

# Effects of Market Diversity on Performance of Exporting Companies: An Inverted U-shaped Relationship\*

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## Abstract

**Purpose** – The principle aim of this study is to further investigate the relationship between market diversity and export performance. We examine the benefits and costs of geographic market diversity regarding the number of countries exported to by firms on their export performance. Based on the financial risk reduction model and the entry costs model, we propose a way to incorporate the costs and benefits aspects of market diversity.

**Design/methodology** – To empirically investigate our research question, the curvilinear relationship between market diversity and export performance, we built a secondary panel data set between 2015 and 2019, containing 17,863 observations of Korean exporting companies. A generalized least squares panel estimator with fixed effects was employed to test the hypothesis, and the statistical package, Stata 14, was used.

**Findings** – Our main findings are as follows: As market diversity increases, export performance increases because exporters can diversify and reduce financial risks in export markets. However, the relationship between the two does not grow. As it peaks, the entry costs increase due to the high market diversity, thereby outweighing the benefits, leading, eventually to decrease in the export performance. Consequently, there is an inverted U-shaped relationship between market diversity and export performance.

**Originality/value** – In the export and trade literature, the impact of market diversity on export performance has not been addressed yet, despite the importance of this subject. Many scholars have assumed a positive linear relationship between the two, considering only the decrease in market risks as the number of overseas markets increases, without examining the increase in the entry and management costs. Therefore, our study contributes by providing a new perspective for analyzing the characteristics and outcomes of market diversity.

**Keywords:** Curvilinear Relationship, Export Performance, Geographical Market Diversity

**JEL Classifications:** F10, F18, M10

## 1. Introduction

When a company does not secure proper growth and profits in the domestic market due to the limited customer demand, it is likely to enter foreign markets in order to overcome this

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situation (Hanson et al., 2016). There are several ways to enter foreign markets, however, companies consider exporting the most because it provides a mechanism to expand the market base and profitability from the fierce competition in the domestic market (Belich and Dubinsky, 1995). Companies lay their foundations in foreign markets by exporting, thereby expanding without significant investment in those markets (Mahoney et al., 2001). Numerous firms argue profitability through export activities. According to the “Trade Statistics by Business Characteristics in 2019” published by KOSTAT (Statistics Korea), the number of companies engaged in export activities in South Korea in 2019 was approximately 97,000, and their total export value was 54.1 billion dollars, achieving the highest record ever (KOSTAT, 2019).

Even though firms participating in export activities are steadily increasing, not all companies can achieve a “sustainable” competitive advantage through them. A survey on the survival rate of exporters in South Korea, found out the one-and five-year survival rate were 49.8% and 17.4%, respectively, indicating that 8 out of 10 export companies eventually shut down the trade within five years (KCS, 2018). One of the reasons why exporting companies struggle to achieve a sustainable competitive advantage is the uncertainty around international markets. The fluctuation of the annual export amount by country and geographic region (e.g., Southeast Asia, Middle East, Latin American, E.U., etc.) is quite large (see KOSTAT, 2019).

The environment surrounding businesses and markets is continuously changing, with uncertainty being the distinct feature of the global economy. Some country macro-level changes significantly affect the economic conditions. Unpredictable changes in market demands are caused by macroeconomic shifts (Lee Seung-Hyun and Chung, 2007), and exporting companies need to deal with this uncertainty to secure constant profitability. For exporters, the best way to manage the potential risks of an unstable foreign market is to diversify and expand their portfolio. When a company exports to a single market, its export performance is mainly influenced by the conditions of that sole market. When the single market suffers a recession caused by an external collapse, an exporting company relying solely on that market would be severely threatened. However, even if there is a crash in one market, the company can manage and reduce risks by securing other foreign markets affected differently from the economic situations of the crashed market. Therefore, exporting companies need to manage how many countries they export to, in order to gain sustainable competitive advantages.

In this study, we mainly focus on the impact of the number of exporting countries represented by market diversity on the performance of exporting companies. However, in the export and trade literature, this issue has not yet been addressed despite its importance. There may be various reasons for this, however, we believe the major issue is the difficulty of obtaining reliable and credible data. Most empirical studies on exporting activities have mainly obtained data on their research variables through surveys, thus acquiring subjective and limited information because companies are extremely reluctant to provide objective data to researchers (Francis and Collins-Dodd, 2000; Leonidou, Katsikeas and Samiee, 2002). Moreover, objective data are rarely publicly available (Robertson and Chetty, 2000). Therefore, in the trade literature, the level of analysis is usually confined to a few exporters and their self-reported capabilities. Hence, to answer the research question, firm-level objective secondary data are collected and then organized as a panel data set.

