



How do resources and diversification strategy explain the performance consequences of internationalization?

Resources and
diversification
strategy

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Abstract

Purpose – The purpose of this paper is to examine how firm resources and diversification strategy explain the performance consequences of internationalization of emerging market enterprises.

Design/methodology/approach – The paper conducts a regression analysis by using a novel panel data set comprising of 685 listed Chinese firms over the period of 2008-2011.

Findings – The results show that the relationship between internationalization and performance is inverse U-shaped. Further, marketing resources play a greater role in enhancing the performance effects of internationalization than technological resources do. Related product diversification enhances the performance effects, while unrelated product diversification does the contrary.

Research limitations/implications – The study focusses on listed firms in one country, and as a result, the findings cannot be generalized to non-listed firms and firms in other countries.

Practical implications – This paper offers guidelines for international managers to improve performance of internationalization by developing a particular type of resources and diversification strategy.

Originality/value – This paper extends the literature on the functional form of the internationalization-performance relationship, and further suggests that the analysis of the performance consequences of internationalization should go beyond the nexus between internationalization and performance, and focusses on firm-specific resources and strategies that may facilitate or constrain the performance effects of internationalization.

Keywords Performance, China, International business, Resources, Internationalization, Product diversification

Paper type Research paper

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1. Introduction

It is often argued that internationalization, defined as “firms’ expansion across the borders of global regions and countries into different geographic locations, or markets” (Hitt *et al.*, 1997), offers numerous advantages, enabling firms to enhance their competitive advantages and performance. However, prior research has focussed on the forces driving the internationalization of emerging market enterprises (EMEs) (Contractor *et al.*, 2003; Wang *et al.*, 2012a, b), rather than examining the performance consequences of this internationalization (Su *et al.*, 2009).

The internationalization-performance relationship has been studied extensively in the context of firms from developed economies; however, the empirical literature has produced mixed and contradictory findings (Contractor *et al.*, 2003; Lu and Beamish, 2004). This wide array of results implies that there may be factors outside the examined nexus of internationalization-performance that affect the nature of this relationship. Further, these findings may not apply to EMEs since they are fundamentally different from firms from developed countries in terms of ownership advantages, internationalization motives and home country environments (Contractor *et al.*, 2003; Wang *et al.*, 2012a, b). Against this background, this paper aims to examine the performance implications of EMEs’ internationalization, focussing particularly on how different resources and product diversification strategies moderate the effects of internationalization on firm performance. The paper contributes to the literature in three ways.

First, while most prior research focusses on a linear and monotonic relationship between internationalization and performance (e.g. Geringer *et al.*, 1989; Hitt *et al.*, 1997), recent advances have confirmed the presence of more complex relationships including U-shaped (Lu and Beamish, 2001; Ruigrok and Wagner, 2003), and S-shaped curves (Lu and Beamish, 2004)[1]. The existence of these various relationships reflects that there are both benefits and costs of internationalization. In this study, we propose and test an inverse U-shaped relationship between the degree of internationalization and firm performance. This new form of relationship has not been identified in the literature on EMEs’ internationalization, and therefore complements the existing non-linear approaches to the effects of internationalization and enhances our understanding of how EMEs enhance performance through internationalization.

Second, previous research has established that the effects of internationalization on performance are contingent upon a set of firm-level factors such as resources (Wang *et al.*, 2012b), firm size (Wang *et al.*, 2012a), international management experience (Oviatt and McDougall, 2005) and organizational learning capacity (Vega-Jurado *et al.*, 2008). While international business literature posits that firm-specific advantages, particularly technological and marketing resources, can trigger multinational expansion through outward foreign direct investment (OFDI), it has overlooked the role of such crucial “antecedents” in explaining the performance outcomes of internationalization. By logical extension, the reasons for conducting OFDI should also predict the outcomes of OFDI. In this study, we fill this gap by looking at the ways in which firm-specific technological and marketing resources can have an impact on the relationship between internationalization and performance.

Third, strategic management literature suggests that product diversification may facilitate or constrain firm performance. Although internationalization often involves extension of both geographic scope and product offerings, little research has examined “how product and geographic scope interact with one another” (Peng and Delios, 2006) to influence the performance consequences of internationalization, particularly in the

contexts of EMEs. To address this gap, this paper investigates the roles of geographic diversification and product diversification in a unified model. Further, we propose two distinct dimensions of diversification – namely, related and unrelated product diversification and examine whether they influence the outcomes of internationalization differently.

2. Literature review

2.1 The benefits and costs of internationalization

International business literature suggests that internationalization offers numerous advantages that result in increased performance (Dunning, 1993; Hitt *et al.*, 1997; Rugman, 1979). As outlined in Figure 1, these advantages may enhance performance in several ways: by assisting the company in exploiting distinctive resources developed at home, arbitraging international differences in factors of production, acquiring strategic assets to build competitive advantages (Wang *et al.*, 2012b), achieving economies of scale and scope (Tallman *et al.*, 2004), responding to customer needs faster and more effectively, and spreading operational risks (Rugman, 1981). For example, internationalization may help firms find and deploy a wide range of resources available in other parts of the world (Kotabe *et al.*, 2002), which are often unavailable in their home country. In addition, internationalization increases the possibility of obtaining complementary assets, enabling firms to develop unique technological combinations that very often determine who benefits and who loses from internationalization (Wang *et al.*, 2012b).

