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Do Export Activities Improve Small Firm Performance? Evidence from Indonesia

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Do Export Activities Improve Small Firm Performance? Evidence from Indonesia

Do Export
Activities Improve
Small Firm
Performance

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Abstract

Research Aims: This study investigates the link between firm's involvement in export activities and firm performance, with reference to small and medium-sized enterprises (SMEs) in Indonesia.

Design/Methodology/Approach: The study employed primary data collected from questionnaires administered to 271 exporting SMEs in seven provinces in Jawa-Bali Region. The OLS and GLM regression techniques were employed to estimate the export impact model.

Research Findings - The results show that SMEs' involvement in export activities lead to highest performance improvement in product quality; slight improvement in networking and marketing techniques, sales, profit, production technology or technique and employee productivity, and least improvement in domestic sales. SMEs' exports-induced performance improvement is positively affected by firm size, owners' education, the presence of foreign investors, and assistance from central government agencies, negatively affected by years of exporting, and shows an inverted U-shaped relationship with export intensity.

Theoretical Contribution/Originality - The discourse of firm internationalization theories should not only focus on pre-export activities, but also post-export activities. The discourse on the relationship between firm performance and firm internationalization should consider non-linear relationship.

Managerial Implications in the Southeast Asian Context - SMEs should keep actively participating in the government's export assistance programs in their post-export stage. Especially, exporting SMEs should maintain and strengthen their relationships with related central government agencies. In order to sustain and expand their export activities, SMEs may consider partnership with foreign investors.

Research Limitations and Implications - Future research may investigate certain stimuli and barriers to expand the export at the post-export stage. Future research may also expand its scope to provincial or country comparison in Southeast Asia, taking into account differences in social and economic characteristics, or specified to a particular province/region or product group/industry. Other definitions of SMEs—such as those based on asset or turnover size—might be considered. Data accuracy may also be improved through the use of factual (quantitative) data to replace some perceptual data used in this study.

Keywords - internationalization, SMEs, impact of exporting, firm performance, Indonesia

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INTRODUCTION

With the elimination of tariff and non-tariff barriers and declining costs in communication and transportation, trade liberalization presents a wide array of possibilities for firms around the world. On the one hand, trade liberalization opens up local markets to competition from cheap imported products and multinational companies. On the other hand, it presents opportunities for local firms to adopt foreign technologies and to access international markets through export or outward investment (Awuah & Amal, 2011; Shu & Steinwender, 2019).

The benefits of trade openness, however, have been varied across countries and firms. Although developing countries have improved their contribution in world trade, 56-62% of world's merchandise export value during 2010 to 2018 still came from 34 OECD member countries (ITC, 2019). Firm's size also plays a role as larger enterprises are better prepared to tap into trade opportunities than small- and medium-sized enterprises (SMEs). A study by Hammer and Stamps (2010) showed that even in the developed countries SMEs accounted for only less than 40% of total merchandise exports.

In developing countries, SMEs' export share is even smaller. Yoshino and Wignaraja (2015), for example, found an average of 23% of total exports contributed by SMEs in ASEAN member states.¹ In the case of Indonesia, SMEs accounted for about 18.5% of non-oil-and-gas exports in 2005-2007, which continuously declined to 16.9% in 2008-2010 and 15.4% between 2011 and 2013 (Ministry of Cooperatives and SMEs Republic of Indonesia, 2009b, 2010a, 2010b, 2013, 2014, 2015).² These are meager proportions considering the important role of SMEs (including microenterprises) in the Indonesian economy as a major source of business establishments, employment opportunities and value added creation.³ From 2005 to 2013, SMEs comprise 99.99% of total business entities, providing more than 97% of job opportunities and accounting for 56-59% of the Indonesia's GDP (Ministry of Cooperatives and SMEs Republic of Indonesia, 2009b, 2010a, 2010b, 2013, 2014, 2015). The diminishing presence of SMEs in the export market, compounded by increasing competition from cheap imported goods as Indonesia has increasingly engaged in numerous free trade agreements (FTAs), might translate to a sustainability threat for SMEs.⁴

¹ The Association of Southeast Asian Nations (ASEAN) is a regional intergovernmental organisation which facilitates economic and political cooperation among its Southeast Asian member countries. Founded in 1967, ASEAN is currently composed of ten member states: Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand and Viet Nam.

² Including oil-and-gas exports would render the figures even lower since big state-owned companies have always dominated oil and gas exports. The figures thus support Wignaraja (2012) who found that Indonesian SMEs' contributed about 9.3% to total exports.

³ Prior to the implementation of Law 20/2008 on Micro, Small and Medium-Sized Enterprises, "small-sized enterprises" generally included small and microenterprises.

