	1.0000
HHI	142,644	0.0357	0.0990	0.0000	0.5346
Industry Export Orientation	142,644	0.3413	0.1735	0.0362	0.6661
Industry Growth Rate	142,644	0.1689	0.0569	0.0308	0.3300
Size	142,644	10.4584	1.2479	8.2641	14.2294
Institution Situation	142,644	9.2408	1.7403	4.2300	11.3900
Exchange Volatility	142,644	-0.1332	0.0038	-0.1374	-0.1274

Cooke, 2016). We also used the well-accepted measurement Herfindahl-Hirschman Index (HHI) as a measure of industry competition (Zhang, Zhu, Yue, & Zhu, 2010). It is calculated by taking the squared term of the market share of each firm competing in the industry and then summing the resulting numbers. Besides, following Gao et al. (2010), we calculated industry export orientation, which has an impact on the export propensity and intensity, by the percentage of exporters in a specific industry.

Export assistance and environmental hostility on the country level have been identified as important determining factors when assessing export performance (Sousa et al., 2008). Hence, to partially control for such factors, we used institutional index obtained from NERI (Fan et al., 2011) at the Province level which reflects an integrative domestic market environment situation, and RMB-USD exchange rate volatility which largely captures the global market fluctuation faced by Chinese firms. In line with Beugelsdijk, Hennart, Slangen, and Smeets (2010), we measured RMB-USD exchange rate volatility by the log of the percentage deviation of this rate from its past 3-year average, with the annual exchange rate data coming from China State Administration of Foreign Exchange. According to the data from National Bureau of Statistics of China, the U.S.A has been the biggest export destination country for China's exporting firms as it has a highest total value of export from China since 1998. Thus taking the RMB-USD exchange rate volatility can reasonably represent the global trade condition fluctuation faced by Chinese firms.

5. Analyses and results

For both our research questions, on EI and on learning respectively, we used fixed effect models to control the firm specific effect. To reduce the influence of outliers, we winsorized all the variables at the 1st and the 99th percentiles. This technique has been recommended for accurate regression model estimates (Kennedy, Lakonishok, & Shaw, 1992) and widely used in empirical settings of management literature (e.g., Duran, Kostova, & van Essen, 2017). The descriptive statistics of all variables are reported in Table 2. Pearson's correlation coefficients between the regression variables are presented in Table 3. Correlations between the independent and control variables are low to moderately high, suggesting the absence of multicollinearity.⁵

⁵ Exchange Volatility and Institution Situation have a moderately high correlation here. But by incorporating both of them, we capture a fuller picture of the country level situation a firm has to face. We also run the regressions that only included one of them. The results are robust and consistent with the one that contained both of them.

5.1. Institutional environment changes and export intensity changes

Based on the EI of the previous year, we divided the firms into two groups: the low EI group and high EI group. A firm was grouped as a high EI firm if it has an EI higher than the criterion, otherwise, was grouped as a low EI firm. We took the medium EI (at about 0.7) of exporting firms as the splitting point. The results turned out that as long as the splitting point was greater than the medium EI, the effect would be consistent. When the splitting point was set above the medium number, the results held and appeared to be stronger. As such, we only report the results when the medium EI was used as the cut point in Tables 4 and 5. In both tables, Models 1–2 used the high EI firms' subsample while Models 3–4 used the subsample of low EI firms.

Table 4 reported the POEs subsample results. As we can see from the table, high EI firms were sensitive to the changes of the institutional improvement. Whether using the EI change rate or the EI change value as the dependent variable, the coefficients of environment changes were positive and significant in high EI firms. While in low EI firms, the coefficients are all negative and significant. These suggested that high EI firms would increase their EI thus the share of export in a rapid and sensitive manner when faced with the domestic environment improvement, yet the low EI firms tends to decrease their EI. Moreover, as we look at the SOEs subsample results in Table 5, there were no significant outcomes, suggesting insensitive reactions from SOEs. We also used a bootstrap approach (cf. Cleary, 1999; Keil et al., 2000; Tsang, 2002) to test significance levels of observed differences between SOEs and Non-SOEs in coefficient estimates of the same path. The results show that the differences in the coefficients of market changes are all significant at 1% level.⁶ These results conformed to our predictions made in Hypotheses 1 and the ownership effect in Hypotheses 3a.