By contrast, another stream of research suggests that internationalization may negatively affect firm performance. As Figure 1 shows, internationalization increases the complexity of cross-border transactions and coordination, creates problems in governance and control (Contractor *et al.*, 2003), incurs additional costs due to information asymmetry (von Zedtwitz and Gassmann, 2002), and may also lead to knowledge leakage (Hitt *et al.*, 1997). For example, because the effectiveness of knowledge transfer decreases exponentially with geographic distance, internationalization negatively affects communication in terms of frequency, speed and quality (von Zedtwitz and Gassmann, 2002). Further, internationalization increases the traffic of intellectual property, increasing the likelihood of knowledge leakage. Owing to their lack of competitive advantages and

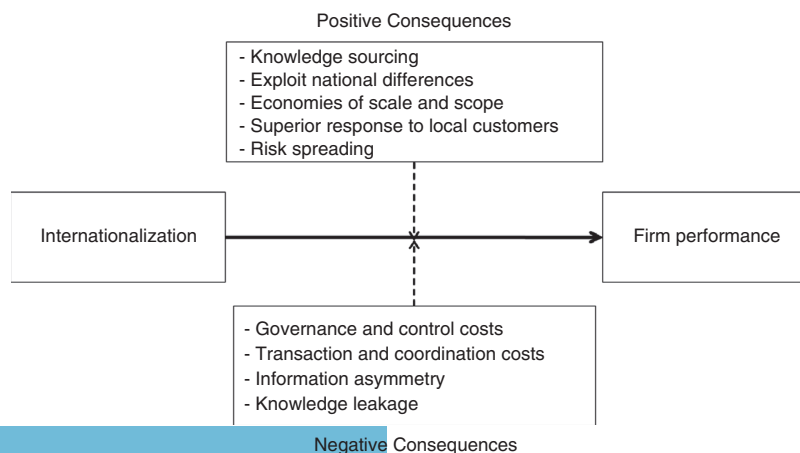


Figure 1.
Internationalization –
positive and negative
performance consequences

international experience, many of these costs are likely to be higher for EMEs than for MNEs from developed economies. Therefore, the internationalization-performance relationship for EMEs may present in forms that previous studies on MNEs from developed economies cannot predict.

The empirical literature is in line with the conflicting theoretical predictions and has generated conflicting findings. While some studies show a positive relationship (Delios and Beamish, 1999; Tallman and Li, 1996) or a negative relationship (e.g. Kumar, 1984), other studies find that internationalization has no effect on performance (e.g. Wan, 1998). Addressing these contradictory findings, researchers have in recent years emphasized the costs of internationalization. They have concluded that the relationship between internationalization and performance does not always show a linear form, and can take various non-monotonic and non-linear forms including a U-shape (Contractor *et al.*, 2003; Ruigrok and Wagner, 2003) and an S-shape (Contractor *et al.*, 2003; Lu and Beamish, 2004). For example, scholars who found a U-shaped relationship argue that firms' profits may decline in the initial stages of internationalization due to the challenges of the new business environment. Their performance, however, will improve after a period when they get familiar with the new environment through the "learning effect." Therefore, despite numerous studies, the empirical findings on the internationalization-performance relationship remain stubbornly inconclusive (Ruigrok and Wagner, 2005).

2.2 Contingencies of the internationalization-performance relationship

The inconsistent conclusions from prior studies imply that there are important weaknesses in the current conceptualization of the nature of the relationship between internationalization and performance. Some studies suggest that the relationship between international diversification and performance may be context dependent. As such, scholars should go beyond the direct nexus between internationalization and performance and focus on the exogenous influences that may shape when, and in what ways, firms benefit from internationalization.

On this subject, the previous literature has suggested that the effects of internationalization on performance are contingent upon a wide array of firm-, industry-, and country-specific idiosyncrasies. First, firm-specific factors, such as R&D intensity (Kotabe *et al.*, 2002), absorptive capacity (Wang *et al.*, 2012a), financial capabilities (Zeng *et al.*, 2009) and experiences of managers (Zeng *et al.*, 2009), may determine the strength of the internationalization-performance relationship. For example, financial capabilities – defined as "internationalizing firms' abilities to obtain financial resources from banks or financial institutions" (Zeng *et al.*, 2009) – can buffer firms from the uncertainty of international financial markets, enabling them to catalyze the initiation and implementation of overseas investment projects, and take new international initiatives. Similarly, as the previous experiences of international managers informs their knowledge about business, markets and institutions in foreign markets (Zeng *et al.*, 2009), firms led by managers with rich international experience are more likely to be able to overcome "liabilities of foreignness" and succeed in achieving their internationalization goals.

Second, industry-specific factors, such as the degree of competition, industry policies and the technology levels within the industry, influence how well firms can enhance their performance through internationalization. For example, Wang *et al.* (2012b) show the effects of internationalization to be stronger in firms that operate in industries where internationalization is encouraged by government than in firms that operate in industries in which that is not the case. Finally, both home and host

country-specific factors can affect the effects of internationalization on performance. For example, Wan and Hoskisson (2003) show that home country institutions that foster transactional activities influence the performance consequences of internationalization. Similarly, a host country's political and legal system, its government's policies toward foreign investment (Hamel, 1991), and the availability of production factors (Oviatt and McDougall, 2005) can moderate the relationship between internationalization and performance.

