FACTORS AFFECTING VARIATION IN SMES' EXPORT INTENSITY

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Abstract

Small and Medium-sized Enterprises (SMEs) are more constrained to participate in export market than their large counterparts despite various export assistance provision by the government. Extant literature on SME internationalization mostly focus more on how non-exporting SMEs can become exporters than on how exporting SMEs can sustain and expand their export. This study aims to investigate the factors affecting SMEs' export intensity with reference to the case of Indonesia. Fractional-logit regressions were used to identify the influence of export-exhibiting factors, export-inhibiting factors, and firm and owner characteristics on SMEs' export intensity. The evidences were collected from 497 SMEs in seven provinces in Jawa, Madura and Bali regions. The findings show that SMEs' export intensity is affected by some firm characteristics including firm age and total employees. Export intensity is also affected by some exhibiting factors including owners' overseas and MNC/exporting firm work experience, central government agencies' assistance, network relationships with non-government actors, location, export market of choices and years of exporting. By contrast, export intensity is adversely affected by perceived difficulties in overcoming informational and human resources barriers, distribution, logistics and promotional barriers, financial barriers, foreign government barriers, procedural barriers and price barriers. The policy and managerial implications of the findings are discussed.

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1. Introduction

Firm internationalisation has been evident and rapid for at least over the last two decades. Despite no consensus on the precise definition of firm internationalisation, it can be perceived simply as a process of a firm's increasing involvement in international business operations (Welch & Luostarinen, 1999) or the process of adapting firm's operations (strategies, structures and resources) to international environments/markets (Calof & Beamish, 1995). However, a firm's engagement in international operations may take various forms including exporting, importing, investing abroad, licensing or cooperating with foreign firms. Hence, the broad definition of firm internationalisation includes inward, outward and cooperative international activities (Ruzzier, Hisrich, & Antoncic, 2006).

For example, during 2001-17 the world's merchandise export value had almost tripled from 6.1 to 17.4 trillion USD (ITC, 2018a) and during 2005-16 the global exports in services recorded nearly twofold increase from 2.52 to 4.83 trillion USD (ITC, 2018b). During 2001-14, the world's foreign direct investments (FDI) outward stocks rose more than 3.3 times from 7.77 to 25.87 trillion USD (UNCTAD, 2014, 2015). The steady growth of trade and FDI helped the global economy to sustain positive gross domestic product (GDP) growth (2.58% annual average), albeit being interrupted by the 2007–08 global financial crisis (World Bank,

2016). At the firm level, trade openness also helped a great number of firms worldwide to sustain their businesses and maintain growth and productivity (OECD, 2012).

However, the benefits of trade openness are not reaped equally among countries and enterprises. Despite the growing importance of developing countries in world trade, the 34 OECD member states still accounted for 56–60% of world merchandise export value during 2010–2017 (ITC, 2018a). At the firm level, large enterprises are more prepared to capitalise on trade opportunities compared to small and medium-sized enterprises (SMEs). For example, in the mid-2000s SMEs in the US, Switzerland, the Netherlands, United Kingdom, China and Japan only contributed 30–38% of their respective national exports (Hammer & Stamps, 2010). SMEs' contributions have also been modest in the more advanced modes of outward internationalisation (i.e. services export and outward FDI) (Adlung & Soprana, 2013; Dalli, 1995; Kogut & Chang, 1996).

SMEs' inability to exploit the gain from international trade amidst the rapid growth of global trade indicates that SMEs face greater impediments and different challenges to internationalize than large enterprises. Scholars' interest in firm internationalization emerged in the 1950s (Hymer, 1976) but only the later stream of research in this area has begun to pay more attention to smaller firms (i.e. SMEs) (Hollenstein, 2005; Onkelinx & Sleuwaegen, 2008). SME internationalization has been studied separately from gen-

eral firm internationalization because SMEs have particular characteristics such as smallness and limited resources that may constrict their international business activities (Laghzaoui, 2007; Ruzzier, Hisrich, & Antoncic, 2006).

SMEs' meagre export contributions are more prevalent in developing countries. For example, in ASEAN member states on average SMEs only accounted for 23% of total exports (Wignaraja, 2012).[1] In Indonesia, despite being a major source of GDP growth and job creation, SMEs' share in total non-oil and gas exports was minuscule at 9.3%. SMEs' inability to seize trade opportunity, along with Indonesia's increasing engagement in various free trade agreements (FTAs) which force local products to compete directly with cheap imported merchandise in the domestic market, may severely threaten SMEs' business sustainability in the future.[2]