5.2. Export intensity and learning

We hypothesized an inverted U-shape relationship between EI and learning outcome. So in this session, our primary focus was on EI and its quadratic term. As it usually takes time for the learning from exporting to actually externalize into innovation gains, we introduced one- and two-year lags of EI as our dependent variable.

The results of POE subsample and SOE subsample were reported in Tables 6 and 7 respectively. Each table presented both results of innovation gains and innovation gains rate. To check the robustness of the inverse U-shaped relationship, we also employed Lind and Mehlum (2010) Utest to validate our results.⁷

As shown in Table 6, the positive coefficient of EI and the negative coefficient of the quartic EI both were significant in the POE subsample. Moreover, with the inflection point well within the data range, the Utest also attested to the significant presence of an inverse U-shaped relationship ($p < 0.01$) between EI and learning to innovate by

⁶ By using this methodology, we are able to allow for panel data residuals (Cleary, 1999). Following the procedure used by Cleary (1999), in the test, the original hypothesis is $H_0: d_0 = 0$, which means the coefficient estimates of SOEs and Non-SOEs are equal. A bootstrapping procedure is used to calculate empirical p-values that estimate the likelihood of obtaining the observed differences in coefficient estimates if the original hypothesis is right. First, observations are pooled from the SOE and Non-SOEs. Using $n1$ and $n2$ to denote the number of annual observations available from each group, we end up with a total of $n1 + n2$ observations every year. For each simulation, we randomly select $n1$ and $n2$ observations each year from the pooled distribution and assign them to Group 1 and Group 2, respectively. Coefficient estimates are then determined for each group using these observations. We repeated this procedure for 500 times. The empirical p-value is the percentage of simulations where the difference between coefficient estimates (d_i) exceeds the actual observed difference in coefficient estimates (d_0). This p-value tests against the alternative hypothesis that the coefficient of one group is greater or smaller than that of the other group.

⁷ In particular, we employed the *utest* Command in Stata 14 to do the test. This command was developed by Lind and Mehlum (2010), and has been widely used in management research to examine the presence of U-shaped relationship (e.g., Boone, Wezel, & van Witteloostuijn, 2013; Zavyalova, Pfarrer, Regier, & Hubbard, 2016).

Table 3
Correlation Analyses.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 ΔEI	1													
2 rEI	0.5402	1												
3 $\Delta INNO$	0.0120	0.0511	1											
4 $rINNO$	0.0229	0.0353	0.7553	1										
5 $rInstitution$	-0.0123	0.0253	-0.0002	-0.0042	1									
6 EI	0.2264	-0.0763	-0.1468	-0.1050	-0.0934	1								
7 Age	-0.0335	0.0117	0.1216	0.0721	0.0092	-0.1951	1							
8 HHI	-0.0030	-0.0038	-0.0047	-0.0011	-0.0859	0.0420	-0.0210	1						
9 Industry Export Orientation	-0.0131	-0.0701	-0.0944	-0.0691	-0.0050	0.4119	-0.1490	0.0628	1					
10 Industry Growth Rate	-0.0565	0.0041	0.0495	0.0409	-0.1424	-0.0847	-0.0042	0.0619	-0.1868	1				
11 Logarithm of New Product Sales	-0.0230	0.0468	0.4354	0.3702	0.0273	-0.2259	0.1528	-0.0053	-0.1449	0.0884	1			
12 Size	-0.0600	0.0397	0.2237	0.1513	-0.0289	-0.2589	0.1759	0.0049	-0.2080	0.1557	0.2864	1		
13 Institution Situation	-0.0368	-0.0343	-0.0132	0.0080	-0.2797	0.1720	-0.1333	0.1288	0.1843	0.3181	-0.0116	0.0106	1	
14 Exchange Volatility	-0.0054	-0.0348	0.0431	0.0424	-0.4289	-0.0033	-0.0139	0.1832	-0.0403	0.4715	0.0800	0.1318	0.5369	1

Correlations with values great than |0.15| are significant at the 1% level.