Since the observed relationships are derived mostly from studies of MNEs from developed economies (Gomes and Ramaswamy, 1999; Hitt *et al.*, 1997; Tallman and Li, 1996), their applicability to EMEs needs to be validated, particularly because there are significant differences between these two types of firms. Prior literature, for example, suggests that, unlike their counterparts from developed economies, EMEs lack competitive advantages and suffer from weak institutions at home (Wang *et al.*, 2012b). As a result, these firms tend to exploit government-related advantages to compensate for a lack of firm-specific advantages and internationalize (Wang *et al.*, 2012a).

3. Hypothesis

3.1 *Relationship between internationalization and performance*

Organizational learning theory suggests that a firm's ability to learn from new information can show a marked rise in the initial stage of new market entry (Contractor *et al.*, 2003). At this stage, EMEs can exploit advantages developed at home, including low-cost advantages and good relationships with their government, and benefit from a variety of local preferential policies and the "new entrant advantage." Further, the Uppsala Model (Johanson and Vahlne, 1977) suggests that a firm tends to enter a host country with a shorter psychological distance from its home country in the early days of international expansion. Therefore, firm performance may improve as the degree of internationalization increases during the initial stage of internationalization. However, after a certain point, firm performance may begin to fall as the degree of internationalization further increases. This happens because as geographical, cultural and institutional distances increase, the organizational costs and complexity associated with global coordination will increase significantly. This is especially true if the firm expands at a high pace, because the firm's capabilities and resource commitments may not match the speed of their overseas expansion (Tallman and Li, 1996). In this situation, the firm will have little time to evaluate and absorb their foreign experience, which may lead to diseconomies of time compression (Vermeulen and Barkema, 2002). Therefore, the costs of internationalization may overwhelm the associated benefits when the level of internationalization increases beyond a certain threshold (Gongming, 2002). As a result, the firm may not be able to capture the expected performance-enhancing benefits of internationalization. Hence:

- H1. There is an inverted U-shape relationship between the degree of an EME's internationalization and its performance.

3.2 *The role of technological and marketing resources*

The resource-based view (RBV) suggests that firms expand overseas either to exploit the distinctive resources they have developed at home, in order to increase cash flow, or seek new strategic assets from foreign markets to strengthen their competitive advantages (Wang *et al.*, 2012a, b). Of the intangible resources that firms possess, technological resources and marketing resources are particularly important for

international enterprises (Tseng *et al.*, 2007) because they involve higher levels of specificity, making imitation difficult (Dierickx and Cool, 1989). A firm's marketing resources include processes such as how to identify the market opportunities and create customer value (Wang *et al.*, 2012a). Marketing resources help the firm to establish brand images in international markets, improve bargaining power with suppliers and customers, implement product diversification strategy and erect barriers against potential entrants (Kotabe *et al.*, 2002). Thus, firms that possess distinctive marketing resources will be able to establish their sustainable competitive advantages in the downstream of the product value chain. This in turn will help the firm increase sales in foreign markets, lower their global coordination costs and achieve better internationalization outcomes. The knowledge-based view emphasizes the importance of technology for gaining a competitive advantage, arguing that technological resources help the firm produce differentiated products, gain market recognition, capture market shares and achieve superior performance (Wang *et al.*, 2012a). Such resources enable firms to support international project implementation and compete globally by either increasing premium prices for differentiated products or by lowering production costs to achieve economies of scale (Kotabe *et al.*, 2002). We recognize that EMEs may not possess strong technological and marketing resources comparable to their counterparts in developed economies. Nevertheless, they need a minimum level of such resources in order to expand overseas and succeed in the foreign markets. Hence:

H2a. An EME's marketing resources have a positive moderating effect on the relationship between internationalization and performance.

H2b. An EME's technological resources have a positive moderating effect on the relationship between internationalization and performance.

3.3 The role of product diversification strategy

The ability of firms to create value from internationalization also depends on their choices of product diversification strategies. The literature has argued for the performance-enhancing effects of product diversification, suggesting that it helps the firm achieve economies of scale and scope, improve the efficiency in their use of resources, transfer core competencies across businesses, and achieve synergies from complementary assets (e.g. Geringer *et al.*, 1989). Prior literature divides the product diversification strategies into "related product diversification" (investments in industries related to the firm's core resources) and "unrelated product diversification" (investments in industries unrelated to the firm's core business) (Rumelt, 1974). In the course of internationalization, firms adopt a related product diversification strategy when they extend the products that proved successful in the home country and the organizational structure developed at home to alien lands. By transferring and exploiting business capabilities, know-how and other valuable assets developed at home and combining them with the technological resources and marketing systems in the local markets, firms are able to reduce operating costs and compete with local competitors (Weston, 1970). By contrast, firms that implement unrelated product diversification strategies in the overseas markets are unable to fully exploit the advantages they have developed at home and use this to compensate for the "liabilities of foreignness." Instead, they have to cope with the substantial costs and risks of organizing complex operations in different business lines in the foreign markets. Thus, these firms will bear "double liabilities" – "liabilities of foreignness" and

“liabilities of un-relatedness,” both of which will offset the benefits associated with internationalization such as economies of scale and knowledge transfer. Therefore, we propose:

H3a. Related product diversification has a positive moderating effect on the relationship between an EME’s internationalization and performance.