In Indonesia, SMEs (including micro enterprises) play an important role in the economy, particularly as they have been major source of business establishments, employment opportunities and value added creation, and their contributions tend to rise over time.[3] During 2005-13 SMEs made up 99.99% of the total business entities, provided more than 97% of job opportunities and contributed around 56-59% of the Indonesian GDP (Ministry of Cooperatives and SMEs Republic of Indonesia, 2009b, 2010a, 2010b, 2013, 2014, 2015). By contrast, in the same period, SMEs only accounted for a small share of Indonesia's non-oil and gas exports. Further, despite SMEs' steady rise in total annual export value, their share in Indonesia's non-oil and gas exports continually shrank from around 18.5% in 2005–07 to 16.9% in 2008–10 and further down to 15.4% between 2011 and 2013.[4]

Thus, Indonesian SMEs are less able to take advantage of export opportunities from trade liberalization compared to their larger Indonesian counterparts (Wengel & Rodriguez, 2006). Indonesian SMEs also fare less well in export performance compared to SMEs in other ASEAN countries (Wignaraja, 2012) and perform far below SMEs in developed countries (Hammer & Stamps, 2010). SMEs' poor export performances persist despite various policy measures launched by the Government of Indonesia (GOI), including general assistance (such as access to credit, technical and managerial training) as well as specific export-related assistance (including trade promotion, business matching and

training in export procedures).

This study aims to analyse the internationalization of Indonesian SMEs, particularly their direct-export activities. There have been extensive researches on Indonesian SMEs but only a few shed lights on their internationalization, particularly their export activities. Of those few studies, they mostly focused on pre-export activities (i.e. how non-exporting SMEs can become exporters). For example, how SMEs' export is affected by human capital (Sari, Alam, & Beaumont, 2008), trade facilitation programmes (Tambunan, 2009b), industry clustering on exports (Tambunan, 2009a) and various export stimuli and export barrier factors (Revindo & Gan, 2017; Revindo, 2017, 2018; Revindo & Gan, 2016; Revindo, Gan, & Nguyen, 2015, 2017). With regard to post-export activities of Indonesian SMEs, to the extent of our knowledge there has been no particular study except one on export performance by Wengel & Rodriguez (2006). Given, the gap in the extant literature, this study aims to investigate Indonesian SMEs' post-export activities, especially the factors that determine Indonesian SMEs' export intensity.

Moreover, most of the extant literature has partially looked at SMEs in certain regions, sectors or industries in Indonesia. For example, Sari (2011) examined the internationalisation of manufacturing firms while Jane (2013), Zubadi & Nugroho (2012) and Roida & Sunarjanto (2012) studied the case of firm internationalisation in Bandung City, Magelang Regency, and Jawa Timur Province, respectively. By contrast, this study covers SMEs in seven provinces in Java, Madura and Bali Islands where approximately 60% of Indonesian SMEs operate (Kuncoro, 2009) and includes SMEs in various sectors/products.

For policy makers/regulators, the findings of this study are beneficial for the government of Indonesia as well as the governments in other developing countries to foster SMEs' exports and SMEs' competitiveness in international markets. In particular, the findings of this study provide more insight into the formulation of general strategy and policy measures to assist SMEs to speed up their internationalization, or to sustain or expand their current international business activities. Hence, the findings of this study pave the way for further research in this area aimed at formulating specific and detailed policy-mix and measures in particular industry or region.

At the managerial level, the study will enhance SME owners' and managers' understanding of the internationalization processes and strategies and lessons learned from successful exporters. SMEs' managerial team can also learn how to utilise various networking sources and government export assistance to help them escalate their international business activities.

The remainder of the article is organized as follows. Section 2 reviews the theoretical and empirical literature on SME internationalization, especially on export performance and export intensity. Section 3 presents the study area, the data collection procedures and the data analysis methods. Section 4 provides the empirical results of the descriptive statistics, the principal component analysis and the regression analysis. Section 5 concludes with a summary of the main research findings and the research implications, followed by the limitations of the research and recommen-

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[1] The Association of Southeast Asian Nations (ASEAN) is a regional economic and political cooperation organisation that was founded in 1967 and currently comprises ten member states namely Indonesia, Malaysia, Philippines, Singapore, Thailand, Brunei Darussalam, Viet Nam, Lao PDR, Myanmar, and Cambodia.

[2] As of May 2018, Indonesia had nine FTAs in effect, including ASEAN (1993), ASEAN-China (2010), ASEAN-Australia and New Zealand (2010), ASEAN-India (2010), ASEAN-Japan (2008), ASEAN-Korea (2007), Indonesia-Japan (2008), Group of Eight Developing Countries (2011) and Indonesia-Pakistan (2013). Indonesia also has ongoing negotiations with several other regional and bilateral FTAs.

