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Firm Diversification and Financial Performance: Evidence from Manufacturing Firms Worldwide

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Introduction

This paper attempts to link industry and national contexts to the joint effect of product and international diversification on firm performance. The research on how firm performance is affected by diversifying into new product and geographic markets has been an important topic of international business and strategy literature for more than 40 years (Bowen & Sleuwaegen, 2017; Castellani, Montresor, Schubert, & Vezzani, 2017). Product and international diversification are vital strategies in organisation expansion (Kistruck, Qureshi, & Beamish, 2013). Despite the fact that increasing number of firms have been engaging in the both diversification strategies, few papers study the interaction between the two diversification strategies and its performance implications. Most previous papers only focus on one type of diversification. Furthermore, those studies that do consider the joint

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effect of the two diversification strategies on firm performance (Geringer, Tallman, & Olsen, 2000; Hitt, Hoskisson, & Kim, 1997; Kistruck et al., 2013; Sambharya, 1995) identify either a complementary or a substitute effect between two diversification strategies. They generally ignore, however, the underlying factors that strengthen or weaken the joint effect.

Product and international diversification have two opposing interactive effects, namely complementary and substitute effects, on firm performance. On the one hand, the complementary effect suggests that the sophisticated managerial capabilities developed in managing multiple product divisions can be easily leveraged in multiple geographic markets. On the other hand, the substitute effect contends that resource constraints would require the firm to choose between the two diversification strategies, suggesting a trade-off. Previous empirical papers provide mixed results regarding the interaction effect of two diversification strategies, including not significant, positive or negative effects (Geringer, Beamish, & DaCosta, 1989; Hitt et al., 1997; Sambharya, 1995).

We contribute to this debate by examining the joint effect of two diversification strategies. More importantly, we further examine how industry and national contexts shape the relationship between the two diversification strategies and firm performance, particularly considering the technological capability of the home sector and the economic development of home country.

Our paper makes three contributions. First, recent studies have called for more research on the interactive effect of the two diversification strategies (Bowen & Sleuwaegen, 2017), particularly the relationship between the two diversification strategies and financial performance (Kistruck et al., 2013). We examine the joint effect of the two diversification strategies, instead of their individual effects. We argue that the two diversification strategies tend to be substitutes rather than complements. The firm needs to choose between the two strategies due to resource constraints and accelerating governance costs when simultaneously implementing both strategies. Second, few of the papers that study the joint effect consider the underlying factors that strengthen or weaken the effect. Recent research emphasises the importance of industry and national contexts (Bebenroth & Hemmert, 2015; Mayer, Stadler, & Hautz, 2015) in diversification strategies. We argue and find that the substitute effect is stronger for firms from high-tech sectors, while it is weaker for firms from developed countries. Third, until recently, past studies have mostly relied on US or Japanese firm data to support their findings. We make an empirical contribution by testing our hypotheses using a very large firm-level data set covering 13,142 multinational manufacturing firms from 70 countries over the period of 2004–2013.

Literature Review and Hypotheses Development

Diversification provides benefits. More specifically, product diversification provides firms with synergy effects, market power advantage, internal market efficiency and portfolio effects (Palich, Cardinal, & Miller, 2000). By diversifying into different geographic markets, international diversification helps multinational enterprises (MNEs) access cheaper resources, acquire foreign knowledge, realise economies of scale, obtain internationalisation experience, exploit firm-specific assets in foreign markets and reduce revenue fluctuations (Buckley & Strange, 2011; Castellani & Zanfei, 2007; Contractor, 2007; Yang & Driffield, 2012).

But diversification does not come without costs. The literature suggests that product diversification may be associated with increased information asymmetries, bureaucratic costs and cross-subsidisation inefficiencies that have a negative impact on firm performance (Palich et al., 2000). Further, international diversification may result in additional costs due to unfamiliarity with foreign markets, enhanced business risks and greater coordination costs (Majocchi & Strange, 2012). Overall, the individual effects of product and international diversification on performance will be determined by the net effects of these benefits and costs (Contractor, 2007; Palich et al., 2000).