⁴ As of September 2019, 11 FTAs in which Indonesia engages are: ASEAN (1993), ASEAN-China (2010), ASEAN-Australia and New Zealand (2010), ASEAN-India (2010), ASEAN-Japan (2008), ASEAN-Korea (2007), Indonesia-Japan (2008), Indonesia-Pakistan (2013), Indonesia-Chile (2017), Indonesia-EFTA CEPA (2018) and Indonesia-Australia (2019). Indonesia is also in on-going negotiations in several other regional and bilateral FTAs.

Hence, not only are SMEs in Indonesia less able than their larger counterparts in seizing export opportunities from trade liberalization (Wengel & Rodriguez, 2006), their export performance is also worse than that of SMEs in other ASEAN countries (Wignaraja, 2012) and far behind that of developed countries' SMEs (Hammer & Stamps, 2010). SMEs have continued to contribute little to exports regardless of various measures that the Indonesian government has put in place, which range from general assistance (such as measures to ease access to finance, technical and managerial trainings) to specific export-related assistance (including trade promotion, business matching and training in export procedures).

Existing literature on the internationalization of Indonesian SMEs is rich but still leaves a significant gap to fill. The pre-export activities of Indonesian SMEs, which concern the transformation of non-exporting SMEs into export-oriented SMEs, is a well-researched subject (see for example Rhommadhonni and Dhewanto (2019), Revindo, Gan, et al. (2019), Cant and Tambunan (2009), Revindo, Indrawati, et al. (2019) and Sari (2011)). Nevertheless, the post-export market entry activities of these firms, despite its importance, have been rather overlooked, with the exception of few studies such as Wengel and Rodriguez (2006) and Revindo and Gan (2018). Even after a successful entry into a foreign market, SMEs might experience difficulties in sustaining or expanding their exports. This implies that exporting SMEs might differ in their export performance with export's share in revenue ranging from as low as 1% to a maximum of 100%. Further, exporting may produce different impacts on SMEs' performance with some SMEs experiencing significant performance improvements after exporting while others only perceive negligible impact.

This paper investigates the impact of exporting on the firm performance of Indonesian SMEs with additional discussion on factors that explain variation in performance improvement. Firstly, the relevant theoretical and empirical literature on the relationship between internationalization and firm's performance is discussed in Section 2. Subsequently, Section 3 explains the study area, data collection procedure and data analysis methods. In Section 4 we discuss empirical results of the descriptive statistics and estimation results of the regression analysis. We conclude the paper with a summary of the main research findings, research implications and suggestions for future studies.

LITERATURE REVIEW

The benefits of firm internationalization have been well supported academically. Hitt et al. (1997) pointed to the almost limitless opportunities for market expansion and growth offered by international markets. Among others, this includes the opportunity to gain above-normal returns provided that the firms are able to draw on their specific and intangible assets to leverage niche market and imperfections in the foreign market (Lu & Beamish, 2004; Hitt et al., 1997). Internationalization also allows firms to diversify their markets by spreading the risks of market slump in different economies, thereby reducing revenue uncertainty (Kim et al., 1993). By tapping into the expanded markets, there is also the benefit of economies of scope

and scale enabled by larger production levels and product diversification (Caves, 1996; Hitt et al., 1997). As production levels increase, average input costs may be reduced via bulk purchasing (Kogut, 1985). Lu and Beamish (2004) highlighted the positive effect on efficiency, where international business activities enable organizational and experiential learning, such as through innovations, capabilities, competitiveness, and a strengthened knowledge base. They also argued that firms' increased competitiveness from international operations may create a spill over by enhancing firms' revenue in the domestic market.

There are, however, some arguments for the costs of international expansion. Firms' newness and foreignness may imply some costs resulted from unfamiliarity with the different economic, political, and cultural environments (Olmos & Díez-Vial, 2015; Lu & Beamish, 2004). The complexity and difficulty of managing international operations may also give rise to new costs associated with transaction, coordination, distribution and logistics (Hitt et al., 1997; Olmos & Díez-Vial, 2015; Ribau et al., 2018).