Table 4
Export Intensity Changes of POEs with A Splitting Point at 0.7 (Medium EI of Exporting Firms).

DV	Model 1	Model 2	Model 3	Model 4
	High Export Intensity Firms	Low Export Intensity Firms	High Export Intensity Firms	Low Export Intensity Firms
	ΔEI_t	rEI_t	ΔEI_t	rEI_t
$rInstitution_t$	0.0479*** (3.103)	0.0550*** (3.023)	-0.0597** (-2.371)	-0.7999*** (-2.797)
HHI	0.0135** (2.052)	0.0149* (1.926)	-0.0187 (-1.146)	0.0843 (0.454)
Industry Growth Rate	-0.1507*** (-6.392)	-0.1723*** (-6.204)	0.0774** (2.181)	-0.0682 (-0.169)
Industry Export Orientation	0.0037 (0.227)	0.0056 (0.291)	0.0684** (2.083)	-1.1253*** (-3.015)
Age	0.0063*** (2.913)	0.0076*** (2.975)	-0.0035 (-1.047)	-0.0251 (-0.656)
Logarithm of New Product Sales _(t-1)	-0.0002 (-0.629)	-0.0002 (-0.482)	0.0007 (1.289)	-0.0019 (-0.310)
Size	0.0026 (1.455)	0.0020 (0.921)	-0.0216*** (-5.942)	-0.1694*** (-4.092)
Institution Situation	-0.0039 (-1.119)	-0.0056 (-1.347)	-0.0069 (-1.315)	-0.0884 (-1.474)
Exchange Volatility	-3.8947*** (-10.545)	-4.4795*** (-10.298)	1.9876*** (3.014)	-21.8576*** (-2.915)
Industry Fixed Effect	Control	Control	Control	Control
Constant	-0.5962*** (-4.197)	-0.6699*** (-4.004)	0.5335*** (2.975)	1.0218 (0.501)
Observations	61,005	61,005	43,492	43,492
R-squared	0.018	0.018	0.008	0.019
Number of Panel id	33,101	33,101	26,344	26,344

*** p < 0.01.
** p < 0.05.
* p < 0.1.

exporting in POEs as predicted in H2.⁸ Also, as predicted in H3b, the curvilinear effect was not confirmed in SOEs as results in Table 7

⁸ We are grateful for the suggestion by a reviewer of this journal to run the analyses by splitting the sample into five quintiles. The results do not differ from those based on the u-test and are therefore not reported here given the length of the paper.

Table 5
Export Intensity Changes of SOEs with a Splitting Point at 0.7.