H3b. Unrelated product diversification has a negative moderating effect on the relationship between an EME’s internationalization and performance.

The above hypotheses are sketched out in our research framework below. Figure 2 shows that the effects of internationalization on performance depend on the firm’s own marketing and technological resources and their choice of product diversification strategy (related vs unrelated). In other words, marketing and technological resources and product diversification strategy moderate the relationship between the degree of internationalization and firm performance.

4. Data and methodology

4.1 Data sources

Our analysis is based on a firm-level panel data set of Chinese listed manufacturing firms for the period 2008-2011. The data were collected from a financial web site (<http://stock.jrj.com.cn/share>) which was jointly established by The American IDG and Singapore VERTEX. The database provides systematic information for each listed firm, including the number of employees, ownership structure, total assets, R&D expenditures, advertising expenditures, executive pay, sales of diversified product and overseas sales, among others. The original database contains 957 firms that were listed in Shanghai and Shenzhen Stock Markets during the sample period. We dropped 34 firms with conflicting data, 25 firms that were suspended from the stock market during the sample period, 27 firms due to organizational changes associated with mergers and acquisitions, and 22 firms that were listed after 2008 due to extreme fluctuations in stock prices that occurred in the initial stage of listing. We also checked for coding

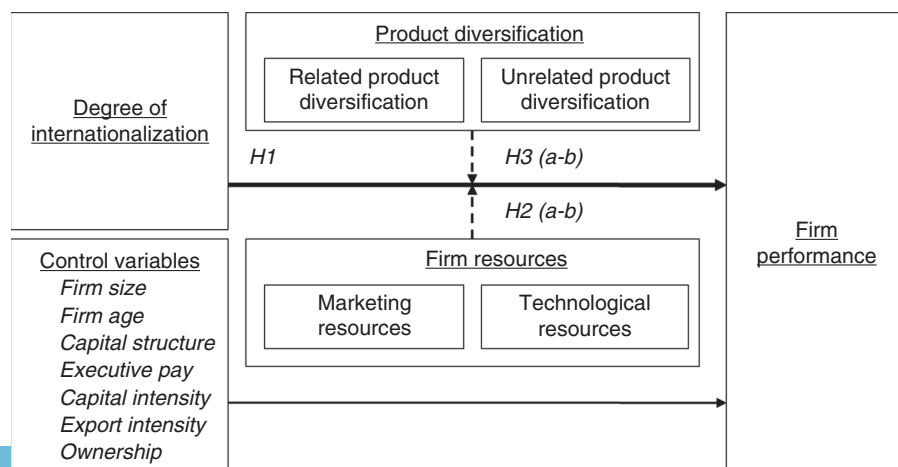


Figure 2.
Research model

mistakes and unusable or unreliable observations, and this process further removed 164 firms. We have therefore ended up with 685 firms in our sample.

4.2 Measurements

4.2.1 *Dependent variable.* Our dependent variable is *Firm performance*. Scholars have long recognized that no single performance measure can capture all aspects of the performance of an organization. Various measures of performance have been used in the internationalization literature, including the net return of assets (ROA) (e.g. Delios and Beamish, 1999), the net return of equity (ROE) (e.g. Contractor *et al.*, 2007) and Tobin's *Q* (e.g. Lu and Beamish, 2004). Although some researchers (e.g. Aaker and Jacobson, 1987) criticize the accounting-based measures of performance, most scholars regard the accounting measures as acceptable. For instance, managers and analysts often use the ROA as a measure of management efficiency (Grant *et al.*, 1988). Following numerous prior studies (e.g. Chang and Wang, 2007; Gomes and Ramaswamy, 1999; Grant *et al.*, 1988), we operationalize firm performance as ROA.

4.2.2 *Independent variable.* Our key predictor variable is the *Degree of internationalization* (DOI). Following prior research (Geringer *et al.*, 2000), we use the ratio of overseas sales to the total sales to gauge the degree of internationalization.

4.2.3 *Moderators.* Product diversification has been divided into *related product diversification* and *unrelated product diversification*. Following Hitt *et al.* (1997), a firm is considered to undertake related product diversification strategy if it expands into a business area which has the same first two digits of SIC with its core business. If the first two digits are different, the firm adopts an unrelated product diversification strategy. We use this approach to distinguish *related product diversification* and *unrelated product diversification*. Product diversification degree is operationalized by the adjusted Herfindahl Index: $AH = 1 - \sum_i^n p_i^2$. In the formula, *AH* is the adjusted Herfindahl Index, measuring the degree of product diversification. The greater the index is, the higher the degree of the firm's product diversification will be; *n* represents the number of sectors (based on two digit SIC classification) in which the firm's main business is involved; *P_i* is the proportion of the sales revenue from the *i*th sector engaged by the firm in the total sales revenue of the sector. *Marketing resources* and *technological resources* are measured by advertisement expenditures per employee and R&D expenditures per employee, respectively.