Due to the complexity, barriers and various costs that come with internationalization efforts, the effects of internationalization on firms' performance might be less straightforward than the expected benefits of internationalization. From different scholarly works on the topic, Table 1 classifies the variety of possible relation-

Types of Relationship	Author(s)	Sampled Firms	Results
Linear and positive relationships	Lu and Beamish (2006)	Japanese SMEs	Exporting and FDI activities have a positive impact on sales and assets
	Ganotakis and Love (2012)	High-technology firms in the United Kingdom	Export activities improve labor productivity
	Nachum (2004)	Large firms in Southeast Asia and Latin America	FDI activities increase profit-to-sales ratio
Non-linear relationship	Nachum (2004)	Large firms in Asia	Profit-to-sales ratio accelerates with market diversification
		Large firms in Africa	Profit-to-sales ratio decelerates with market diversification
	Ruigrok and Wagner (2003)	Large manufacturing firms in Germany	U-form relationship between ROA and the degree of internationalization
	Chiao et al. (2006)	Taiwanese SMEs	U-shaped relationship between ROS and export intensity
	Lu and Beamish (2001, 2004)	Japanese firms and SMEs	Horizontal S-shaped relationship between ROA and the geographic diversification of FDI
	Hitt et al. (1997)	United States large manufacturing firms	Inverted U-shaped relationship between ROA and international diversification
	Olmos and Díez-Vial (2015)	SMEs in Spanish wine industry	Firm performance depends on the internationalization pathways (traditional or born global)
Negative relationship	Lu and Beamish (2001, 2006)	Japanese SMEs	Exporting has a negative effect on ROA
	Singla and George (2013)	Indian firms	FDI activity has a negative impact on financial performance
	Siddharthan and Lall (1982)	Large United States MNCs in manufacturing industry	Multinational spread has a negative effect on sales revenue growth
Weak/no relationship	Singla and George (2013)	Indian firms	Export intensity has no significant impact on firms' performance
	Tallman and Li (1996)	United States industrial MNCs	International diversity has no significant effect on the return on sales

Table 1
Relationships between Internationalization and Firms' Performance

ships between internationalization and firms' performance into four types. First, a number of studies found positive linear relationship between internationalization and firms' performance (e.g., Nachum, 2004; Lu & Beamish, 2006; Ganotakis & Love, 2012). Second, several studies have observed non-linear relationships. These include acceleration or deceleration of firms' performance following diversification of market (Nachum, 2004); a U-shaped relationship in which high performance was observed at low degrees of internationalization but declined at medium degrees of internationalization and rising again at higher internationalization degree (Ruigrok & Wagner, 2003); an inverted U-shaped relationship (Hitt et al., 1997); and a horizontal S-shaped sigmoid relationship (Lu & Beamish, 2004). Third, some researches (e.g., Tallman & Li, 1996; Singla & George, 2013) found weak or no relationship. The last type of relationship reported is that internationalization negatively affects firm performance (Siddharthan & Lall, 1982; Lu & Beamish, 2001; Singla & George, 2013).

It is evident from the literature summarized above that existing studies on the relationship between internationalization and firms' performance have been inconclusive. Empirical results have been varied across countries, industries, study periods, forms of internationalization, performance measures and firm sizes. In addition, the existing literature also still leaves a few gaps for further study. First, current studies have focused on firms from the developed countries and left little evidence to explain the performance of internationalized firms from developing or emerging countries (Chiao et al., 2006). Specifically, no prior study has been conducted on the Indonesian case, with the exception of Wengel and Rodriguez (2006) and Revindo and Gan (2018). Second, more attention has been given on internationalized large firms or MNCs instead of SMEs (Chiao et al., 2006; Ribau et al., 2018). Accordingly, the benefits and costs of internationalization identified in the existing studies are more relevant to large enterprises or MNCs with international operations where sales performed by foreign subsidiaries and direct investment form a bigger part of firms' activities than direct exports (Hollenstein, 2005). Therefore, a study that investigates export impact on developing country SMEs performance, such as Indonesia, will provide valuable contribution to the body of literature interested in internationalization and its relations to firms' performance.

RESEARCH METHOD

Data

We limit the study on small- and medium-sized enterprises (SMEs), therefore excluding micro- and large-sized enterprises.⁵ SMEs are defined as firms which employ five until 99 employees (BPS-Statistics Indonesia, 2014). We employed primary data collected from the survey with a structured questionnaire. The target population was SMEs operating in seven provinces in the islands of Jawa, Madura and Bali which house about 60% of SMEs in Indonesia (Sabila, 2014).

⁵ We excluded microenterprises for two reasons. First, since microenterprises in Indonesia are mostly home businesses or ones with a sole proprietor, hence they are not properly recorded in any database. Second, microenterprises are less likely to engage in international operations (Pendergast et al., 2008).