As mentioned earlier, there are many ways for a firm to enter a foreign market, however, diversification and export would both similarly result in expanding the geographical market base of the firm. Therefore, the theoretical backgrounds and frameworks explaining the outcome of the geographical market expansion in the diversification literature can be

appropriately applied to the corporate export activities research.

Two competing arguments with opposing results about the effect of geographical market expansion appear in the diversification and international business literature (Tallman and Li, 1996). Various researchers insist that a high level of international market diversity could positively affect corporate performance by reducing market risks. This line of work starts with Agmon and Lessard's (1977) argument based on a financial risk reduction model. In the international market, under a high level of uncertainty, the company expands its market base to reduce risk by minimizing performance variance (Mansi and Reeb, 2002). Conversely, the other research stream argues that a high level of international market diversity could instead negatively affect corporate outcomes. This line of arguments mainly focuses on the cost side. There are costs of entering and managing various markets. Prior studies have proved the presence of a sunk entry costs in exporting (Das, Roberts and Tybout, 2007). Entry costs refer to the total costs of collecting the necessary information for successful exports (Moxnes, 2010). Through quality information, exporting companies need to establish country-specific marketing, distribution, and sales methods. Since these are tailored differently to the situations and conditions of each overseas market, more costs are incurred if companies export to various markets.

Which of these two arguments best describes the export performance? Further, are they in any way reconcilable? Until now, most scholars have assumed a positive linear relationship between market diversity and export performance, without investigating the nonlinear relationship between them considering the cost aspects of managing foreign markets. To answer the research question, we summarize these two perspectives, generate a hypothesis, and then test them in an empirical setting consisting of: Korean exporting companies listed on the database of the Korea Trade-Investment Promotion Agency (KOTRA) between 2015 and 2019. Using corporate-level panel data on exporters, we investigate the relationship between the level of market diversity and export performance.

## 2. Theory and Hypothesis

Some studies have tried to identify factors associated with exporters' geographical market expansion, mainly focusing on the antecedents of geographical expansion, such as the level of innovation, market-related knowledge, and experiences (e.g., Belich and Dubinsky, 1995; Johansson and Karlsson, 2007). However, studies on the result of geographical expansion have not received enough attention yet. Therefore, this study focuses on the consequence of geographical market expansion, which is market diversity in the form of increasing the number of countries that a firm exports to.

### 2.1. Benefits and Costs of Geographical Market Diversity

The limited size of internal regional markets provides a natural incentive for companies to export their products overseas (Lee Seung-Hyun and Chung, 2007). In this way, companies could overcome stagnated growth and gain profits. However, the overseas markets' conditions and situations are unstable, and unexpected shifts in demands are caused by macroeconomic changes (Lee Seung-Hyun and Chung, 2007), creating uncertainties.

Exporting companies could manage those market uncertainties by expanding their foreign market base. According to the financial risk reduction model, exporting companies can reduce the risk of market uncertainties by not having all their commitments in one country (Agmon and Lessard, 1977; Hisey and Caves, 1985). When companies are dispersed, conducting exporting activities across various countries, increased risks in one market could

be offset by potentially reduced risks in another, thereby minimizing risks and performance variance (Mansi and Reeb, 2002). Specifically, when a firm exports to a single market, its export performance is largely dependent on the conditions of that market. When they are stable, there is no change; when the conditions are unstable, however, the exporting company can experience immense losses. The company can manage uncertainties and reduce risks by investing in other markets that are influenced differently from the economic situations of the crashed market. Thereby, exporting companies could appropriately respond to unpredicted changes in the macro-environment. Moreover, exporting companies with high market diversity could benefit from more stable earnings compared to competitors with low market diversity without efficient means of lowering risks (Hisey and Caves, 1985). As a result, exporting companies with high market diversity enjoy higher risk reduction benefits than those with low market diversity, thus improving their export performance.