[3] Prior to the implementation of the Law No. 20 (2008) on Micro, Small and Medium-Sized Enterprise, the "Small-sized Enterprise" term generally included small and micro-enterprises. For the distinction between small and micro-enterprises, see Section 3.1.

[4] If oil and gas exports are included, SMEs' and micro-enterprises' contribution might be even lower since oil and gas exports are performed by large state-owned enterprises. Hence, this figure supports Wignaraja (2012) that Indonesian SMEs' contribution to total exports was actually 9.3%.

dations for future study.

2. Literature Review

SMEs confront complex challenges in exporting, thus the effectiveness of export-related policies and assistance requires a comprehensive understanding of SMEs' export activities. The extant literature provide a comprehensive analysis and evidence of SMEs at pre-export stage including the export stimulating factors (Acedo & Galán, 2011; Leonidou, 1995b; Morgan, 1997; Morgan & Katsikeas, 1997; OECD, 2009), export barriers (European Commission, 2010; Leonidou, 1995a, 2004; Morgan, 1997; OECD-APEC, 2006; OECD, 2009), internationalization processes and strategies (Andersen, 1993; Cavusgil, 1980; Melén, 2009; Nguyen, Le, & Bryant, 2013; Thai, 2008), as well as the role of the government and network relationships in assisting SMEs to export (Kontinen & Ojala, 2012; Korhonen, Luostarinen, & Welch, 1996; Rodrigues & Child, 2012; Shamsuddoha, Ali, & Ndubisi, 2009; Wilkinson & Brouthers, 2006).

The ability of SMEs to export is one of the hallmarks of a country's successful effort to foster SME internationalization. However, the challenges and obstacles of exporting prevail upon the firm's entry into foreign markets. SMEs that successfully enter foreign markets may have difficulties in sustaining or expanding their exports; thereby exporting SMEs differ in their export performances. For example, an exporter may have higher export revenue or higher export intensity (share of export revenue in total revenue) than other exporters and the export intensity may range from as low as 1% to as high as 100%.

Hence, understanding the factors that affect the firm's export performance (export sustainment and development) and its behaviour in the foreign markets is simply as important as understanding the factors that trigger a firm to initiate export activities (Sousa, Martínez-López, & Coelho, 2008). Extant literature highlights two key issues particularly related to SMEs at the post-export stage: export performance (Dhanaraj & Beamish, 2003; Hart & Tzokas, 1999; Robertson & Chetty, 2000; Sousa, Martínez-López, & Coelho, 2008; Wengel & Rodriguez, 2006) and the impact of export engagement on SMEs' performances (Ganotakis & Love, 2012; Hitt, Hoskisson, & Kim, 1997; Lu & Beamish, 2001, 2004, 2006; Singla & George, 2013).

This study focuses on SMEs' post-export activities, especially their export performance. In general, there are two conceptual frameworks that have been widely used to examine export performance (Sousa, Martínez-López, & Coelho, 2008). The first framework is drawn from the *resource-based* view with a focus on the firm's internal factors that influence export performance while the second framework is the *contingency paradigm* that brings more explanations on external determinants. *The resource-based* view approach focuses on how a set of firm's unique resources creates and sustains competitive advantage (Conner & Prahalad, 1996; Wilkinson & Brouthers, 2006). A firm can be perceived as a collection of physical and human resources and therefore variations in performance across firms can be explained by the heterogeneity in these resources and capabilities (Makadok, 2001). A firm may perform better than other

firms in the same industry and market if that firm possesses and exploits its unique resources (Dhanaraj & Beamish, 2003). Correspondingly, in the context of internationalization *the resource-based view* suggests that a firm's export performance is determined by the firm's characteristics such as size, experience and production techniques (Zou & Stan, 1998).

A rather different view on export performance is offered by *the contingency paradigm* that is based on the *structure–conduct–performance* (SCP) framework commonly used in industrial organization analysis (Cavusgil & Zou, 1994; Zou & Stan, 1998). The SCP framework argues that an organization's resources is dependent on its environments and that the organization develops and maintains appropriate strategies to manage the dependence (Sousa, Martínez-López, & Coelho, 2008). Hence, in the context of internationalization it is the environmental factors specific to the firm that determine the firm's characteristics and internationalization strategies which in turn affect the firm's export performance. In other words, *the contingency paradigm* views that export engagement is a firm's strategic response to its internal and external factors (Robertson & Chetty, 2000; Yeoh & Jeong, 1995).