4.2.4 *Control variables.* Previous studies suggest that firm size is associated with internationalization performance (Hitt *et al.*, 1997; Gomes and Ramaswamy, 1999). We include *firm size* as a control variable, measuring it using the natural log of total assets. A firm's age can also affect internationalization performance as it may facilitate the accumulation of knowledge and experience. *Firm age* is measured by the number of years since the firm was founded. Capital structure indicates the firm's funding sources and influences the firm's activities, including internationalization. We measure *Capital structure* by a firm's asset-liability ratio. Remuneration of executives is an incentive mechanism that may stimulate senior management to create more value for the firm. We use the wages of the firm's top three executives to proxy *Executive pay*. Capital intensive firms are able to develop marketing and technological capabilities, implement product diversification strategies, and therefore improve their internationalization performance. We use total assets per employee to measure *Capital intensity*. Export intensity reflects the firm's experience in the internationalization market and its understanding of the international market. We measure *Capital intensity* by the share of export sales in total sales. Finally, as ownership influences firm performance, we use

a dummy variable to measure *Ownership* (dummy = 1 if the firm is a state-owned enterprise).

Table I shows the definition of all variables. Table II displays descriptive statistics for all variables. All correlations among the independent variables are fairly low, indicating no serious problems of multicollinearity. The variance inflation factor (VIF) ranges from 1.00 to 1.63 and the average value is well below the acceptable level of 10.

4.3 Model specification

We test out hypotheses by using the following regression specification:

$$PERF_{it} = DOI_{it-1}\alpha_1 + M_{it-1}\beta_1 + DOI_{it-1}^2\alpha_2 + (DOI_{it-1} \times M_{it-1})\gamma + Z_{it-1}\delta + \varepsilon_{it} \quad (1)$$

where $PERF_{it}$ is firm performance, DOI_{it-1} is degree of internationalization, M_{it-1} denotes the four moderators – marketing resources, technological resources, related product diversification and unrelated product diversification, $DOI_{it-1} \times M_{it-1}$ are terms of interactions between the degree of internationalization and each of the four moderators, Z_{it-1} represents the set of control variables, and ε_{it} is the error term which has zero mean and is independently and identically distributed across firms and time. While the squared term of internationalization (DOI_{it-1}^2) is used to test $H1$, the four interaction terms ($DOI_{it-1} \times M_{it-1}$) are employed to test $H2a$, $H2b$, $H3a$ and $H3b$, respectively.

Variables	Definition	Expected
<i>Dependent variable</i>		
Firm performance (PERF)	Ratio of net profit to average net asset (ROA)	
<i>Independent variable</i>		
Degree of inter'l (DOI)	Ratio of overseas sales revenue to total sales revenue	+
<i>Moderators</i>		
Marketing resources	Log (advertisement cost to number of employees)	+
Technological resources	Ratio of R&D cost to annual sales revenue	+
Related product diversification	If the firm expands into a business area which has the same first two digit of SIC with its core business If the first two digits are different, the firm adopts an unrelated product diversification strategy	+
Unrelated product diversification	If the firm expands into a business area which has the different first two digit of SIC with its core business	-
<i>Control variables</i>		
Firm size	Log (change rate of total assets at year end)	+/-
Firm age	Number of years since establishment	+/-
Executive pay	Remunerations to the top three executives	+
Capital structure	Ratio of total debts to total assets	+
Capital intensity	Ratio of total assets to number of employees	+
Export intensity	Ratio of exports to total sales revenue	+
Ownership	Dummy: (equals to 1 if the firm is state-owned enterprise)	+/-

Table I.
Definition of variables

Table II.
Descriptive statistic
and correlations

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. <i>Net return on assets</i>	0.21	0.43	1.00												
2. <i>Degree of Inter 1 (PERF)</i>	0.26	0.39	0.03	1.00											
3. <i>Marketing resources</i>	0.06	0.18	-0.01	-0.11	1.00										
4. <i>Technological resources</i>	0.16	0.34	-0.08	0.13	-0.19	1.00									
5. <i>Related diversification</i>	0.55	0.68	0.02	-0.19	0.08	0.13	1.00								
6. <i>Unrelated diversification</i>	0.45	0.51	-0.01	0.13	-0.02	-0.12	-0.77	1.00							
7. <i>Firm size</i>	1.53	1.38	-0.02	-0.14	0.96	-0.15	0.11	-0.05	1.00						
8. <i>Firm age</i>	7.92	9.98	-0.04	-0.01	0.01	0.13	-0.06	0.08	-0.01	1.00					
9. <i>Executive pay</i>	1.07	1.25	0.06	-0.05	0.31	-0.02	-0.02	0.05	0.3	0.08	1.00				
10. <i>Capital structure</i>	0.58	0.42	0.08	-0.17	0.19	-0.25	-0.07	0.04	0.19	0.04	0.01	1.00			
11. <i>Capital intensity</i>	0.38	0.44	-0.03	-0.08	0.01	0.04	-0.06	-0.06	0.03	0.08	0.01	0.07	1.00		
12. <i>Export intensity</i>	0.42	0.53	-0.01	0.15	0.09	-0.08	-0.14	0.02	0.05	0.08	0.04	0.06	0.37	1.00	
13. <i>Ownership</i>	0.33	0.35	0.05	0.22	-0.35	0.03	-0.06	0.03	-0.35	0.04	-0.23	-0.31	-0.08	-0.09	1.00