Under this circumstance, international business scholars insist that multinational companies need to manage the overall risks they are exposed to by constantly reconfiguring their foreign market portfolio to environmental changes (Benito and Welch, 1997; Wilson, 1980). Likewise, exporting companies can also have a different export performance depending on how the company manages and controls the exporting portfolio. For example, if there are some exporting countries, and most of the export performance results from only a few major markets, it is expected that the effectiveness of geographical market diversity would be inferior to the costs of managing several markets.

Recent exporting literature, such as the trade models of Chaney (2008), and Eaton, Kortum, and Kramarz (2004), considers country-specific costs. According to Moxnes (2010), country-specific costs are specific foreign market entry costs for exporting companies. When exporting companies enter a new foreign market, they need to collect the required information, such as customer requirements, their lifestyle, laws and regulations, and accessible distribution channels specific to that market for successful exporting. By obtaining and utilizing quality information, exporting companies can acquire an in-depth understanding of each foreign market and its conditions and situations. In addition, there are other possible costs, such as adjusting some product characteristics to follow country-specific laws, regulations, and product standards; developing functional-level strategies, including marketing and distribution to reach and attract the foreign customers; finding adequate foreign clients; and negotiating contracts with them on favorable terms. Whereas some of these costs are common to every export market, such as acquiring global-level information, most of them are generated specifically per country (Moxnes, 2010). Previous exporting research has proved the presence of sunk entry costs (Das, Roberts and Tybout, 2007). Based on this perspective, exporting companies with high market diversity spend more on entry costs than firms with low market diversity, eventually decreasing export performance.

The two opposing arguments on the relationship between market diversity and export performance could be summarized as follows: Exporting companies with more dispersed markets enjoy more comprehensive risk reduction benefits than those with fewer concentrated markets, securing enhanced export performance. However, exporting companies with more dispersed markets tend to have higher costs compared to those with fewer concentrated markets. Therefore, country-specific entry costs can alter the benefits of the geographic market diversity of exporting companies. There could be a trade-off relationship between the entry costs and benefits of the financial risk reduction for exporting companies on export performance. Accordingly, in this study, we propose a curvilinear research model that incorporates both the costs and benefits of exporting companies on export performance. Thus, we propose:

*H1: There exists an inverted U-shaped relationship between market diversity and export performance.*

### 3. Methodology

#### 3.1. Data and Sample

We identify all exporting companies that are listed on the database of the Korea Trade-Investment Promotion Agency (KOTRA) between 2015 and 2019 in South Korea. The agency established in 1962, is a government-invested institution under the Ministry of Trade, Industry and Energy. The agency has collected significant data on trade and investment, trying to facilitate trade and investment between South Korea and other countries by providing information on markets and countries through the Trade Big Data Platform. It contains information about 76,000 overseas markets from 129 trade centers in 84 countries around the world, obtained from over 500 export conferences and exhibitions every year, and 1.8 billion global export statistics data. Then, we collect data regarding corporate export activities from the agency and the Korea Customs Service. Other corporate-level data are obtained from the Korea Information Service Database (KISLINE), which is similar to COMPUSTAT from Standard & Poor's (Chang and Hong, 2000), providing credible and relevant corporate and financial information. In total, 6,151 firms met all the criteria resulting in a longitudinal cross-sectional (panel) data set of 17,863 observations.

#### 3.2. Measures

##### 3.2.1. *Dependent Variable*

**Export performance.** Export performance could be measured by both objective and subjective methods. In the exporting and trade literature, more studies have used the subjective questionnaire-based method over objective methods based on secondary data (e.g., Robertson and Chetty, 2000; Katsikeas, Piercy and Ioannidis, 1996), despite the importance of objective indicators. Moreover, since most of the studies were based on single-collection surveys, the findings could be limited. There are some issues acquiring objective data in the export setting. Primarily, exporting companies tend to be reluctant to provide objective secondary data to researchers (Francis and Collins-Dodd, 2000; Leonidou, Katsikeas, and Samiee, 2002). Moreover, objective data are rarely publicly available (Robertson and Chetty, 2000). However, if objective data is accessible, we believe that there are more benefits of using it over subjective methods to measure export performance by avoiding social desirability bias in the self-reported survey. Therefore, for this study, we adopt an objective proxy to measure export performance.