DV	Model 1	Model 2	Model 3	Model 4
	High Export Intensity Firms	Low Export Intensity Firms	High Export Intensity Firms	Low Export Intensity Firms
	ΔEI_t	rEI_t	ΔEI_t	rEI_t
$rInstitution_t$	-0.2585 (-1.613)	-0.3218 (-1.624)	-0.0303 (-0.669)	-0.4661 (-0.539)
HHI	0.0774 (0.479)	0.1015 (0.508)	-0.0800 (-1.154)	-0.8979 (-0.679)
Industry Growth Rate	-0.3715 (-1.047)	-0.4252 (-0.969)	-0.0313 (-0.444)	-0.5256 (-0.391)
Industry Export Orientation	0.0686 (0.247)	0.0998 (0.290)	0.1043 (1.140)	-2.7507 (-1.577)
Age	0.0015 (0.080)	0.0043 (0.185)	-0.0019 (-0.468)	-0.1235 (-1.596)
Logarithm of New Product Sales _(t-1)	0.0029 (0.343)	0.0040 (0.378)	0.0007 (0.540)	0.0035 (0.141)
Size	0.0036 (0.151)	-0.0001 (-0.004)	-0.0176* (-1.760)	-0.0785 (-0.411)
Institution Situation	-0.0135 (-0.418)	-0.0242 (-0.605)	0.0071 (0.901)	0.0646 (0.428)
Exchange Volatility	1.6816 (0.245)	2.3542 (0.277)	-0.8308 (-0.470)	-7.4493 (-0.221)
Firm Level Fixed Effect	Control	Control	Control	Control
Constant	0.2549 (0.234)	0.4122 (0.306)	0.1218 (0.379)	6.6050 (1.077)
Observations	699	699	2,793	2,793
R-squared	0.116	0.126	0.033	0.073
Number of Panel id	484	484	1,746	1,746

* p < 0.1.

demonstrated. We also used a bootstrap approach (cf. Tsang, 2002) to test the sample differences between SOEs and POEs. The results confirm that the differences in the coefficients of the quadratic EI are all significant at 1% level. That is to say, the inverted U-shape relationship is less likely to be found among SOEs, which usually do no pursue the escape-oriented strategy as high EI POEs typically do.

Besides, to deal with the possible endogeneity effect regarding the relationship between EI and learning in POEs, we conducted a Heckman-two-stage regression. The results, as reported in Table 8, were

Table 6
Innovation Gains of POEs.

VARIABLES	DV: $\Delta INNO_t$		DV: $rINNO_t$	
	Model 1	Model 2	Model 3	Model 4
$EI_{(t-1)}$	0.2619*** (8.859)		0.1537*** (10.599)	
$EI_{(t-1)}^2$	-0.2178*** (-7.529)		-0.1234*** (-8.695)	
$EI_{(t-2)}$		0.3169*** (7.399)		0.1824*** (8.660)
$EI_{(t-2)}^2$		-0.2252*** (-5.816)		-0.1300*** (-6.830)
HHI	-0.0206 (-1.078)	-0.0268 (-1.370)	-0.0064 (-0.683)	-0.0079 (-0.824)
Industry Growth Rate	0.0763 (1.397)	0.0275 (0.380)	0.0202 (0.753)	0.0280 (0.786)
Industry Export Orientation	0.0717* (1.696)	0.0681 (1.065)	0.0054 (0.261)	-0.0414 (-1.315)
Age	-0.0270*** (-5.614)	-0.0143* (-1.651)	-0.0106*** (-4.474)	-0.0099** (-2.334)
Logarithm of New Product Sales _(t-1)	0.0233*** (27.231)	0.0140*** (13.442)	0.0102*** (24.269)	0.0065*** (12.667)
Size	0.1099*** (23.929)	0.0870*** (13.516)	0.0438*** (19.428)	0.0356*** (11.256)
Institution Situation	0.0718*** (9.358)	0.0815*** (5.436)	0.0312*** (8.294)	0.0472*** (6.407)
Exchange Volatility	-0.4532 (-0.485)	-4.4422*** (-3.406)	-0.4530 (-0.987)	-3.0196*** (-4.710)
Industry Fixed Effect	Control	Control	Control	Control
Constant	-1.5891*** (-2.819)	-2.2920*** (-6.393)	-0.6773** (-2.449)	-1.2223*** (-6.935)
Inflection Point	0.6012	0.7036	0.6228	0.7013
T-value of Utest (H0: Monotone/U shape)	5.68	3.47	6.20	4.11
$P > t $ (H1: Inverse U shape)	0.000	0.000	0.000	0.000
Observations	125,176	71,781	125,176	71,781
R-squared	0.046	0.033	0.037	0.030
Number of Panel id	65,508	41,123	65,508	41,123

*** p < 0.01.

** p < 0.05.

* p < 0.1.

consistent with the previous findings after controlling the Inverse Mills Ratios. The significant coefficients of EI and quadratic EI in Table 8 again confirmed our previous findings. These results implied that our analysis about how EI shaped a firm's learning outcome would be reasonable.