The Joint Effect of Product and International Diversification on Firm Performance

Numerous studies have focused on the individual effects of product and international diversification, while the joint effect has attracted much less attention (Bowen, Baker, & Powell, 2015; Geringer et al., 2000), and the results are mixed. Some find a positive joint effect (Hitt et al., 1997), some find a negative joint effect (Kistruck et al., 2013; Sambharya, 1995), while some report an insignificant joint effect (Geringer et al., 1989). It is argued that the joint effects of the two diversification strategies are far more complex than previous research about the individual effects (Hitt et al., 1997). Our research model is shown in Fig. 15.1.

On the one hand, one may argue on the complementary effect between two diversification strategies on firm performance. Some scholars draw on the resource-based view and contend that the proprietary assets that support international diversification seem to be the same that support product diversification. Thus, firms can exploit the same proprietary assets to take
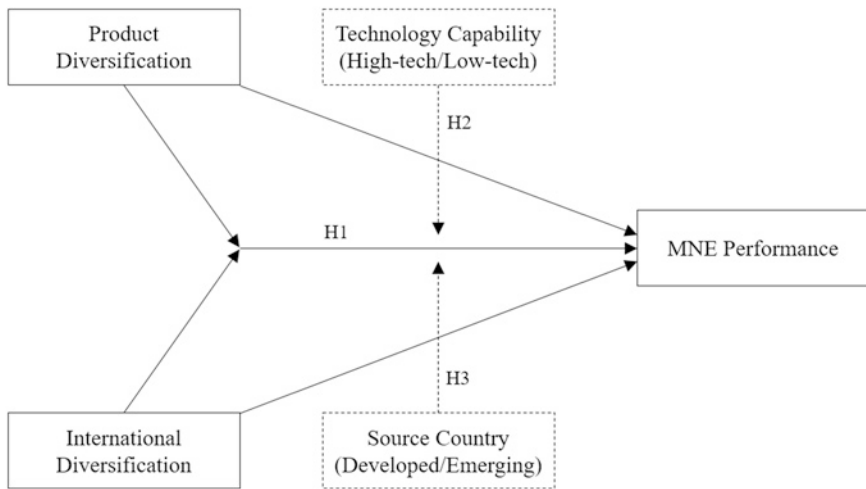
Fig. 15.1   Research model. *Source* Authors' own

advantage of new product and market opportunities (Caves, 1996; Matraves & Rodriguez, 2005). It is also argued that product-diversified firms have developed sophisticated managerial capabilities in dealing with multiple businesses, and these capabilities can be easily leveraged in multiple markets (Hitt et al., 1997). This implicitly assumes that the firms are sequential in making corporate strategies such that they first expand their product scope and then expand their market scope.

However, this assumption needs further investigation. For instance, born global firms enter the global market a very short time after the firm is set up (Bell, McNaughton, & Young, 2001), which means that increasing market scope but not product scope is the priority of these firms. Also, instead of arguing that the product diversification experience helps geographic expansion, one may argue that the prior product diversification experience actually imposes a real constraint on the firm's ability to expand subsequently into new geographic markets (Wiersema & Bowen, 2008).

A firm's expansion into new products or markets is motivated by the opportunities to leverage its excess resources (Wernerfelt, 1984), according to the resource-based view. However, many necessary resources, particularly managerial capability and attention, may be limited. Thus, although firms may pursue both strategies in the long term, the literature finds that there is a trade-off between product and international diversification in the short term. Firms' limited resources may thus limit their ability to find and invest in new product and market opportunities (Bowen & Sleuwaegen, 2017). Also, the

congestion problem of accessing common resources (e.g. proprietary assets) for multiple applications (Teece, 1980) tends to be more severe when simultaneously exploiting the proprietary assets in new product and geographic markets, thus impeding the realisation of diversification benefits.

On the other hand, some may argue the substitute effect between the two diversification strategies on firm performance. From the agency theory point of view, larger firms are usually associated with higher managerial remuneration (Rosen, 1990), so managers are motivated to increase firm size. Managers may accordingly choose a diversification strategy to build a business empire (Davies, Rondi, & Sembenelli, 2001). An international diversification strategy can be viewed as an alternative to a product diversification strategy (Denis, Denis, & Yost, 2002).