Much of the empirical literature, where export performance is used as a dependent variable, adopts "export intensity," that is, the ratio of export sales to total sales, as a proxy of export performance. However, there has been some criticism regarding the use of this type of indicator (Cooper and Kleinschmidt, 1985; Sousa, Martínez-López and Coelho, 2008; Zucchella, Palamara and Denicolai, 2007). For example, a firm conducting insufficient export activities with a large overseas market may perform better than a company with a large market share of a relatively small overseas market (McGuinness and Little, 1981). Therefore, to capture the export performance of companies, we employ a measure based on the recommendation of Sousa (2004) and Katsikeas, Leonidou and Morgan (2000). In particular, we apply the relative export performance measure suggested by Cadogan, Cui and Li (2003).

Export performance is calculated by dividing the absolute value of total export sales by the number of employees in a given year, controlling for the impact of a company's size on export sales. The absolute values of total export sales of each exporting company between 2015 and 2019 are obtained from the publication by the Korea Customs Service, and data regarding the number of employees are from KISLINE.

### 3.2.2. Independent Variable

**Market Diversity.** Following the research conducted by Johansson and Karlsson (2007) and Wheeler, Ibeh and Dimitratos (2008) market diversity is measured by the number of export countries (destinations) of each exporting company using the data from the KOTRA and the Korea Customs Service. This is the most common measure to capture geographical market diversity (Wheeler, Ibeh and Dimitratos, 2008). In addition, a variable that squared the market diversity (Market Diversity Squared) was created for testing curvilinear relationships between market diversity and export performance.

### 3.2.3. Control Variables

Based on a thorough review of previous research on exporting performance, we found control variables designed to eliminate potential confounding factors that might affect export performance. We added four control variables to our final research model: company size, prior export performance (t-1), product diversity, and year dummies.

Since larger exporting companies tend to have more resources and capabilities for better export performance, company size is measured by the number of employees. Prior export performance (t-1) is also controlled for in the model and is calculated by dividing the absolute value of total export sales by the number of employees a year before the given year (t). The market level, as well as product diversity, could affect the export performance. Therefore, we control for product diversity measured by the number of export products of exporting companies. Finally, there is a potential variation regarding export performance across the years of this study (2015-2019). To control for this time effect in the panel data, year dummy variables were included in the analysis.

## 3.3. Estimation

To test the hypotheses, a generalized least squares (GLS) estimator was used employing the Stata 14 statistical package. The reason for adopting the GLS estimator is as follows: Since we have panel data, a pooled-ordinary least squares estimator may be inefficient. There can be firm-specific differences in the error term capturing unobserved factors, which could affect export performance. The GLS method takes this heteroskedasticity into account, and therefore, it is the most efficient estimator. Moreover, to determine the most appropriate panel data analysis model between the random-effect and fixed-effect models, we used the Hausman test. Based on the result of the test, the best model used is the fixed effect. Thus, in this study, the fixed effect panel regression was employed.

After obtaining the results of the regression analysis, additional analysis was performed to confirm whether the nonlinear relationship between the market diversity and the export performance is statistically significant. Therefore, Utest was conducted based on the Lind and Mehlum (2010)'s suggestion. The result of the test supported the significance of the inverted U-shape between the independent variable and dependent variable, which supports our hypothesis.

## 4. Empirical Results

Table 1 presents the descriptive statistics and correlations matrix for all the research variables we used to test the hypothesis. Market Diversity has a mean of 12.56, ranging from 1 to 126, while Export Performance has a mean of 14.76.

**Table 1.** Descriptive Statistics and Correlation Matrix

No	Variables	N	Mean	SD	1	2	3	4	5	6
1	Export Performance	17,863	14.76	63.73	1.00					
2	Prior Performance (t-1)	17,863	14.28	61.28	0.80*	1.00				
3	Market Diversity	17,863	12.56	14.93	0.12*	0.10*	1.00			
4	Market Diversity Squared	17,863	380.78	1019.79	0.08*	0.07*	0.90*	1.00		
5	Product Diversity	17,863	10.87	19.98	0.08*	0.07*	0.29*	0.21*	1.00	
6	Company Size	17,863	112.29	318.46	0.13*	0.08*	0.20*	0.19*	0.43*	1.00

**Note:** \* $p < 0.05$ .

Table 2 presents the fixed effect panel regression estimates of the relationship between the level of geographical market diversity and export performance.