In sum, the relationship between EI and learning outcome in POEs did not appear to be linear based on our results drawn on a sample from an emerging economy. Rather, an inverted U-shaped effect will be more appropriate in describing the relationship. Just like the estimation results depicted in Fig. 3, as the EI goes up, the magnitude of learning outcome may first increase and then fall down. H3b was also confirmed as the results do not indicate a salient inverted-U shaped relationship between EI and learning from export in SOEs.

5.3. Additional analysis

As discussed earlier, when we integrate both the RBV and institutional perspectives and consider the two different export strategies, EI of POEs is expected not to correlate with firms' competencies in linear forms. POEs with high EI tend to be escape-oriented exporters and do not necessarily have greater performance such as learning, as compared to those firms with low EI pursuing an expansion-oriented strategy. It is

Table 7
Innovation Gains of SOEs.

VARIABLES	DV: $\Delta INNO_t$		DV: $rINNO_t$	
	Model 1	Model 2	Model 3	Model 4
$EI_{(t-1)}$	0.3824 (1.108)		-0.0225 (-0.177)	
$EI_{(t-1)}^2$	-0.3705 (-0.973)		0.0429 (0.306)	
$EI_{(t-2)}$		1.0248 (1.360)		0.1508 (0.479)
$EI_{(t-2)}^2$		-0.8727 (-1.051)		-0.0386 (-0.111)
HHI	-0.0541 (-0.145)	0.1794 (0.403)	0.0337 (0.244)	0.0610 (0.328)
Industry Growth Rate	-0.2204 (-0.529)	-0.6226 (-0.793)	-0.2560* (-1.664)	-0.1931 (-0.589)
Industry Export Orientation	0.2411 (0.515)	1.5505 (1.450)	-0.0383 (-0.222)	0.2715 (0.608)
Age	0.0198 (0.906)	-0.0622 (-1.188)	-0.0046 (-0.569)	-0.0017 (-0.076)
Logarithm of New Product Sales _(t-1)	0.0410*** (5.775)	0.1011*** (7.077)	0.0079*** (3.009)	0.0445*** (7.449)
Size	0.2182*** (4.417)	0.1083 (1.018)	0.0551*** (3.024)	0.0328 (0.738)
Institution Situation	0.0234 (0.554)	0.1998** (1.988)	0.0252 (1.612)	0.0548 (1.304)
Exchange Volatility	10.4667 (1.120)	8.7308 (0.490)	5.8633* (1.700)	0.4386 (0.059)
Industry Fixed Effect	Control	Control	Control	Control
Constant	-1.9804 (-1.054)	-0.3616 (-0.108)	0.0924 (0.133)	-0.9485 (-0.676)
Inflection Point	-	-	-	-
T-value of Utest (H0: Monotone/U shape)	0.79	0.73	0.18	-
$P > t $ (H1: Inverse U shape)	0.215	0.233	0.430	Failed to Reject H0
Observations	4,646	1,761	4,646	1,761
R-squared	0.071	0.210	0.030	0.153
Number of Panel id	2,966	1,269	2,966	1,269

*** p < 0.01.

** p < 0.05.

* p < 0.1.

inaccurate to interpret EI and firms' export performance as a monotonous and linear relationship in POEs. Rather, an inverted U-shaped effect for POEs will be more appropriate. Hence, to further capture POEs' learning performance, we ran some additional analyses using export-sales volume along with EI as a complementary export performance measurement.

Export-sales volume is another widely accepted indicator of export performance in empirical studies (Larimo, 2013). Unlike the EI, Export-sales Volume (EV) does not divide itself by the total sales, keeping intact the sheer magnitude of the export activities. Thus, we investigated the relationship between EV and learning outcomes in POEs here. The results were reported in Table 9.