However, rather than emphasizing on the comparison and selecting the most appropriate of the two conceptual frameworks, Sousa, Martínez-López, & Coelho (2008) suggest the incorporation of them into a comprehensive framework to analyse the export performance. Figure 1 illustrate how the firm's export performance is affected by internal and external factors. The internal factors consist of export marketing strategy (e.g. product, price, promotion, distribution, service and networking strategies), firm characteristics (e.g. size, international experience, capabilities/competencies, industrial sector/product type, organizational culture, ownership structure, and production management) and management characteristics (e.g. age, education, innovativeness, international exposure and export commitment). The external factors consist of foreign market characteristics (e.g. legal, political and economic systems, cultural similarity, market dynamics, customer and competitor behaviour) and domestic market characteristics (such as government export support and domestic business environment).

The hybrid model given in Figure 1, however, has not been used or tested as most of the previous studies adopted either *the resource-based view* or *the contingency paradigm*. For example, the importance of internal factors in export performance (the resource-based view approach) were reported in the US manufacturing SMEs (Wilkinson & Brouthers, 2006), US and Canadian SMEs (Dhanaraj & Beamish, 2003), British SMEs (Hart & Tzokas, 1999), Portuguese firms (Lages, Silva, & Styles, 2009) and Spanish SMEs (Stoian, Rialp, & Rialp, 2011). Whereas, *the contingency paradigm* has been evident In the US firms (Cavusgil & Zou, 1994), Greek firms (Liargovas & Skandalis, 2008) and the New Zealand apparel industry (Robertson & Chetty, 2000). Moreover, there is limited evidence on firms' export performance, especially SMEs, with reference to developing countries. With regard to Indonesia, Wengel & Rodriguez (2006) investigated the export performance of Indonesian firms with a large number of determinants but the study
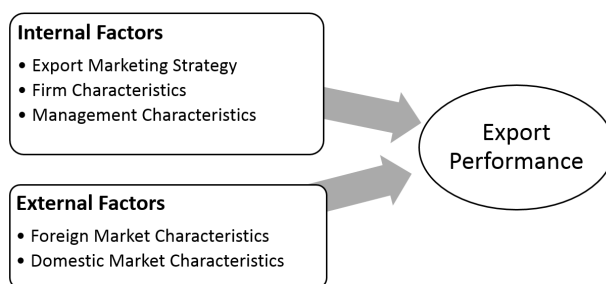
Figure 1. Export Performance, a Conceptual Framework
Source: Sousa, Martínez-López, & Coelho (2008)

lacked a conceptual framework.

3. Data and Methods

3.1 Data

This study focuses on small-sized and medium-sized enterprises (SMEs) and excludes micro-sized and large-sized enterprises.[5] Among various definitions of firm by size, three definitions are widely used in Indonesia:

1. The Ministry of Cooperatives and SMEs defines SMEs as enterprises with assets valued at IDR50 million–IDR10 billion (equivalent to USD3,846.15–USD769,230.77) or with an annual turnover of IDR300 million–IDR50 billion (equivalent to USD23,076.9–USD3,846,153.8) ("*Undang-undang No. 20 Tahun 2008 tentang Usaha Mikro Kecil dan Menengah* [Law on Micro, Small and Medium-Sized Enterprise Number 20 of 2008].", 2008).[6]
2. BPS-Statistics Indonesia (2014a) defines SMEs as enterprises with 5–99 employees.
3. The Ministry of Finance broadly classifies firm size into small business and non-small business (Ministry of Finance Republic of Indonesia, 2013). Small business refers to an enterprise with annual turnover of maximum IDR4.8 billion (approximately equivalent to USD369,230.8) while non-small business refers to an enterprise with annual turnover value of more than IDR4.8 billion.

During the pilot survey, we found that at the practical level the identification of SMEs' assets and turnover value was difficult, laborious and potentially inaccurate. SMEs' asset valuation requires a complex appraisal method and SMEs' turnover estimations are not always available due to the poor bookkeeping. Hence, this study refers to the definition of SMEs by number of employees (5 to 99) used by BPS-Statistic Indonesia. Despite its applicability, it is worth noting that this definition also has shortcomings. Most notably, the SME definition by number of employees has potential bias towards capital-intensive industries. For example, this definition potentially includes some large-scale enterprises in capital-intensive industries that employ a small number of employees, but excludes medium-scale

enterprises in labour-intensive industries that employ large numbers of workers.

The total number of SMEs in Indonesia was estimated at 706,380 units in 2013 (Ministry of Cooperatives and SMEs Republic of Indonesia, 2015), approximately 60% of which are concentrated in only 3 islands; Jawa, Madura and Bali (Kuncoro, 2009; Wiratno & Dhewanto, Undated). This imbalanced SMEs' distribution largely reflects the economic agglomeration pattern in Indonesia that causes economic activity to be largely concentrated in those three closely related islands. The three islands consist of only seven provinces and constitute only 7.07% of the country's total land area but are inhabited by 57.5% of the country's total population and generate over 58% of the country's total GDP/value added (BPS-Statistics Indonesia, 2014b). Hence, the target population of this study is the SMEs that operate in seven provinces in Java, Madura and Bali islands. The three islands also have better transportation and communication infrastructure than the rest of the country, allowing better access to survey a large number of SMEs that are spread throughout the islands within the time and budget constraints.