Model 1 is the baseline, including all the control variables and fixed effects for the events. Prior export performance, product diversity, and company size have significant positive impacts on the export performance of companies ( $\beta = 0.116$ ,  $\beta = 0.038$ ,  $\beta = 0.186$ , respectively, with  $p < 0.001$ ). In Models 2 and 3, we enter market diversity and market diversity squared, respectively, with control variables and fixed effects to investigate whether the two explanations (reduction of risks and increase of costs) might be reconciled, forming an inverted U-shaped (curvilinear) relationship between the market diversity and the export performance. In Model 2, the coefficient of market diversity on export performance is positive and significant ( $\beta = 0.099$ ,  $p < 0.01$ ). Namely, when the level of market diversity increases, holding other variables constant, the export performance of the company would increase. In Model 3, with the market diversity squared, we finally test our hypothesis, the inverted U-shaped relationship between market diversity and export performance. The coefficient of market diversity squared is negative and significant ( $\beta = -0.040$ ,  $p < 0.05$ ), meaning that market diversity has a curvilinear effect on export performance. Thus, Hypothesis 1 is supported.

The export performance of companies rises before peaking at the highest market diversity level, after which it starts to decline. More precisely, export performance decreases after a level of market diversity of 79 in our research setting.

Finally, the effects of interest from our full model are illustrated in Figure 1. Using the regression coefficients and intercepts from Model 3, it is evident that the effect magnitudes of market diversity are substantively significant.

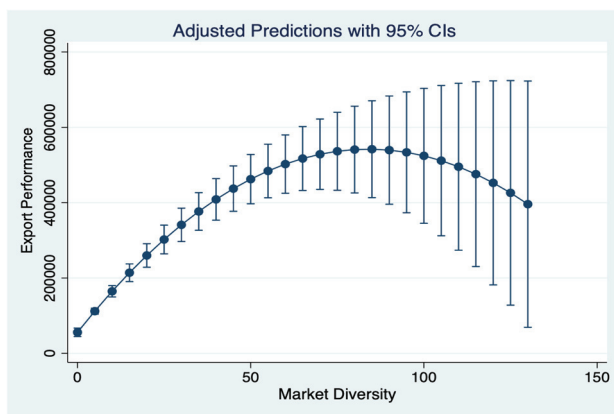
**Table 2.** Estimates for Fixed Effects Models of Export Performance

Variables	1 Export Performance	2 Export Performance	3 Export Performance
Market Diversity		0.421*** [0.099]	0.576** [0.135]
Market Diversity Squared			-0.003** [-0.040]
Prior export performance (t-1)	0.121*** [0.116]	0.120*** [0.115]	0.120*** [0.115]
Number of Exporting Products	0.121*** [0.038]	0.094*** [0.030]	0.091*** [0.029]
Company Size	0.000*** [0.186]	0.000*** [0.182]	0.000*** [0.183]
Year Dummies 2016	-1.444** [-0.008]	-1.567*** [-0.009]	-1.582*** [-0.009]
2017	0.012 [0.000]	-0.191 [-0.001]	-0.212 [-0.001]
2018	0.796 [0.005]	0.542 [0.003]	0.508 [0.003]
2019	0.216 [0.002]	-0.046 [-0.000]	-0.079 [-0.001]
Constant	8.997***	4.259***	3.315***
Observations	17,863	17,863	17,863
Number of firms	6,151	6,151	6,151
R <sup>2</sup>	0.20	0.23	0.23
F	136.8	126.2	112.5

Notes: 1. Normalized beta coefficients are in brackets.

2. \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.001$ .

**Fig. 1.** Predicted Export Performance as a Function of Market Diversity





## 5. Discussion and Implications

This study investigates the curvilinear (inverted U-shaped) relationship between market diversity and export performance of exporting companies. To test our hypothesis, we analyze panel data of 17,863 observations between 2015 and 2019 in South Korea. Our analysis found that as market diversity increases, the export performance also increases because exporters can diversify and reduce financial risks in export markets. However, the relationship between the two changes as it moves upward. As it peaks, the entry costs increase due to the high market diversity, therefore, the costs outweigh the benefits, leading to decrease in export performance. Therefore, we can conclude that there is a curvilinear inverted U-shaped relationship between market diversity and export performance.

This study provides theoretical and practical contributions and implications by analyzing the curvilinear relationship between market diversity and export performance, which has been relatively overlooked in the field of trade.