Due to resource constraints, there may thus be a substitute effect between product and international diversification. Both product and geographic expansions require significant investments and competition for the same stock of resources possessed by firm. Firms that simultaneously try to implement two diversification strategies will face resource constraints (Sambharya, 1995) and may not have enough resources to assure the success in both new product and geographic markets at the same time (Kumar, 2009), which will negatively affect the firm performance. Besides, research finds that international diversification reduces the advantages of related diversification since the synergy effects of marketing and production are impeded internationally (Hashai & Delios, 2012; Palich et al., 2000). In addition, prior research finds a negative relationship between product and international diversification in the short term, mainly due to the limit to the replicability and transferability of tacit knowledge between two corporate strategies (Kumar, 2009).

Simultaneously, pursuing high levels of product and international diversification incurs high coordination costs (Bowen et al., 2015; Tallman & Li, 1996). Firms with high levels of product and international diversification will face considerable costs that may outweigh the additional returns from the activities in geographically diverse markets. Managerial resources may be over stretched when firms have diversified product portfolios and extensive international operations (Jones & Hill, 1988; Tallman & Li, 1996).

Overall, firms will typically face resource constraints and increasing bureaucratic cost when simultaneously pursuing product and international diversification. Limited resources may impede firms' abilities to pursue both strategies, and there will be a trade-off in allocating the resources among the two strategies, both of which need significant investments. Also, simultaneously, pursuing high levels of product and international diversification incurs high governance costs that may exceed the benefits of diversification

and tend to adversely affect firm performance. Therefore, we propose the following hypothesis.

Hypothesis 1 *Product diversification and international diversification have a negative joint effect on firm performance.*

High-tech Versus Low-tech Sector Context

Most of the previous research that studies the joint effect of the two diversification strategies generally ignores the underlying factors that may moderate the joint effect. Only a few studies (Coad & Rao, 2008; Mayer et al., 2015) consider the industry context, but they do not link it to the joint effect. We suggest that industry context plays an important role in shaping the interactive effect of the two diversification strategies.

The distinction between high-technology and low-technology industries is vital when examining the joint effect of the two strategies on firm performance, in part because the importance of proprietary assets varies across industries with different technological capabilities. First, a high-tech firm's competitive advantage largely relies on proprietary assets, particularly technology resources like skilled research workers (Himmelberg & Petersen, 1994). The simultaneous diversification into new product and geographic markets raises the congestion problem of accessing these common resources, thus negatively affecting the high-tech firms' performance. In contrast, low-tech firms are less dependent on proprietary assets (Tihanyi, Johnson, Hoskisson, & Hitt, 2003). The congestion problem is thus more severe in high-tech firms, compared to low-tech firms.

The resource constraint problem in implementing diversification strategies is also more severe for firms from high-tech sectors than those from low-tech sectors. Due to high R&D expenditures and long payback periods in high-tech sectors, simultaneously diversifying into new product and geographic markets while maintaining current operation, requires significant resources with returns only forthcoming in the long-term. High-tech firms may thus experience difficulties in attracting enough investment funds from external financial markets, particularly from institutional investors that focus on short-term returns (Zahra, 1996) and may need to rely on internal finance (Himmelberg & Petersen, 1994). These internal financial resources may be needed for R&D, but also required to be used in new product or geographic markets if the firm is simultaneously implementing two diversification strategies (Tihanyi et al., 2003). In contrast, the resource constraint

problem is less severe in low-tech firms due to their low investments in long-term projects.

In addition, high-tech firms may be concerned that their innovative products are imitated by competitors in some foreign countries with low intellectual property (IP) rights, and may also be concerned about the high IP protection fees required by the patent offices in some developed countries in the USA and Europe (Love & Ganotakis, 2013; Smith, 2002). These concerns may limit the choice of overseas countries open to high-tech firms and inhibit their levels of international diversification. In contrast, those concerns are less important to low-tech firms. Thus, they have a wider range of choices of foreign market and encounter fewer costs in increasing international diversification.

To sum up, high R&D investments are expected in high-tech firms. This raises the potential severity of resource constraints in the simultaneous implementation of the two diversification strategies, as these also require significant investments. Also, the diversification benefits may be offset by various costs such as technology leakage in the foreign country. In contrast, low-tech firms face less severe resource constraints and gain more from diversifications.