In order to construct the sample frame, we merged four different databases into one list of SMEs from which the samples were picked. The first three databases were published by the Ministry of Cooperatives and SMEs including: (1) the Ministry of Cooperatives and SMEs' online trading board[7]; (2) *SME and Cooperative Indonesia Catalogue* (Ministry of Cooperatives and SMEs Republic of Indonesia, 2011, 2012)[8]; and (3) Exporting SMEs Directory book (Ministry of Cooperatives and SMEs Republic of Indonesia, 2009a)[9]. The fourth database is the Indonesian 2006 Economic Census provided by BPS-Statistics Indonesia.[10]

SMEs were drawn randomly from the sample frame and the survey targeted at least 385 samples (the total calculated sample size) but the total sample size was expanded

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[5]Micro enterprises are excluded for two reasons. First, the micro enterprises database is unavailable in Indonesia as they are mostly in the form of individual businesses or home industries. Second, micro enterprises are less likely to engage in international business (Pendergast, Sunje, & Pasic, 2008).

[6]The exchange rate is assumed at IDR13,000/USD.

[7]Online promotion at the website of the Ministry of Cooperatives ad SMEs, http://www.indonesian-products.biz.

[8]The catalogue provides SMEs' contacts and products description in four languages (English, Arabic, Japanese and Indonesian). The catalogue is published annually as part of the ministry's promotion program.

[9]The directory books listed all SMEs that participated in international trade shows organised by the Ministry of Cooperatives and SMEs' during 2005–2009.

[10]The BPS-Statistics Indonesia (National Agency for Statistics) performs economic censuses every ten years. When the survey for this study was conducted in 2014, the most recent census was the 2006 national census while the next census will be conducted in 2016 and published in 2018.

by approximately 25% to increase the sample sufficiency.[11] The sample of SMEs was collected through a survey questionnaire conducted in seven provinces in Jawa, Bali and Madura Islands during April-August 2014.[12] During the survey period, 971 SMEs were contacted and approached, 522 of which were willing to participate in the survey (a response rate of 53.76%). A total of 497 responses were useable, and the remaining 25 responses were non-useable due to incomplete responses. The collected samples have a wide variation of export intensity, ranging from 0% (non-exporting SMEs) to 100% (SMEs whose entire products are exported).

Table 1. Sample Distribution by Province

Province	Count	%
Banten	15	*3.0*
DKI Jakarta	100	*20.1*
Jawa Barat	39	*7.8*
Jawa Tengah	41	*8.2*
DI Yogyakarta	59	*11.9*
Jawa Timur	185	*37.2*
Bali	58	11.7
Total	**497**	*100.0*

Source: Author's calculation based on survey data

Table 1 shows the distribution of the sample by province. A large number of responses were collected from Jawa Timur Province (185 SMEs, including Madura Island) and DKI Jakarta Province (100 SMEs). Both provinces are highly populated and industrialized. The remaining 212 respondents were distributed in the remaining five provinces (Banten, Jawa Barat, Jawa Tengah, DI Yogyakarta, and Bali).

Table 2 shows the distribution of surveyed SMEs by their products. Seventy-four SMEs produce more than one type of product (multi products) while the remaining 423 SMEs specialise in a specific type of product, with the largest number in handicrafts (91 SMEs) and the lowest number in machinery components (18 SMEs).

A set of structured questionnaires with close-ended questions were developed and translated into *Bahasa Indonesia*. Before the SME survey was administered, the questionnaire was piloted randomly to 25 SMEs in the Greater Jakarta region. The pre-test was carried out to ob-

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[11]The population of SMEs in the study area (N) is approximated to be around 423,828 (approximately 60% of the total Indonesian SME population of 706,380). Owing to this large size of the target population, the sample size (n) is not expected to exceed 5% of the population (less than 21,191 SMEs) due to time and budget constraints. Hence, the following sample size formula for an infinite population is appropriate (Anderson, Sweeney, & Williams, 2010; Crossley, 2008; Lee, Lee, & Lee, 1999): $n = \left(\frac{(Z_{\alpha/2})\sigma}{MOE}\right)^2$, where n is the sample size; $Z_{\alpha/2}$ is the value of the two-sided confidence interval in normal distribution, δ represents the variation of the variable of interest and *MOE* is the desired margin of error. Assuming that $Z_{\alpha/2} = 1.96$ (corresponds to a 95% confidence interval), response distribution $\sigma = 0.5$, $MOE = 0.05$, and N = 423,828, the calculated sample size is 385. However, the sample size was increased by at least 20% (to at least a total sample of 461) to anticipate insufficiency and incomplete responses.