Note: All the correlation coefficients are statistically different from zero at the 1 percent significance level

5. Results

5.1 Regression results

As the paper employs a panel data set, it can be estimated by either fixed effects (FE) or random effects (RE) models. While both models allow us to purge any unobserved time invariant firms-specific effects, it is possible that they may produce significantly different results. A Hausman specification test is thus implemented to compare the two models. The test rejects the REs model at 1 percent level ($p = 0.008$). We have thus employed the FE model. However, when we estimate the FE model, there appears to be the “near singular matrix,” leading to possible biased results. To overcome this problem, we employ the generalized least squares (GLS) to estimate the regression. The GLS estimator eliminates panel heteroskedasticity and is more effective than the ordinary least squares regression (Rothaermel *et al.*, 2006). The results are shown in Table III.

Model 1 includes only the control variables and the explanatory variable – *DOI*. DOI^2 is introduced to Model 2. The value of the adjusted R^2 is higher in Model 2 than in Model 1 ($0.499 > 0.467$). Further, *DOI* is positive and significant, while DOI^2 is negative and significant. Therefore, the relationship between the degree of internationalization and performance is indeed inverse U-shaped, and *H1* is supported. The point of inflection where the performance of internationalization begins to decline can be computed by taking the partial derivative of the regression with respect to *DOI* for the following regression:

$$PERF_t = 0.079 + 0.048DOI_t - 1 - 0.070(DOI_t - 1)^2$$

Taking a partial derivative, we get $0.048 - 0.140DOI = 0$. Thus, we derive $DOI = 0.343$ by solving this equation. This partial derivative represents the slope of the performance curve with respect to *DOI*. This curvilinear effect is shown in the Figure 3, which indicates the critical point of 0.343 where the marginal costs of internationalization are equal to the marginal benefits of internationalization. This critical point implies that the performance effects reach a maximum at the inflection point of 0.343 of the degree of internationalization (the ratio of overseas sales to the total sales), and subsequently decline as the negative effects start to dominate over the positive effects with rising levels of internationalization.

Models 4-7 present the results for hypotheses pertaining to the interaction effects (*H2a-H2b* and *H3a-H3b*). Following the usual practice in moderated regression analysis (Wang *et al.*, 2012a), we enter two-way interactions in Models 4-7 successively. Except for Model 5, the *F* values of all other models are higher than that in the Model 3, indicating that addition of interaction term in each case does indeed increase the explanatory power of the model. The interaction term in Model 4 is significant at the 1 percent level, lending support for *H2a*. By contrast, the interaction term in Model 5 is significant but only at the 10 percent level, providing only weak support for *H2b*. The interaction term in Model 6 is positive and significant and it is negative and significant in Model 7, corroborating *H3a* and *H3b*, respectively.

5.2 Robustness checks

Although our use of a lag structure may reduce endogeneity, if any, there still might be unobserved effects that influence both internationalization and its performance outcomes. We adopted the following measures to test the stability of the main results. First, we reduced concerns about endogeneity by incorporating several variables that

Table III.
Regression results
of GLS (fixed effects)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
<i>Independent variables</i>								
DOI	0.039**	0.048**	0.038**	0.028**	0.036**	0.107**	0.028**	0.039**
DOI ²		-0.070**	-0.066*	-0.069**	-0.058**	-0.056**	-0.061*	-0.081**
<i>Moderators</i>								
Marketing resources			0.806***	0.602***	0.801***	0.664**	0.986**	1.062***
Technological resources			1.015***	1.224**	1.329***	1.465***	1.156***	1.228**
Related diversification			0.068**	0.645**	0.717**	0.554***	0.708***	0.651**
Unrelated diversification			-0.028***	-0.238***	-0.193**	-0.021**	-0.308**	-0.369**
<i>Interactions</i>								
DOI × Marketing resources				0.881***				0.732**
DOI × Tech. resources					1.920*			0.598*
DOI × Related diversification						0.586**		0.462**
DOI × Unrelated diversification							-0.197***	-0.367**
<i>Control variables</i>								
Firm size	0.004**	0.004**	0.001**	0.005**	0.005**	0.001**	0.002**	0.003**
Firm age	-0.004**	-0.004***	-0.003***	-0.003**	-0.003***	-0.003***	-0.003***	-0.004***
Executive pay	0.002**	0.002**	0.002**	0.002**	0.002**	0.002**	0.003**	0.002**
Capital structure	0.191**	0.202**	0.196**	0.223***	0.174***	0.197**	0.210***	0.257***
Capital intensity	-0.157*	-0.152**	-0.175**	-0.199*	-0.095*	-0.172*	-0.165*	-0.238*
Export intensity	0.260*	0.229**	0.370*	0.458*	0.229**	0.215**	0.187**	0.566**
Ownership	0.080***	0.080***	0.065***	0.063***	0.078***	0.061***	0.066***	0.096***
Sample size	2740	2740	2740	2740	2740	1500	1240	2740
F-statistic	40.57***	44.22***	44.35***	41.60***	47.50***	43.29***	44.75***	59.46***
R ²	0.474	0.505	0.534	0.572	0.458	0.538	0.551	0.565
Adjusted R ²	0.467	0.499	0.524	0.562	0.496	0.527	0.540	0.549