The sampling frame was constructed by merging four databases into an SMEs list from which we selected our samples. Three databases published by the Ministry of Cooperatives and SMEs were used: (1) *Exporting SMEs Directory* book (Ministry of Cooperatives and SMEs Republic of Indonesia, 2009a)⁶; (2) an online trading board⁷; and (3) *SME and Cooperative Indonesia Catalogue* (Ministry of Cooperatives and SMEs Republic of Indonesia, 2011, 2012)⁸. We added the Indonesian 2006 Economic Census from BPS-Statistics Indonesia as the fourth database.⁹

We administered the survey from April to August 2014 which elicited usable responses from 271 exporting SMEs. By province, sampled SMEs are distributed as follows: Banten (4.1%), Jakarta (20.7%), Jawa Barat (7.0%), Jawa Tengah (4.8%), Yogyakarta (19.6%), Jawa Timur (28.0%) and Bali (15.9%). By commodities, the distribution is as follows: agricultural products (8.5%), food and beverages (6.3%), furniture (15.9%), handicrafts (21.8%), garments (12.2%), leather products and fashion accessories (5.5%), household utensils (5.5%), machinery components (2.6%), other products (3.3%) and multiple products (18.5%).

Data Analysis

Each exporting SMEs was asked to evaluate perceived improvement in the firm's performance after it started exporting. We used the following firm performance indicators in the questionnaires: domestic sales, total sales, total profit, product quality, labor productivity, cost efficiency, production technology and techniques, and networking and marketing. Improvement level for each indicator is denoted on a three-point Likert-scale with 1 = no improvement, 2 = improved and 3 = significantly improved.¹⁰

Since performance improvement levels may be expected to vary across exporting SMEs, we estimated the determinants of firm performance improvement using regression analysis. We used as the dependent variable the average Likert response score from the above performance indicators, which was assigned values from 1, indicating no improvement in overall indicators to 3, indicating significant improvement in overall indicators.

The description and priori sign of each independent variable are provided in Table 2. Five variables denoting SMEs' owner and firm characteristics are used including

⁶ The directory lists all SMEs participating in international trade shows organised by the Ministry of Cooperatives and SMEs' from 2005 until 2009.

⁷ Online promotions on the website of the Ministry of Cooperatives ad SMEs (<http://www.indonesian-products.biz>).

⁸ The catalogues are published annually as part of the ministry's promotion program and list SMEs' contacts and description of their products in four languages (English, Arabic, Japanese and Indonesian).

⁹ The Economic Census is performed decennially by BPS-Statistics Indonesia (National Agency for Statistics). When we performed our survey in 2014, the 2006 national census was the most recent one available. As of the time of writing, the latest census was conducted in 2016 and published in 2018.

¹⁰ A three-point Likert scale without a midpoint or a neutral value or midpoint has some strengths and weaknesses as discussed in OECD (2012).

Firm Size, Firm Age, Owner's Gender, Owner's Education and Owner Age. We added three more variables representing assistance that firms obtained from external actors, i.e., government agencies (both national and local), and non-government entities. Additionally, we added three variables to represent SMEs' international activities which consist of export intensity, export duration (in years) and foreign investors. Foreign investment is hypothesized to positively influence post-exporting performance improvement as international investors are a possible source of specific resources and capabilities, entrepreneurship and innovations (Filatotchev et al., 2008). Export intensity—defined as the proportion of export sales in total sales—was added to represent degree of internationalization. The squared term of export intensity was also included in order to account for the possible non-linear relationships between internationalization and a firm's performance (Ruigrok et al., 2007).

We employed OLS and GLM regression techniques to estimate the export impact model. As the dependent variable, the average Likert score of the eight firm performance indicators is a continuous variable, whose value ranges from 1 (minimum average Likert score) to 3 (maximum average Likert score)—in this case, we can apply OLS regression. However, we might not obtain the best estimators from OLS since the dependent variable is bounded—with 1 and 3 as its minimum and maximum values, respectively. This can be solved by using a fractional logit regression model, which is a Generalized Linear Model (GLM) estimation procedure to model proportion/fractional outcomes using the extreme values of the dependent variable (i.e., 0 and 1 as the minimum and maximum proportions, respectively). This method was suggested by Papke and Wooldridge (1993). We therefore transformed the target variable into a firm performance improvement index with its values ranging

Variables	Description	Prior Sign
Firm's Characteristics		
FirmSize	Number of workers, where 1 = medium-sized (20-99 employees) and 0 = small-sized enterprise (5-19 employees)	+
FirmAge	Number of years the firm has been operating since establishment (as of the time of survey)	+
Owner's Characteristics		
OwnerGender	Gender of the owner, with 1 = male, 0 = female	+/-
OwnerEducHigh	The educational attainment of the owner; 1 if the owner finished college or higher education, 0 if the owner finished high school or lower education	+
OwnerAge	The age of the owner at the time of survey	+
SME's International Activities		
Exportintensity	Portion of export sales in total sales	+
ExportIntensitySq	The squared term of <i>Exportintensity</i>	+/-
YearsExporting	Number of years the SME has been exporting (as of the time of survey)	+
ForeignInvestor	Foreign ownership; 1 if the firm is fully or partially owned by foreign investors, 0 if otherwise	+
Network Relationships and External Assistance		
GovCentral_Assist	1 if the firm received assistance from any central government agency in promotion, enterprise management, finance or production	+
GovtLocal_Assist	1 if the firm received managerial or technical training, promotional assistance or grants from any local (municipal, regency or provincial) government agency	+
NonGovt_Assist	1 if the firm received any type of assistance from external parties including business association/chamber, university/research institute, private company/SOE, business partner/associate, family/relative or Indonesian emigrant community	+