[12]Despite having 34 provinces, Indonesia's economy is largely concentrated in seven provinces located in Jawa, Bali, and Madura Islands. As of 2013, the seven provinces generated over 58% of total GDP, inhabited by 57.5% of total population and populated by approximately 60% of total SMEs in Indonesia (BPS-Statistics Indonesia, 2014b).

Table 2. Sample Distribution by Product

Products	Count	%
Agricultural Products	31	*6.2*
Food & Beverages	56	*11.3*
Furniture	80	*16.1*
Handicrafts	91	*18.3*
Garments	69	*13.9*
Leather Products & Fashion Accessories	32	*6.4*
Household Utensils	27	*5.4*
Machinery Components	18	*3.6*
Other Products	19	*3.8*
Multi Products	74	*14.9*
Total by Export Status	**497**	*100.0*

Source: Author's calculation based on survey data

tain feedback to improve the content of the questions and the instructions, clarity, and layout of the questionnaire. The pre-test also gave important feedback on the questionnaire translation from English to *Bahasa Indonesia*. Response to the SME survey questions required a good knowledge of the enterprises' operational activities and therefore the questionnaires were administered to SMEs' owners or managers.

3.2 Estimation Method

Export performance is represented by export intensity, calculated as the ratio of export revenue to the total revenue (Bianchi & Wickramasekera, 2016; Calabrò & Mussolino, 2013; Majocchi, Bacchiocchi, & Mayrhofer, 2005). Accordingly, a regression analysis is performed to estimate the determinants of SMEs' export intensity. Table 3 describes the independent variables used to estimate SMEs' export intensity and their expected signs (the hypothesized relationship between the independent variables and SMEs' export intensity). In general, three groups of determinants are employed: export-enhancing factors, export-inhibiting factors and SMEs' characteristics (Shih & Wickramasekera, 2011).

Export-enhancing factors or stimuli are crucial for SMEs to sustain and expand the export (post-export stage) (Acedo & Galán, 2011; Morgan & Katsikeas, 1997). We consider SME owners' international exposure, external assistance, types of products, location and target markets as the factors that may enhance SMEs' export intensity.

SME owners/managers' international experience and exposure are expected to have a positive effect to SMEs' export intensity. An internationally experienced management team has greater probability of building a business partnership with foreign distributors or buyers (Reuber & Fischer, 1997). Overseas living or working experiences positively correlate with information gathering or market intelligence (Williams & Chaston, 2004). A management team with international experience is also likely to have more personal contacts in foreign markets (Andersen, 2006). In our model, we use three variables to represent international exposure including overseas study experience (*OwnerStudyAbroad*), overseas training or short courses experience (*OwnerTrainAbroad*) and overseas work experience (*OwnerWorkAbroad*). In addition, we also consider owners/managers' MNC or exporting firms work experience (*OwnerWorkMNC*) to have the same effect on export intensity as overseas work experience.

SMEs' probability of intensifying their export activities

is expected to be enhanced by government export assistance (Demick & O'Reilly, 2000; Francis & Collins-Dodd, 2004; Shamsuddoha, Ali, & Ndubisi, 2009; Wilkinson & Brouthers, 2006). We use *GovCentral_Assist* to represent various types of export assistance provided by central government agencies. These include international trade fairs (international shows, exhibitions and expos), SME catalogue publications, technical training (including specific production processes, packaging, logistics, or machinery aimed at specific markets), managerial training (such as business planning, marketing, cultural differences awareness, language skills and knowledge of export procedures), and financial support (including export financing, export insurance and export guarantees). In addition, we use *Govt-Local_Assist* to represent various export assistance provided by provincial, municipal or regency government agencies. These include technical training, managerial training, grants of equipment, grants of capital, and trade fairs.

We expect assistance provision by external non-governmental actors in the network to positively affect SMEs' probability to increase their export activities (Demick & O'Reilly, 2000; Levy, Berry, & Nugent, 1999; Zain & Ng, 2006; Zhou, Wu, & Luo, 2007). Hence, *NonGovt_Assist* represents financial, technical, managerial and promotional assistance received by SMEs from various non-governmental actors in the network. These include informal network sources (family, relatives, business associates and emigrant communities) or formal non-governmental sources (including business chambers/ associations, SOEs and universities/research institutes).