Notes: The first line of the variables indicates the regression coefficients. *, **, ***Statistical significant at 10, 5 and 1 level, respectively (two-tailed test)

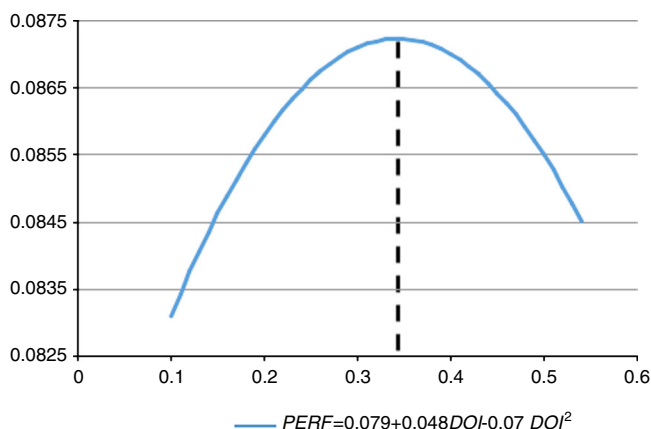


Figure 3.
Curve of the relationship
between corporate
internationalization and
performance

account for firm characteristics. We have included seven key control variables that should help to alleviate the potential problem of endogeneity. Second, we also employed the mixed-effect models to estimate the regressions (Table IV). The results are qualitatively the same with those in Table III. Third, we estimated a full model (Model 8 in Table III) including all variables and interaction terms. The results pertaining to those interaction terms are qualitatively similar to those in the hierarchical models. Finally, we replaced ROA with ROE (total profits/total shares) as the dependent variable. The results remain qualitatively consistent with those reported in the paper[2].

6. Discussion and conclusions

This paper examines not only how firm performance changes with the degree of internationalization but more importantly how, and the extent to which, firm-specific idiosyncrasies, including technological and marketing resources and product diversification strategy, moderate the effects of internationalization on performance. Employing a novel panel data set of Chinese firms, the findings largely support our theoretical framework and hypotheses.

First, we find an inverse U-shaped relationship between internationalization and performance in the context of EMEs. As argued in the Section 3, EMEs can improve performance in the initial stage of internationalization by exploiting “new entrant learning advantage,” the advantage of the capital accumulated in the domestic market, and the institutional advantages such as home government support. Yet, ultimately firms have to rely on the transfer of their competitive advantages developed in the home country when they compete in the foreign markets. Firm-specific advantages of EMEs such as the ability to maintain a low cost structure and government support (Wang *et al.*, 2012b) are location-bound and cannot be fully transferred overseas. Even if they can be transferred, it is not easy for EMEs to combine these assets with those which reside in the foreign markets, due to the institutional and environmental complexities found in foreign markets. A lack of transferable competitive advantages also makes it difficult for EMEs to overcome the risks inherent in internationalization (Mitchell *et al.*, 1992), to reduce additional costs associated with management and supervision (Siddharthan and Lall, 1982), and manage their information flow (Hitt *et al.*, 1997). Therefore, although EMEs may perform well in the initial stage of

Table IV.
Regression results
of GLS (mixed-effects)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
<i>Independent variables</i>								
DOI	0.052**	0.055**	0.045**	0.033**	0.047*	0.217**	0.018**	0.054**
DOI ²		-0.082**	-0.078**	-0.069**	-0.085**	-0.071**	-0.092**	-0.089**
<i>Moderators</i>								
Marketing resources			0.926**	0.801***	0.832***	0.708***	0.906**	1.979**
Technological resources			1.243**	1.252**	1.501***	2.015***	2.031**	2.236**
Related diversification			0.477**	0.532**	0.749**	0.614***	0.699**	0.649**
Unrelated diversification			-0.041**	-0.038**	-0.108**	-0.057*	-0.470*	-0.461**
<i>Interactions</i>								
DOI × Marketing resources				0.442***	0.870*			0.900**
DOI × Tech. Resources						0.383**		0.713*
DOI × Related diversification							-0.202**	0.751*
DOI × Unrelated diversification								-0.725**
<i>Control variables</i>								
Firm size	0.005**	0.005**	0.004**	0.003**	0.004**	0.004**	0.005**	0.005**
Firm age	-0.014**	-0.012**	-0.009**	-0.009**	-0.009**	-0.015**	-0.019**	-0.005*
Executive pay	0.004*	0.003*	0.005*	0.004*	0.005*	0.005*	0.005*	0.003*
Capital structure	0.201**	0.230**	0.255**	0.243**	0.204**	0.261**	0.233***	0.307**
Capital intensity	-0.289*	-0.165*	-0.212*	-0.205**	-0.219**	-0.185**	-0.262**	-0.208**
Export intensity	0.660*	0.632*	0.645*	0.387*	0.409*	0.408**	0.445*	0.357*
Ownership	0.076***	0.064***	0.063***	0.087***	0.071***	0.066***	0.081***	0.105***
Sample size	2740	2740	2740	2740	2740	1500	1240	2740
F-statistic	60.07***	64.31***	64.24***	61.50***	67.39***	63.30***	64.55***	59.51***
R ²	0.448	0.490	0.484	0.502	0.544	0.478	0.528	0.501
Adjusted R ²	0.431	0.476	0.468	0.491	0.466	0.532	0.515	0.493

Notes: The first line of the variables indicates the regression coefficients. *, **, ***Statistical significant at 10, 5 and 1 percent level, respectively (two-tailed test)

internationalization, they may not be able to sustain and improve performance as the degree of internationalization increases.