As showed in Table 9, though the quadratic term of EV is significant, the U test actually failed to reject the Monotone/U shape assumption because its inflection point was too close to the end point of the data range. That is to say, overall, EV is positively correlated with firm's innovation gains for POEs. EV is proved to be a value-added predictor of learning from export in addition to EI. Taken together with EI, we might just come closer to a better understanding of a firm's export performance and its relationship with learning from exporting and innovation gains.

Table 8
Innovation Gains of POE by Heckman Two-Stage Model.

VARIABLES	DV: $\Delta INNO_t$		DV: $rINNO_t$	
	Model 1	Model 2	Model 3	Model 4
$EI_{(t-1)}$	0.4785 [*] (1.906)		2.2444 ^{***} (16.387)	
$EI_{(t-1)}^2$	-0.6886 ^{**} (-2.522)		-1.6423 ^{***} (-10.916)	
$EI_{(t-2)}$		1.0911 ^{***} (3.201)		1.2674 ^{***} (6.357)
$EI_{(t-2)}^2$		-1.1779 ^{***} (-3.229)		-0.9280 ^{***} (-4.289)
HHI	-0.3102 (-1.251)	-0.4382 (-1.251)	-0.1133 (-0.803)	0.0542 (0.251)
Industry Growth Rate	0.1459 (0.310)	-0.1757 (-0.225)	-1.1651 ^{***} (-4.410)	-0.9346 ^{**} (-1.996)
Industry Export Orientation	-0.0476 (-0.240)	0.6202 ^{**} (2.127)	0.3128 ^{**} (2.640)	0.4818 ^{**} (2.562)
Age	-0.0036 (-1.750)	-0.0047 (-1.535)	-0.0049 ^{***} (-4.576)	-0.0119 ^{***} (-7.075)
Logarithm of New Product Sales $(t-1)$	0.2999 ^{***} (12.424)	0.4268 ^{***} (11.942)	-0.0991 ^{***} (-7.088)	-0.0746 ^{***} (-3.091)
Size	1.0265 ^{***} (57.138)	1.0412 ^{***} (40.710)	0.2948 ^{***} (30.574)	0.2558 ^{***} (17.529)
Institution Situation	0.0829 ^{***} (6.269)	0.1650 ^{***} (6.526)	0.0386 ^{***} (5.368)	0.0285 ^{***} (1.918)
Exchange Volatility	11.9885 (1.600)	-12.9505 (-1.247)	-2.0839 (-0.508)	1.0384 (0.170)
Industry Fixed Effect	Control	Control	Control	Control
Constant	-12.2588 ^{***} (-10.592)	-16.7018 ^{***} (-8.633)	-2.0531 ^{***} (-3.180)	0.1318 (0.110)
Inverse Mills Ratios	2.0448 ^{***} (10.288)	2.3701 ^{***} (9.680)	-0.4311 ^{***} (-3.723)	-0.5013 ^{***} (-2.985)
Observations	43,336	18,217	43,336	18,217

*** p < 0.01.
** p < 0.05.
* p < 0.1.

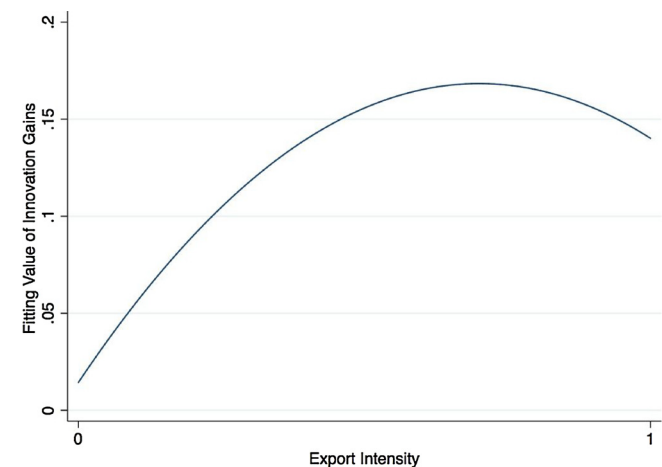


Fig. 3. The Inverted U-shaped Relationship between Fitting Value of Innovation Gains and EI for POEs.