Hypothesis 2 *The negative joint effect of product and international diversification is stronger for firms in high-tech sectors rather than low-tech sectors.*

Emerging Versus Developed Country Context

Apart from the industry context, we also explore the country context. A few papers have highlighted a possible source country effect (Bebenroth & Hemmert, 2015; Claessens & Van Horen, 2012), but they have not considered the joint effect of the two strategies on firm performance. We suggest that the source country plays a vital role in the interaction effect of the two diversification strategies.

We distinguish between firms from developed countries and firms from emerging countries. The resource endowments of firms in emerging countries, in terms of managerial skills, financial resources and intangible assets (e.g. brand and legitimacy), are quite different from their developed country counterparts. Furthermore, emerging country firms are looking to catch up technologically with the developed country MNEs and become leading players in their respective industries (Mathews, 2006). These differences have important ramifications for their abilities to diversify.

First, emerging country firms' limited managerial skills and attention do not allow them to diversify their business and geographic market at the same time. Many emerging country firms are newly privatised state-owned firms. The managerial practices and centralised management style that proved effective in a command economy context are no longer successful in the market-oriented global economy (Hitt, Dacin, Levitas, Arregle, & Borza, 2000; Shama, 1993). In contrast, developed country MNEs have sophisticated management systems, combined with important features of their home country institutional environments such as education system and regulation, leading to their enhanced competitive advantage in global markets (Bebenroth & Hemmert, 2015).

Second, emerging country MNEs lack financial resources, and this reduces their ability to simultaneously carry out both diversification strategies. The low levels of economic development and the weak institutional environments impede capital distribution in emerging countries (Hitt et al., 2000), so that capital is less available and more expensive (Svetličič & Rojec, 1994). In contrast, developed country firms have relatively more financial resources to support different dimensions of firm diversification (Li & Qian, 2005), notwithstanding the reality that firms are constantly struggling to balance the resource allocations in different product and geographic markets.

Third, emerging country MNEs are often lacking in intangible assets, particularly reputation and legitimacy, which affects firm's capability to exploit their proprietary assets across industries and national borders. Due to poorer brands and legitimacy, they need more time before products and services are accepted by the local customers (Fombrun & Shanley, 1990; Hitt et al., 2000). In contrast, developed country MNEs possess stronger intangible assets. The home countries' institutional advantages (governance, legal system) may be transferred inside the MNE structure, leading to the MNE's improved reputation and legitimacy in overseas countries (Cantwell, Dunning, & Lundan, 2010; Yang, Martins, & Driffield, 2013). This might also help MNEs access local resources, customers and suppliers in the host country.

In sum, firms from emerging countries face greater resource constraints than their developed country counterparts in balancing two diversification strategies. Emerging country MNEs typically have insufficient managerial skills, financial resources and intangible assets to support the development in new product and geographic market at the same time. In contrast, developed country MNEs have sophisticated managerial skills, sufficient financial resources and strong intangible assets.

Hypothesis 3 *The negative joint effect of product and international diversification is weaker for firms from developed countries rather than emerging countries.*

Data

We collected the financial data from Orbis data set which is made available by a consultancy called Bureau van Dijk. This database records each firm's NACE[1] Rev.2 core, primary and secondary code, which allow us to calculate product diversification (defined as the number of segments). Orbis also records subsidiary's equity (defined as minimum 10.01% equity) (Bureau of Economic Analysis, 1999) owned by parent and subsidiary's location, which allows us to identify domestic and overseas subsidiaries. Therefore, we can calculate the multinationality (defined as overseas/total subsidiaries). The firm's accounting information is available from 2004 to 2013, but the measures for the two diversification strategies are only available in the last available year in the data set, which mostly is 2012. We select firms that have information on employees, sales, leverage, return on assets, industry code and number of subsidiaries. The final sample contains 13142 manufacturing firms. Data on GDP per capita and GDP growth are collected from World Development Indicators.

Empirical Specification

Regression models with fixed effect estimators are employed. To examine the joint effect of two diversification strategies on performance, we present the following equation.

$$Y_{it} = \beta_1 \mathrm{PD}_{it} * \mathrm{MULT}_{it} + \beta_2 \mathrm{PD}_{it} + \beta_3 \mathrm{MULT}_{it} + \lambda X_{it} + \gamma_t + e_{it} \quad (15.1)$$

where Y_{it} refers to return on assets of firm i in t year. We include PD_{it} and MULT_{it} to control the individual effects of product and international diversification. We also include control variables X_{it}, including firm size, leverage, sales per worker, GDP per capita, GDP growth, country and industry fixed effects. γ_t refers to time fixed effects. The key variable $\mathrm{PD}_{it} * \mathrm{MULT}_{it}$ refers to the interaction term between product and international diversification. The parameter β_1 indicates the joint effect of the two diversification strategies on firm performance.