Table 2
Independent Variables for
Export Impact Estimation

between 0 to 1 in order to apply the fractional logit regression.¹¹

The fractional logit model is given as follows:

$$E(EXIMPACT|x) = \frac{\exp(x\beta)}{1 + \exp(x\beta)} = \Lambda(x\beta)$$

where $\Lambda(\cdot)$ is the logistic cumulative distribution function of export impact on firm performance, specified by $P_i = P\{EXIMPACT_i=1|X_i;\beta\}$ and $EXIMPACT_i \in [0,1]$ which is different from binary logit wherein y is limited to 0 or 1. Thus, it is not recommended to employ maximum likelihood estimation (MLE) for the fractional logit model because it lacks the robustness to distributional failure. We instead applied a quasi-MLE method as follows:

$$L_i = \sum_{n=1}^N EXIMPACT_i \ln P_n + \sum_{n=1}^N (1 - Y_n) \ln(1 - P_n)$$

RESULTS AND DISCUSSIONS

Descriptive Statistics

The mean scores of the Likert-scale responses for the eight indicators are shown in Table 3. It is evident that six performance indicators score above 2.0 on average, which consist of four operational performance indicators (worker productivity, marketing and networking techniques, product quality and production techniques/technology) and two financial performance indicators (total profit, total sales). A mean score of more than 2.0 indicates that SMEs perceived improvements in that indicator after they started exporting.

Most significant post-export performance improvement was indicated in product quality. We may understand this as a result of exporting SMEs' adaptation to

Firm Performance Indicators	Means of Likert-Scale Responses	Std. Deviation	Std. Error Mean
Product quality	2.30	0.591	0.039
Marketing and networking techniques	2.15	0.625	0.041
Total sales	2.11	0.616	0.040
Total profit	2.09	0.524	0.034
Production technique/technology	2.08	0.666	0.044
Workers' productivity	2.06	0.601	0.039
Efficiency (per unit cost of production)	1.86	0.592	0.039
Domestic sales	1.85	0.687	0.045

Table 3
Improvements in SMEs' Performance After Exporting

Note: N = 234

The exporters were asked to indicate firm performance improvement since the firm began exporting in a three-point Likert scale (1 = no improvement, 2 = improved and 3 = significantly improved)

Source: Authors' calculation based on survey data

¹¹ The index of firm performance improvement is calculated as follows:

$$y_i^* = \frac{y - \bar{y}}{\bar{y} - y}$$

Where:

y_i^* = the firm performance improvement index (will range from 0 to 1).

y = the original average Likert response score (taking a value between 1 and 3).

y = the minimum value of the original average Likert response score (i.e., 1).

\bar{y} = the maximum value of the original average Likert response score (i.e., 3)

demands from foreign customers and international market where product quality and standards higher than those found in the domestic market are usually expected (Seifert & Ford, 1989; Padmadinata, 2007). Improving product quality is also a means employed by exporting SMEs to reduce complaints and product rejection from overseas customers.

The second highest improvement was perceived in marketing and networking techniques. SMEs' managements may use the export preparation stage to improve capabilities in the use of information and communication technology (ICT), product promotion, contract arrangements, business networking and foreign language. From interactions with foreign customers, these capacities may have been developed further in the exporting stage.

Respondents also saw improvements in total sales and profit after exporting. Improvements in total sales are expected since SMEs may sell their products for a higher price overseas than domestically. Compared with products sold in the domestic market, exported products may also sell with wider margins (Nazar & Saleem, 2011; Masurel, 2001), hence improvements in total profit. At 2.09, the average improvement in total profit is a little below the score for total sales improvement at 2.11. Conducting exports may entail higher costs; therefore, additional profit may not accrue from the additional revenues of exported products.

We also observed improvements in techniques or technology utilized in production and in labor productivity. As argued by Hobday (1994) and von Weltzien Høivik and Shankar (2011), foreign buyers are more likely to watch the production process closely, transfer new knowledge and advanced technology and enforce strict product completion schedule. Following Ganotakis and Love (2012), this might also mean improved detection of defects and increased labor work rate.

However, respondents gave average scores of less than 2.0 for domestic sales and efficiency, implying that domestic sales and production cost efficiency did not improve with exporting. SMEs might have found it difficult to drive unit cost of production down due to the need to maintain export product quality, which involves costly labor and raw material inputs. As for non-improvement in domestic sales, SMEs possibly deprioritize production for domestic market by concentrating their limited resources in export production.