6. Discussions and conclusions

6.1. Contributions and limitations

This study aimed to make a contribution to our understanding of the determination of EI and the relationship between EI and firm learning. In the setting of an emerging economy such as China, we tried to reconcile the inconsistent and often contradictory findings in the export

Table 9
Innovation Gains with Export-Sales Volume of POEs.

VARIABLES	DV: $\Delta INNO_t$		DV: $rINNO_t$	
	Model 1	Model 2	Model 3	Model 4
$EV_{(t-1)}$	0.0384 ^{***} (5.917)	0.0777 ^{***} (5.437)	0.0136 ^{***} (4.261)	0.0282 ^{***} (4.008)
$EV_{(t-1)}^2$		-0.0094 ^{***} (-3.086)		-0.0035 ^{**} (-2.327)
HHI	-0.0217 (-1.299)	-0.0217 (-1.298)	-0.0069 (-0.834)	-0.0069 (-0.833)
Industry Growth Rate	0.0406 (0.668)	0.0416 (0.684)	0.0353 (1.180)	0.0357 (1.192)
Industry Export Orientation	0.0772 (1.508)	0.0777 (1.518)	-0.0149 (-0.592)	-0.0148 (-0.585)
Age	-0.0170 ^{**} (-2.363)	-0.0176 ^{**} (-2.449)	-0.0104 ^{**} (-2.937)	-0.0106 ^{**} (-3.002)
Logarithm of New Product Sales $(t-1)$	0.0118 ^{***} (13.391)	0.0117 ^{***} (13.315)	0.0055 ^{***} (12.623)	0.0054 ^{***} (12.564)
Size	0.0588 ^{***} (11.037)	0.0558 ^{***} (10.316)	0.0246 ^{***} (9.376)	0.0235 ^{***} (8.815)
Institution Situation	0.0661 ^{***} (5.336)	0.0659 ^{***} (5.323)	0.0389 ^{***} (6.368)	0.0388 ^{***} (6.358)
Exchange Volatility	-2.2942 ^{**} (-2.101)	-2.2899 ^{**} (-2.097)	-1.8590 ^{***} (-3.454)	-1.8574 ^{***} (-3.451)
Industry Fixed Effect	Control	Control	Control	Control
Constant	-1.4201 ^{***} (-4.813)	-1.3935 ^{***} (-4.721)	-0.7992 ^{***} (-5.497)	-0.7894 ^{***} (-5.427)
Inflection Point	-	-	-	-
T-value of Utest (H0: Monotone/U shape)	-	0.68	-	0.59
P > t (H1: Inverse U shape)	-	0.247	-	0.278
Observations	86,510	86,510	86,510	86,510
R-squared	0.024	0.024	0.021	0.021
Number of Panel id	49,858	49,858	49,858	49,858

** p < 0.05.
*** p < 0.01.

literature in IB regarding the determinants of EI and how EI impacts a firm's performance, e.g., learning from exporting. Our contribution hinged on our differentiation between the escape-oriented strategy and the traditional expansion-oriented export strategy. As the escape-oriented strategy had been largely ignored in the IB literature, its significant impact on EI and export performance were unfortunately less understood and accounted for. Escape-oriented exporters just happened to be a unique phenomenon where firms focused primarily or exclusively on export so as to avoid the institutional burdens they would have to face (and hence higher cost of doing business) if operating domestically. By bringing such an important type of export strategy into the IB literature, we were able to make an incremental contribution to the reconciliation of prior mixed findings concerning EI and learning from exporting.