First, this study expands the export and trade literature by focusing on the effect of market diversity in discussing the export performance. When conducting research to identify antecedents of export performance, most studies so far have mainly focused on the effect of the subjective and self-reported internal characteristics of an exporting company because data have been collected through questionnaires. For that reason, the effect of corporate-level objective variables, like the export market portfolio, or market diversity on export performance, has not received enough attention yet. In fact, the majority of exporting companies export to more than one country. According to our panel data of 17,863, only 2,274 exporting companies, accounting for about 12.73% of the total, export to a single country. The remaining 87% of firms export to more than one market, with an average of 12-13 exporting countries. In this paper, we highlighted market diversity, which has not been sufficiently addressed in the trade literature, as a main variable explaining export performance. By doing so, we can secure a deeper understanding of the impact of objective and observable characteristics of exporters on performance.

Second, this study provides insight to the trade literature, by examining the curvilinear relationship between market diversity and export performance. Many scholars, especially in the international business field, have mainly assumed a positive linear relationship between market (international) diversity and the corporate financial performance, such as Return on Asset (ROA) and Tobin's Q, considering only the decrease in market risks as the number of overseas markets increases (e.g., Agmon and Lessard, 1977; Hisey and Caves, 1985). On the other hand, some scholars in the field of trade recently found that market diversity increases the cost of companies, specifically the entry and management costs (e.g., Chaney, 2008; Eaton, Kortum and Kramarz, 2004; Moxnes, 2010). However, both lines of research have limitations that assume a linear relationship between market diversity and corporate performance. The mixed impact of market diversity on corporate performance might indicate that it might not be appropriate to assume a linear relationship between market diversity and corporate performance. In this paper, we have found that this relationship is non-linear, breaking away from the existing assumption of a linear relationship. Thus, by proposing a way to incorporate the costs and benefits aspects of market diversity, this study analyzes further the relationship between market diversity and performance, especially regarding export.

Third, this study adopts more favorable data to distinguish the relationship between market diversity and export performance. We performed an empirical analysis by using objective secondary data at the corporate level, which is distinct from other studies that have conducted empirical analyses with data obtained through questionnaire surveys. Since most of the survey data for hypothesis testing in the trade literature are obtained through a one-time

survey, it is difficult to assume a causal relationship between independent and dependent variables and avoid the issues of endogeneity because the independent and dependent variables reflect the same point in time. In addition, it could be exposed to a risk of sample selection bias. Panel data used in this study were established for all domestic exporters from 2015 to 2019. Through panel data analysis, we can observe how firms change their behaviors at various points in time and deal with the firm-specific differences and time-fixed effects in the error term capturing unobserved factors. Therefore, some of the limitations of survey data can be overcome. The number of observations in the panel data we used for hypothesis testing is about 20,000, which is enough to reflect real business situations and generalize the results of this study.

Forth, this study provides practical contributions and implications to exporting companies and their managers. Based on our finding, continuous increase of the export market base to reduce the financial risks of markets could have a negative impact on export performance due to the costs of managing and entering numerous markets. Accordingly, managers of exporting companies consider the costs that must be incurred to export to a specific country and the benefits involved therein, and they should adjust and evaluate the geographical market diversity to an optimal level. Then, the companies will be able to achieve a sustainable competitive advantage. Our findings show that the way exporting companies manage their export countries affects the company's export performance, thus providing valuable practical implications.

Despite the various contributions and implications of this work, there are some limitations and avenues for future research.

First, we chose product diversity of exporting companies as one of the control variables. However, there could be some possible interaction effects between market and product diversity, affecting export performance (e.g., Tallman and Li, 1996). This study did not address the contingent factors in order to focus on the main effect on the curvilinear relationship between market diversity and export performance. However, if a follow-up study considering this issue is conducted, it will be useful in providing more insight into the existing literature.

Second, market diversity in this study is defined as the number of countries to which a company exports. However, it would be essential to define market diversity differently in the context of global economic integration. For example, it would be of great significance to study the geographic market diversity by dividing it into regions, such as Southeast Asia, Middle East, Latin America, European Union, etc., rather than by countries. Countries tied to similar regions are likely to share similar characteristics. So, even if the number of exporting countries of an exporter increases within the same region, the benefits of risk reduction might be limited and costs for entering and managing the market might not increase significantly. Future research that reflects this issue could provide more contributions and implications.

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