Measurement of performance: We use the return on assets (PERF) (defined as net income divided by total assets) to measure firm performance (Y_{it}). Return on assets is commonly used as a measure of financial performance in the international business literature (Ruigrok, Amann, & Wagner, 2007).

Product diversification: Our paper employs the number of segments (PD) in which a firm operates as a proxy for product diversification (Hoechle, Schmid, Walter, & Yermack, 2012; Palich et al., 2000). We explored data availability in Orbis and found difficulty in identifying the sales by industry for each firm. Thus, we ruled out the Herfindahl measure, the entropy measure and Rumelt's categories. Instead, we use the number of segments, another common measure of product diversification, whose calculation is feasible since firms report core, primary and secondary NACE Rev.2 industry codes. To fully capture the product diversity of the firm, we calculate the PD_{it} by taking the number of 4-digit industry codes (core, primary and secondary) reported by both parent and majority-owned subsidiaries.

International diversification: This paper uses the number of overseas subsidiaries divided by total number of subsidiaries (MULT) as a proxy for multinationality or international diversification (Castellani et al., 2017; Yang et al., 2013). After exploiting data availability in the Orbis data set, we found difficulty in identifying foreign sales subtracting exporting and licensing when using FSTS (foreign/total sales) measure. Thus, we did not use FSTS, as well as the highly correlated FATA (foreign/total assets) (Annavarjula, Beldona, & Sadrieh, 2006). This paper instead employs OSTS (foreign/total subsidiaries), another common measure, which is feasible because Orbis data set records parent's ownership of subsidiaries and subsidiaries' location.

Control variables: Following Geringer et al. (2000), we control several firm characteristics that are believed to affect firm performance, including firm size, capital structure and labour productivity. Firm size (SIZE) is measured by employee count. Capital structure "*leverage*" (LEV) is the debt to equity ratio. Labour productivity "*sales per worker*" (PROD) is measured by total sales to number of employees ratio. We also control for home country characteristics (Li & Qian, 2005), including GDP per capita (ECON) and GDP growth (GROW). In addition, we include country, industry and time fixed effects. Table 15.1 provides detailed definitions and data sources of the variables.

Table 15.1 Operationalisation of the variables. *Source* Authors' own

Variable	Operationalisation	Source
PERF	The firm's return on assets using net income (ROA) (%)	Orbis
MULT	The ratio of the number of overseas subsidiaries to total number of subsidiaries	Orbis
PD	The natural logarithm of the number of segments (4-digit NACE Rev.2 codes) in parent and majority-owned subsidiaries	Orbis
SIZE	The natural logarithm of the firm's number of employees	Orbis
LEV	The firm's debt to equity ratio	Orbis
PROD	The natural logarithm of the firm's sales divided by the number of employees (US$)	Orbis
ECON	The natural logarithm of the home country's GDP per capita (US$)	WDI
GROW	The home country's GDP growth (%)	WDI

Descriptive Statistics

Table 15.2 presents descriptive statistics. On average, a firm has diversified into 5.96 industries and has 70% subsidiaries located in overseas countries. We also find that, on average, return on assets is 3.00%, labour force is 2631 employees, labour productivity is US$509.80 thousand and the leverage ratio is 106%. The right panel in Table 15.2 shows that most of the correlation coefficients are low.

Regression Results

Multiple regression models with fixed effect estimators are employed. We control for country, industry and time fixed effects. Table 15.3 presents the main estimates. There are 13,142 observations in the full sample. Column 1 excludes any diversification measures. As we can see, the control variables have the expected signs. For instance, firm size and labour productivity both have positive signs, suggesting that large firms and firms with productive labour forces have better performance. Further, these signs remain largely unchanged across different specifications in Columns 2–5.