We also examined how significantly the average score of each indicator differs from each other with paired difference tests (dependent t-test), the results of which are presented in Table 4. The results show that product quality improvement, which experienced the highest improvement, much exceeds the other improvements. Meanwhile, the smallest difference was observed in domestic sales, which shows the least improvement score; likewise, cost efficiency, where we found the second lowest improvement, also exhibited smaller improvement compared to the other indicators. Therefore, product quality stands out as the most improved aspect while cost efficiency and domestic sales are the areas that improved the least after exporting.

Estimation Results

With regression analysis, the determinants of exporting impact on SMEs performance are estimated. Mean performance improvement, which we derived from the average Likert scores of firm performance indicators, was set as the dependent variable. Meanwhile, SMEs international activities (*ForeignInvestor*, *Exportintensity*, *ExportIntensitySq* and *YearsExporting*), owners' characteristics (*OwnerAge*, *OwnerEducation* and *OwnerGender*), external assistance (*NonGovt_Assist*, *GovtLocal_Assist* and *GovCentral_Assist*) and firm characteristics (*FirmAge* and *FirmSize*) were assigned as the explanatory variables. The squared term of export intensity (denoted above by *ExportIntensitySq*) was included to account for the possible non-linear relationships between improvements in firm performance and their degree of internationalization. *ForeignInvestor* is included to account for SME ownership by foreign investors (partial or full ownership) or entirely Indonesian ownership. As supported in a number of studies (Lu & Beamish, 2001; Ruigrok et al., 2007; Pangarkar, 2008), foreign investment may positively influence SMEs performance.

The model is estimated using OLS and GLM fractional logit regressions. The former is applied due to the continuous characteristic of mean performance improvement scale as the dependent variable. Meanwhile, performance improvement scale ranges from 0 (minimum value) to 3 (maximum value), hence double-bounded and we might not obtain the best estimators from OLS regression. This can be solved using a fractional logit regression model wherein the fractional outcome is modelled following a Generalized Linear Model (GLM) estimation procedure. This method was suggested by Papke and Wooldridge (1993).¹² Following this, the dependent variable was transformed into a performance improvement index with values ranging from 0 to 1.

The estimation results for the two regression models are reported in Table 5. For the OLS regression results, the model explains about 17% of variations of SMEs

Performance Indicators	Domestic sales	Cost efficiency	Workers' productivity	Production technology	Total profit	Total sales	Marketing & networking
Product quality	0.450***	0.440***	0.248***	0.222***	0.209***	0.197***	0.158***
Marketing & networking	0.293***	0.282***	0.090*	0.064	0.051	0.038	
Total sales	0.253***	0.244***	0.051	0.026	0.013		
Total profit	0.240***	0.231***	0.038	0.013			
Production technology	0.223***	0.218***	0.026				
Workers' productivity	0.205***	0.192***					
Cost Efficiency	0.022						

Note: (*), (**) and (***) represent 10%, 5% and 1% significance levels, respectively
 Source: Authors' calculation based on survey data

Table 4
Paired Mean Differences for Performance Improvement After Exporting

¹² Fractional regression is discussed at length by Papke and Wooldridge (1993, 2008) and Baum (2008).

performance as indicated by the values of R-square and Adjusted R-square. At one percent, the F-value was significant and implies that our model consisting of 12 explanatory variables jointly provides a reliable predictor of SMEs exports-induced performance improvement. We used the robust (heteroscedasticity-consistent) standard errors to warrant that inferences were asymptotically valid for the results of GLM regression. With the 12 explanatory variables, we determined that the model fit much better than the null model, as evidenced by the -127.2820172 Log pseudo likelihood value.

Based on these results, we determined that we could estimate the SMEs performance improvement appropriately using GLM and OLS regression models. We also found high similarity or consistency levels between estimation results in both models. In both estimations, the following explanatory variables were statistically significant: *YearsExporting*, *GovCentral_Assist*, *Exportintensity*, *FirmSize*, *ForeignInvestor*, *OwnerEducation* and *ExportIntensitySq*. In both estimations, we observed same signs in the estimated coefficients for these variables, although the estimated coefficient values differed. In subsequent analysis, we used the GLM regression results as the main reference. This approach follows Baum (2008) and Wagner (2001) who found that GLM is preferable to OLS when bounded dependent variables are involved in the modelling.

At one percent level and significant, firm size positively influences improvements in SMEs performance, signifying that medium-sized enterprises reap more performance improvement from exports than small-sized enterprises. This is shown by performance index that is 6.3% higher than that of small-sized enterprises, all else being equal. However, we found the coefficient for firm age to be insignificant, thus indicating that more experienced firms enjoy negligible post-export performance improvement compared to firms with less experience.