Second, we find that different resources have contrasting moderating effects on the relationship between internationalization and performance. The results show that marketing resources facilitate the effects of internationalization. This suggests that taking advantage of internationalization depends on the brand name, image and the status that the firm has developed at home. This result does not contradict our finding of the inverted U-shape. While firm performance may decline as internationalization increases, it is pertinent to say that firms always need to have a minimum level of competitive advantages (intangible resources) to give them the ability to understand, decode and absorb knowledge in the foreign markets. Our findings indicate that possessing this minimum level of assets assists EMEs to capture the benefits of internationalization. By contrast, we find that technological resources do not help EMEs take advantages of internationalization and improve performance. This finding is in line with many studies that show that the contribution of R&D within Chinese firms is not significant for productivity (e.g. Buckley *et al.*, 2002). Another tentative explanation is that technological resources are more codifiable than marketing resources and therefore may be more likely to be copied than marketing resources (Simonin, 1999). Marketing resources, by contrast, cannot be easily imitated because they are often embedded in social networks and thus feature a high level of specificity and complexity (Fahy, 2002). Our findings suggest that traditional MNEs theories, such as the OLI paradigm (Dunning, 1993), that emphasize the role of firm-specific technological capabilities can hardly explain EMEs' internationalization performance. By considering the ways in which the antecedents (e.g. marketing resources) of internationalization also work as core enablers of the positive relationship between internationalization and firm performance, we bridge the two important streams of the internationalization literature – what factors determine internationalization, and what effects such internationalization has on firm performance.

Third, we find that related product diversification can enhance EMEs' internationalization performance, while unrelated product diversification produces a negative moderating effect. As argued previously, the effects of the product diversification strategy on internationalization performance depend on whether it is grounded in the successful transfer of a firm's competitive advantage. Since the related product diversification strategy is based on the transfer of competitive advantages, resource sharing and product bundling, it enables the firm to extend its existing competitive advantages and succeed in overseas markets. By contrast, firms implementing the unrelated diversification strategy in the overseas markets compete by relying on their basic organizational competitiveness rather than unique advantages and product lines. Since this involves working with businesses in an unfamiliar industry, firms cannot rely on the transfer of their core competitive advantage in the foreign markets. This is because these advantages are often environment-bound and product-specific and cannot be easily transferred into the value creation process of other types of products in an effective manner. Instead, firms need to develop new technologies, capabilities, organizational structures and marketing systems to compete in the new business areas, all of which incur significant additional costs. Overall, our findings suggest that academic research should move beyond a simplistic and universalistic view of the internationalization-performance relationship and focus on contingency factors that either facilitate or constrain the relationship.

Our findings have implications for EME managers seeking to expand overseas and improve performance. First, since firm performance may decline after internationalization reaches a certain level, international managers should try to delay the arrival of the inflection point or reduce the intensity of the inverted U-shaped relationship. This can be achieved by, for example, effectively learning and understanding local consumer behaviors and preferences, and by integrating as soon as possible into the local R&D and supply chain networks. Second, our findings show that reaping the benefits of internationalization is not automatic, but depends on the firm's own resources and capabilities. Since tangible resources are likely to be imitated or matched by local competitors, EMEs cannot rely on such assets to compete in foreign markets. Instead, EMEs should develop intangible resources especially marketing resources that would enable the firm to offset various "liabilities of foreignness" and succeed in foreign markets. Third, a firm's internationalization strategy should be accompanied by related, rather than unrelated, product diversification strategy. This would help the firm better use its existing advantages to compensate for liabilities of foreignness, and also to help reduce operating costs, and sustain and improve internationalization performance.

Nevertheless, our findings are subject to several limitations. First, our study is based on a sample of Chinese firms. Although the theoretical mechanisms described are not particular to our empirical setting, our findings should be taken with care when generalized to other contexts because China exhibits some idiosyncratic characteristics, such as the strong role of government in internationalization. Second, our sample includes listed (and relatively large) manufacturing firms only. As a result, the findings may not be generalizable to unlisted, small or service firms. For example, listed firms may have a higher level of resources than other firms, enabling them to compete better with the host country's local firms and succeed in foreign markets. Finally, our data span four years only. This time scale might be too short to examine appropriately a curvilinear relationship which might take longer than four years to occur, and to investigate the effects of diversification strategies that might also take longer to materialize. Future research should employ data spanning a longer period to better capture the hypothesized relationships in this paper.

Notes

1. Gomes and Ramaswamy (1999) find an inverse U-shape, but this is in the context of developed country firms (US firms).
2. The results are available from authors on request.

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