Columns 5 in Table 15.3 tests hypothesis 1. Let us turn to the interaction term (PD*MULT) which reports a negative sign (significant at 10% level), indicating that the joint effect of two diversification strategies negatively affects firm performance. This supports hypothesis 1. This shows the interactive effect of two diversification strategies on firm performance is

Table 15.2 Descriptive statistics and correlation matrix. *Source* Authors' own

	Variable	Mean	Std. dev.	1	2	3	4	5	6	7	8
1	PERF	3.00	8.58	1							
2	PD	1.65	0.70	0.035***	1						
3	MULT	0.70	0.31	0.009	0.042***	1					
4	SIZE	5.80	1.88	0.075***	0.429***	−0.286***	1				
5	LEV	1.06	1.41	−0.247***	−0.046***	−0.015*	−0.059***	1			
6	PROD	12.58	0.92	0.142***	−0.007	−0.076***	−0.144***	0.046***	1		
7	ECON	10.47	0.62	−0.023***	0.116***	0.131***	−0.104***	0.016*	0.239***	1	
8	GROW	0.37	2.81	0.107***	0.082***	−0.211***	0.353***	−0.090***	−0.106***	−0.307***	1

Note Significance levels: *0.1; **0.05; ***0.01

Table 15.3 Firm diversification and financial performance: Main results. *Source* Authors' own

	(1) All MNEs	(2) All MNEs	(3) All MNEs	(4) All MNEs	(5) All MNEs
PD*MULT					−0.5841*
					(0.340)
PD		−0.5809***		−0.7203***	−0.3084
		(0.127)		(0.129)	(0.260)
MULT			1.6414***	1.8555***	2.7252***
			(0.252)	(0.257)	(0.575)
SIZE	0.6152***	0.7301***	0.6783***	0.8290***	0.8255***
	(0.053)	(0.061)	(0.054)	(0.063)	(0.063)
LEV	−1.4849***	−1.4822***	−1.4767***	−1.4723***	−1.4743***
	(0.054)	(0.054)	(0.054)	(0.054)	(0.054)
PROD	1.9200***	1.9615***	1.9672***	2.0248***	2.0216***
	(0.105)	(0.105)	(0.105)	(0.106)	(0.106)
ECON	−5.7475***	−5.9075***	−5.0152***	−5.1182***	−5.0776***
	(1.437)	(1.446)	(1.429)	(1.435)	(1.434)
GROW	0.1555*	0.1690*	0.1450	0.1605*	0.1603*
	(0.093)	(0.093)	(0.093)	(0.093)	(0.092)
Country fixed effect	X	X	X	X	X
Industry fixed effect	X	X	X	X	X
Time fixed effect	X	X	X	X	X
Adj R-squared	0.142	0.143	0.145	0.146	0.147
No. observation	13142	13142	13142	13142	13142
F statistics	36.005	35.341	36.038	35.518	34.757

Note The dependent variable is the return on assets. All models control for country, industry and time fixed effects. Values in parentheses are robust standard errors. Significance levels: *0.1; **0.05; ***0.01

substitute rather than complementary. Developing either new product or new geographic market requires tremendous investment. Due to resource constraints and growing bureaucratic costs, the firm faces a trade-off in allocating the resources among the two strategic options. The firm will experience difficulty if implementing the two strategies simultaneously. This is to some extent consistent with the results of other scholars' work (Geringer et al., 2000; Li & Qian, 2005).

Table 15.4 Firm diversification and financial performance: Sectoral and source country analysis. *Source* Authors' own

	(1) High-tech sectors	(2) Low-tech sectors	(3) Emerging countries	(4) Developed countries
PD*MULT	−2.3369**	−0.1934	−1.6836**	−0.5029
	(1.090)	(0.349)	(0.799)	(0.380)
PD	0.8887	−0.5888**	−0.1947	−0.3125
	(0.845)	(0.265)	(0.583)	(0.292)
MULT	4.7654**	2.1389***	5.1970***	2.4662***
	(1.912)	(0.587)	(1.539)	(0.619)
SIZE	1.4052***	0.6642***	0.6828***	0.8505***
	(0.181)	(0.066)	(0.146)	(0.070)
LEV	−2.1212***	−1.4349***	−2.1243***	−1.4132***
	(0.212)	(0.055)	(0.215)	(0.056)
PROD	2.3117***	1.9378***	1.2765***	2.1903***
	(0.280)	(0.113)	(0.204)	(0.122)
ECON	−0.2663	−6.1518***	0.5658	−7.3562***
	(5.789)	(1.248)	(2.993)	(2.347)
GROW	−0.2079	0.2652***	0.2793	0.1668
	(0.291)	(0.096)	(0.213)	(0.121)
Country fixed effect	X	X	X	X
Industry fixed effect	X	X	X	X
Time fixed effect	X	X	X	X
Adj R-squared	0.142	0.159	0.192	0.145
No. observation	2113	11029	1775	11367
F statistics	12.770	31.339	6.848	30.126