For the owners' characteristics variables, *OwnerEducation* returned a significant and positive result. Ownership by college graduates or those finishing higher education appears to lead to 4.6% marginal improvement in performance compared to SMEs whose owners have lower education. In contrast, *OwnerGender* and *OwnerAge* were not found to be statistically significant, indicating that owners' gender and age do not cause SMEs performance improvement after exports to vary.

Foreign ownership affects post-export performance improvement, as shown by the positively significant (at 5% level) coefficient for *ForeignInvestor*. On average, SMEs with shares partially or totally owned by foreign investors show an 11.1% higher improvement index than SMEs wholly owned by Indonesian nationals. This study did not attempt to identify ways in which foreign ownership may contribute in SMEs' performance after exports. Nevertheless, Filatotchev et al. (2008) explained that foreign ownership allows entrepreneurship skills, innovations and other capabilities and resources to be acquired from parent companies or investors, therefore eventually influences SMEs' performance and competitiveness positively.

We found an interesting result in *YearsExporting*, whose coefficient is negatively

significant (at 10% level). Although the effect is small in magnitude, it means that the more recently SMEs have been engaging in exports, the more they would perceive improvement in performance (and vice versa). Every additional year a firm had spent exporting leads to 0.4% on average lower perceived improvement in performance, all else being equal. Most young, new exporter SMEs belong to the so-called “born-global enterprises”, which Freeman et al. (2006) identified as having strong international aim since inception. This probably leads to better capacity of these exporters to translate the benefits of exports to overall performance improvement. On the other hand, older exporters may have seen more constraints in export expansion and thus saw less performance improvement.

Export intensity also affects SMEs’ performance improvement with its estimated coefficient and its squared term being statistically significant at one percent level. However, we found positive sign for the export intensity coefficient to be positive and negative sign for the squared term. This echoes the results from previous studies where a nonlinear relationship was found between internationalization level and firm’s performance (see, among others, Ruigrok & Wagner, 2003; Lu & Beamish, 2004; Hitt et al., 1997). In particular, the relationship between performance improvement and export intensity resembles an inverted U (\cap) curve. SMEs with less intensive exports perceive minor improvement in performance, but as exports grow more intensive, SMEs start to perceive more improvement in performance. After a certain point, however, further increases in export intensity would lead to decreas-

Independent Variables	OLS Estimation		GLM Estimation		
	Estimated Coefficients	Standard Error	Estimated Coefficients	Robust Std. Error	Average Marginal Effect
(Constant)	1.702***	0.155	-0.612	0.365	
<i>FirmSize</i>	0.125**	0.051	0.261***	0.095	0.063
<i>FirmAge</i>	-0.001	0.003	-0.002	0.006	-0.001
<i>OwnerGender</i>	-0.053	0.056	-0.107	0.118	-0.026
<i>OwnerEducation</i>	0.094*	0.052	0.192*	0.112	0.046
<i>OwnerAge</i>	0.001	0.002	0.002	0.004	0.001
<i>Exportintensity</i>	1.224***	0.269	2.528***	0.552	0.608
<i>ExportIntensitySq</i>	-1.090***	0.270	-2.254***	0.580	-0.542
<i>YearsExporting</i>	-0.008*	0.004	-0.016*	0.009	-0.004
<i>ForeignInvestor</i>	0.214**	0.097	0.462**	0.180	0.111
<i>GovCentral_Assist</i>	0.120**	0.050	0.248**	0.098	0.060
<i>GovLocal_Assist</i>	-0.003	0.050	-0.006	0.092	-0.001
<i>NonGovt_Assist</i>	-0.068	0.086	-0.141	0.204	-0.034
F		5.466***			
R Square		0.204			
Adjusted R Square		0.167			
Log pseudo likelihood			-127.2820172		
Akaike Information Criterion (AIC)			1.042989		
Bayesian Information Criterion (BIC)			-1390.002		
Deviance			42.24372478		
Pearson			37.40246306		
Residual d.f.			256		

Note: 1) The dependent variable is the average firm performance improvement scale (for OLS estimation) and firm improvement index (for GLM estimation)
2) (*), (**) and (***) represent 10%, 5% and 1% significance levels, respectively
3) Marginal effects are calculated as overall average marginal effects

Source: Authors’ calculation based on survey data

Table 5
OLS and GLM Estimates for
Export Impact

ing perceived performance improvement.