Different from traditional interpretation of EI as a continuous index, we dichotomized it into two categories with certain threshold level as the splitting point, below which firms were more likely to pursue expansion-oriented strategies (the more conventional cases documented in prior studies), and above which firms are more likely to adopt escape-oriented strategy (the unique phenomenon brought out and emphasized by this study). These two strategies featured different motivations and goals for export and had different patterns of impacts on export performance. While the EI and performance of expansion-oriented firms could be better explained by the RBV reasoning, EI and performance of escape-oriented firms were better explained by the logic of IBV. Hence our study represented another useful attempt at integrating the RBV and IBV in the study of firm's international involvement and corresponding strategy (Martineau & Pastoriza, 2016).

Moreover, it also added support to the application of IBV in the literature on firm behavior and performance in emerging economies (Peng et al., 2008).

Specifically, we found that the escape-oriented POEs were more likely to enhance their EI in response to improvements of institutional environment while expansion-oriented POEs did not enhance their EI saliently. We hypothesized and indeed found an inverted U-shaped relationship between export intensity and learning as indicated by a firm's innovation gains in POEs. This meant that expansion-oriented POEs tended to learn more through exporting while escape-oriented POEs actually did not enhance their learning even with increased export intensity. Nevertheless, the results also indicated that SOEs did not respond to environmental changes significantly and their export intensity exerted essentially no salient impact on their learning. These distinctive behavior patterns revealed the impacts of the different institutional environments POEs and SOEs are facing.

We fully understand that our study only represented an initial step toward the understanding of the escape-oriented strategy, our measures were still rough, and some of the control variables (due to the reasons of data unavailability etc.) had not been appropriately included, e. g., types of the products exported, number and types of destination countries covered, etc., which might limit the validity and generalizability of our results. We hope that future studies could benefit from the use of more precise operationalization of the escape-oriented strategy as well as more rigorous analytical methods so as to better understand EI determination and its impacts on firm performance.

6.2. Research implications and suggestions for future research

It should be noted that, to a great extent, this study helped underscore the importance of the integrative approach in the study of exporting firms. First, it attempted to integrate the antecedents and the performance outcomes of the export research. In general, the export literature in IB featured three major streams of research, focusing respectively on the antecedents to export (e.g., Hitt, Tihanyi, Miller, & Connelly, 2006), export performance (e.g., Sousa et al., 2008), and export channel selection (e.g., Brouthers & Hennart, 2007). By introducing a unique (escaping) motivation for export, this study was able to present a relatively more complete picture about the performance (EI and learning) determination in export than prior studies as documented in the literature. Given the benefits gained in this study, we certainly encourage future studies to attempt more integrative efforts in this aspect, e.g., the integration of channel selection with different motivations and the examination of their joint effects on export performance.

Second, as mentioned above, we attempted to integrate both IBV and RBV in the emerging economy setting, aiming to look at the phenomenon in a more complementary manner. By simultaneously looking at firm-specific variables (RBV) and environmental level variables (IBV), we were able to detect both the internal driven motivations (expansion) and externally derived motivations (escape), and to incorporate both market/economic concerns (expansion) and non-market institutional factors (escape). Our attempts in this study are still minor and marginal, yet we hope it can be a trigger or reminder for more future studies on the integration of RBV and IBV in IB in general and in the study of export in particular. Combining both perspectives, we would spot more interesting phenomena and investigate the reality more precisely and comprehensively.

Moreover, we believe that our theorizing based on the institutional reality in emerging economies and our empirical study of firms in China helped demonstrate the usefulness of using the emerging economy context to bridge theoretical gaps in the export literature as well as the overall IB literature. We hope more such efforts could be undertaken to integrate different theoretical perspectives and better examine firms' international strategies. We also encourage future studies to examine the impacts of these different export strategies on different aspects of

firm performance, e.g., overall firm performance and its variations, in addition to the learning examined here.

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