Note The dependent variable is the return on assets. Significance levels: *0.1; **0.05; ***0.01

Table 15.4 shows how industry and national contexts shape the joint effect. Columns 1–2 in Table 15.4 are to test hypothesis 2. Following the previous literature (Mayer et al., 2015), which emphasises the role of industry context in diversification strategies, we distinguish between MNEs in high-tech and low-tech sectors. The interaction term in Column 1 is negative (significant at 5% level), while the interaction term in Column 2 is not significant. This supports hypothesis 2. The resource constraint problem is more severe in firms from high-tech sectors than those in low-tech sectors.

Columns 3–4 are used to test hypothesis 3. Following prior studies (Bebenroth & Hemmert, 2015; Hitt et al., 2000) which highlight the

role of national context in diversification strategies, we distinguish between developed country and emerging country MNEs. The interaction term is negative (significant at 5% level) in column 3, while the interaction term in column 4 is not significant. This supports hypothesis 3. Compared to emerging country MNEs, the developed country MNEs have sophisticated managerial capabilities, sufficient financial resources and strong intangible assets (e.g. reputation and legitimacy), and thus face less severe resource constraints when implementing the two diversification strategies.

Discussion and Conclusion

The relationship between diversification strategies and firm financial performance has been discussed for more than 40 years (Bowen & Sleuwaegen, 2017; Castellani & Zanfei, 2006), with inconclusive empirical results. Most of the extant literature focuses on the individual effects of product or geographic diversification on the firm performance, but it has been argued that more research is required on the interactive effect of the two diversification strategies (Bowen & Sleuwaegen, 2017). Some recent papers do study the interaction of the two diversification strategies, supporting either a substitute or a complementary effect (Geringer et al., 2000; Hitt et al., 1997; Kistruck et al., 2013). However, these studies disregard the contextual factors that strengthen or weaken the joint effect. In addition, these previous studies mainly rely on data for US or Japanese firms (Bowen et al., 2015; Denis et al., 2002; Sambharya, 1995).

This paper addresses these limitations by analysing data for 13,142 firms from 70 countries over the period 2004–2013. The central finding is that there is a negative joint effect of two diversification strategies on firm performance, supporting the substitute relationship between two diversification strategies. Product diversification tends to substitute for, instead of complement, international diversification. The firm faces a trade-off between the two strategies due to resource constraints and the increased bureaucratic costs of implementing both strategies simultaneously in the short term. These results suggest that, when developing corporate strategy, firm need to consider the interaction between product and international diversification strategies. One suggestion is to combine different levels of the two diversification strategies. For example, Meyer (2006) suggests that "global focusing"—increasing international diversification in a narrow range of products—promotes firm growth.

Further, we include the industry and national context in our research model, which is emphasised in the recent scholars' work (Bebenroth & Hemmert, 2015; Mayer et al., 2015). We find that, compared to low-tech sectors, firms from high-tech sectors experience a stronger negative joint effect of the two strategies. Also, we find that, relative to emerging country MNEs, developed country MNEs face a weaker negative joint effect of the two strategies. Thus, the interplay between the two diversification strategies depends on the technological intensity of the home sector and the economic development of the home country. All firms should consider their industry and national context when simultaneously implementing product and international diversification strategies.

The limitations of our paper need to be noted. First, the data are cross-sectional rather than panel, which does not allow us to control for firm fixed effects. Second, our analysis does not rule out potential reverse causality. Perhaps poor-performing firms expand into new product and geographic markets at the same time, expecting that performance will subsequently improve. Third, additional robustness checks would be helpful. We leave these topics for future research.

Note

1. NACE code is the industry classification sponsored by European Community.

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