SMEs are expected to have higher export intensity if they export to ASEAN markets (regardless of whether they also export to other markets), due to the ASEAN free trade agreement that took effect in 1992. Hence, we add *ExportASEAN* (whether ASEAN is one of SMEs' destination markets), as an enhancing factor. We also add *YearsExporting* (number of years the SMEs have been exporting at the time of the survey) and hypothesise it to have a positive effect on export intensity. As SMEs accumulate export experience, they also accumulate foreign market knowledge that might be crucial for export development (Ciszewska-Mlinaric, 2016).

We expect SMEs' export intensity to correlate with type of product, despite the extant literature being not fully conclusive on the direction of the relationship. It has been argued that SMEs have a better chance of increasing export activities if they produce merchandise that is already demanded in foreign markets (buyer effect) and therefore many SMEs imitate the types of products (copying/imitation effect) (Wengel & Rodriguez, 2006). Conversely, it has been argued that product uniqueness can be one of SMEs' sources of competitive advantage in foreign markets (Barney, 1991; Chatterjee & Wernerfelt, 1991). In our model, *ProductXNational* represents type(s) of product's share in Indonesia's total national non-oil and gas exports. We expect SMEs to have a higher export intensity if they produce a type of merchandise that is already among Indonesia's main non-oil and gas exports.

We hypothesise that SMEs' export intensity is affected by their location (province). We expect that SMEs which operate in a province with a large contribution to Indonesia's total non-oil and gas exports are more likely to have high export intensity. Geographical agglomeration of exporters allows positive externalities, mainly in information spill overs (Silvente & Giménez, 2007), and access to export related services/infrastructure (Freeman, Styles, & Lawley, 2012).

Beside export-enhancing factors, export-inhibiting factors barriers are also crucial at the exporting stage (to sustain and expand exporting), despite of the opposite effect on the SMEs (Bilkey & Tesar, 1977; Leonidou, 2004; OECD-APEC, 2006). The export inhibiting factors are represented by the perceptions on the severities of various types of export barriers. Section 3.3 discusses the 50 types of export barriers that we used in the survey. We expect each type of export barrier to have negative correlations with SMEs' export intensity. The more difficult SMEs perceive a type of export barrier, the less likely they have high export intensity. However, we first reduce the 50 export barrier items into a smaller number of variables underlying broader dimensions of export barriers using the Principal Component Analysis (see Section 3.3). The summated scales/factor scores for each extracted and retained factor/component are calculated and used as input data in the regression model.

Two firm characteristics are used in our export intensity model. Firm age is hypothesised to have a positive effect on export intensity (Brush, 2012). As SMEs accumulate operational experience, they may accumulate capital or creditworthiness and establish an administrative structure and decision-making process. In addition, the number of employees is expected to have a positive effect on export intensity. Employees are crucial when SMEs need to upgrade the product quality and meet foreign buyers' requirements (Ottaviano & Martincus, 2011).

Our model also controls three owner characteristics (gender, age and education). Owners' age and education are hypothesised to have positive correlations with export intensity (Cavusgil & Naor, 1987; Obben & Magagula, 2003). However, the relationship between gender and export intensity is still inconclusive. On the one hand, it has been argued that female owners are less encouraged to expand the business beyond the domestic market and are less likely to have international experience (Orser et al., 2010). On the other hand, Welch, Welch, & Hewerdine (2008) argue that female business owners have some gender-specific characteristics that may be valuable in export activities, such as patience, persistence, paying attention to detail and being passionate about the business.

Three explanatory variables that represent external assistance received by SMEs, namely *GovCentral_Assist* (export assistance by central government agencies), *GovtLocal_Assist* (export assistance by provincial, regency and municipal government agencies, and *NonGovt_Assist* (export assistance by non-government agencies), deserves further attention. These variables may give rise to endogeneity problem if the external actors (mainly the government agencies) tend to assist the performing SMEs (picking the winners). However, the exogeneity of those variables can be assumed because in our survey we observed that a large number of assistance were provided to SMEs with low export intensity (including non-exporting SMEs).