Export assistance provided by the central government was also found influencing SMEs' performance after export with the coefficient for *GovCentral_Assist* being positively significant at the 5% level. It means that assistance from the central government affects SMEs' performance positively, where exporting SMEs receiving assistance of any kind from a national government agency show 6% higher performance improvement index compared to SMEs that did not. Different result was found with assistance from provincial, municipal and regency government agencies (represented by *GovtLocal_Assist*) which indicates no significant effect on firms' performance improvement. We may interpret this as a reflection of inadequate resources local governments may have in assisting internationalization activities, although they may possess better understanding of the local SMEs. Further, as Uchikawa and Keola (2008) have argued, local governments have typically encouraged domestic competition only among the local SMEs. Similarly, the non-statistically significant *NonGovt_Assist* indicates that there is no significant effect on firms' performance improvement after exporting created by non-government assistance. This might be due to the limited resources and capacities of non-government entities in supporting SMEs' to improve their performance from export activities.

MANAGERIAL IMPLICATIONS IN THE SOUTH EAST ASIAN CONTEXT

The findings of the study have managerial implications for SMEs. SMEs' owners and managerial teams should not cease but instead keep actively looking for and participating in the government's export assistance programs even after they become exporters. Second, close and strong relationships with government entities should always become the attention of exporting SMEs, especially the central government agencies as their assistance programs suit post-export activities better than local government agencies and non-government sources. Third, SMEs should consider partnership with foreign investors to strengthen their entrepreneurship capacity, innovations, and obtain specific capabilities and resources.

THEORETICAL IMPLICATIONS

The findings of the study have some academic implications. First, we suggest that the academic discourse on SMEs' stimuli and barriers to export depart from identifying the typology and spend more time in investigating specific stimuli and barriers to export experienced in different steps of exporting by SMEs. Second, future research on this topic might be built upon the limitation of this study. For example, future research may expand its scope to other Indonesian provinces or districts/cities with different social and economic characteristics, or specified to a certain province/district/city or product category or industry. Methodologically, other definitions of SMEs—such as those based on asset or turnover size—might also be attempted. Data accuracy may also be improved through the use of factual (quantitative) data to replace some perceptual data used in the current study. Future research will also benefit from the utilization of panel data or pool cross-sectional methods to improve estimation of export impact.

CONCLUSION

This study investigates the link between involvement in direct export activities and firm performance of SMEs in Indonesia. The results show that exporting may lead to firm's performance improvement, but the impact was found to vary across performance indicators. Product quality improves considerably as a result of exporting as SMEs attempt to adapt their product quality to the higher standards usually demanded by overseas customers and markets. Other indicators—profit, production technology or technique, techniques of networking and marketing, labor productivity and sales—also exhibited slight improvements. However, improvements were not observed in efficiency (per-unit cost of production) and sales in domestic market due to exporting. Lack of improvement in the latter indicators might be explained by higher unit cost of production due to the high costs of raw materials and labor inputs necessary to maintain the quality of export products. As for domestic sales, SMEs might see a trade-off between exporting activities and catering to domestic market in terms of allocation of limited resources, hence focusing on exports implies compromising on domestic sales.

The study also estimated factors determining SMEs' exports-induced performance improvement. In terms of size, medium-sized enterprises experience higher performance improvement from exports compared to their small-sized counterparts. Among the variables of owner's characteristics, the results showed that education has a positive effect on firm performance improvement. Foreign investment also has a positive influence on performance, since more improvement in performance was observed in exporting SMEs with an entire or partial foreign ownership compared to those with an entirely domestic ownership. Assistance from the central government was also found to be affecting SMEs' performance. Exporting SMEs receiving assistances in the form of technical training, managerial training, export financing, guarantees and insurance, *SME Catalogues* and international trade events reported higher performance improvement than non-recipients.

However, several variables exhibit negative relationships with firm performance improvement after exporting. Length of exporting affects firm's performance improvement from exports negatively. With more years spent exporting, SMEs gain less performance improvement and vice versa. Meanwhile, we found positive coefficient for export intensity but negative coefficient for the squared term, indicating a \cap -shaped relationship between this variable and performance improvement. At low export intensity, SMEs would gain little improvement. Higher improvement would be perceived once SMEs reach medium level of export intensity. However, as export sales claim bigger share in total sales (high intensity), the perceived performance improvement starts to decline.

Our findings have several policy implications. First, government assistance should be provided not only to transform non-exporting SMEs into exporters but also to help exporting SMEs maintain sustainability and expansion beyond initial export success until firms' performance improves further. Second, the government should enhance exporting SMEs' capability in increasing their export sales and its intensi-

ty. This is crucial as otherwise SMEs, due to their limited resources, will experience a decline in performance once export intensity increases further. Third, sub-national (province, municipality and regency) governments should be better informed in their formulation of SMEs-supporting policies as our results show that local government assistance has not significantly supported SMEs export sustainability and expansion.

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