The export intensity model is expressed in the following

Table 3. Independent Variables for Export Intensity Estimation

Variables	Description	Priori Sign
Enhancing Factors		
OwnerStudyAbroad	SME owner's overseas study experience, where 1 if SME owner ever studied overseas, 0 otherwise	+
OwnerTrainAbroad	SME owner's training/short courses experience, where 1 if SME owner ever had training/short courses overseas, 0 otherwise	+
OwnerWorkAbroad	SME owner's overseas work experience, where 1 if SME owner previously worked overseas, 0 otherwise	+
OwnerWorkMNC	SME owner's MNC/exporting firm work experience, where 1 if SME owner previously worked with MNC or exporting firms, 0 otherwise	+
GovCentral_Assist	1 if SME received either promotional, business management, finance or production assistance from any central government agencies	+
GovtLocal_Assist	1 if SME received technical or managerial training, grants or promotional assistance from any local (provincial, regency or municipal) government agencies	+
NonGovt_Assist	1 if SME received any type of assistance from either business associations/chambers, universities/research institutes, private companies/SOEs, business partners/associates, family/relatives or Indonesian emigrant communities	+
ExportASEAN	SME's export destination, where 1 if SME exports to one or more ASEAN countries (regardless of whether the SME also exports to Non-ASEAN markets or not), 0 otherwise	+
YearsExporting	Number of years the SME had been exporting at the time of the survey	+
ProductXNational	SME's type(s) of product's share in Indonesia's total national non-oil and gas exports	+
ProvinceXNational	Province's share in Indonesia's total national non-oil and gas export	+
Inhibiting Factors		
Export Barriers	Factor scores/summated scale of export barrier components/ dimensions resulting from the principal component analysis.	-
SMEs Characteristics		
FirmAge	Number of years the firm has been operating by the time of the survey since the firm's establishment	+
TotalEmployee	Total number of employees	+
OwnerGender	Owner's gender, where 1 = male, 0 = female	+/-
OwnerAge	Owner's age at the time of the survey	+
OwnerEducation	Owner's educational attainment, where 1 = primary school or no formal education, 2 = junior or senior high school, 3 = college, diploma or vocational school, 4 = bachelor degree, 5 = postgraduate degree	+

equation:

$$E(EXINTEN_i|X_i) = \alpha + \sum_{j=1}^{n} \beta_j STIMULI_{ij}$$

$$+ \sum_{k=1}^{p} \gamma_k BARRIERS_{ik}$$

$$+ \sum_{l=1}^{q} \delta_l FIRM_{il} + \varepsilon_i \qquad (1)$$

where $EXINTEN_i$ is firm i's export intensity with fractional/proportional values in the unit interval, i.e. $EXINTEN_i \in [0,1]$; $STIMULI_{ij}$ is a vector of export stimuli; $BARRIERS_{ik}$ is a vector of export barriers; $FIRM_{il}$ is a vector of firm characteristics; and ε_i is the error term. The notations n, p, and q represent the total number of variables representing export stimuli, export barriers and firm characteristics, respectively. The symbols α, β, γ, and δ represent the constant and the vector of coefficients for the export stimuli export barriers and firm characteristics, respectively.

Owing to the fractional nature of the target variable (export intensity), OLS and binary logit regression models are not appropriate estimation methods (Papke & Wooldridge, 1993, 2008). OLS cannot ensure the predictions fall within the unit interval (within the 0–1 range). The log-odds ratio model requires adjustment for all observations taking on extreme values 0 and 1. Instead, we adopt a fractional logit model, which can overcome OLS and log-odds methods' shortcomings in modelling proportion/fraction. Moreover, it allows for direct estimation of the desired fractional response variable and it only requires that the conditional mean be specified correctly to obtain consistent parameter

estimates, as follows:

$$\mathbf{E}(\mathbf{EXINTEN}|\mathbf{x}) = \frac{\exp(x\beta)}{1 + \exp(x\beta)} = \Lambda(x\beta) \qquad (2)$$

where $\Lambda(.)$ denotes the logistic cumulative distribution function of export intensity, specified by $P_i = P\{EXINTEN_i = 1|X_i; \beta\}$, and $EXINTEN_i \in [0,1]$, which differs from binary logit that limits y to values of 0 or 1. Accordingly, the maximum likelihood estimation technique (MLE) is not appropriate for a fractional logit model because it is not robust to distributional failure. Rather, the following quasi-MLE method is considered:

$$L_i = \sum_{n=1}^{N} EXINTEN_n \ln P_n$$

$$+ \sum_{n=1}^{N} (1 - Y_n) \ln(1 - P_n) \qquad (3)$$

3.3 Principal Component Analysis

The export inhibiting factors are represented by the perceptions on export barrier difficulties. We identify fifty specific export barrier types/items, previously developed by OECD-APEC (2006), Leonidou (2004) and OECD (2012). Table 4 shows the fifty export barrier items that we used in the survey and the typology of each item.

We expect each type of export barrier to have negative correlations with SMEs' export engagement. The more difficult SMEs perceive a type of export barrier, the less likely they are to become exporters. In the survey, all respondents were asked to indicate how serious/difficult each export barrier item in SMEs' export activities was in a three-point Likert-scale. The Likert-scale ranges from "not difficult"

(response alternative 1), "difficult" (response alternative 2) to "very difficult" (response alternative 3).[13]

The three-point Likert-scale is used because during the pilot study the respondents had difficulties when given five-point and seven-point Likert-scale. Jacoby & Matell (1971) argued that three-point Likert scale are sufficient to capture the variation of non-dichotomous response. In addition, Matell & Jacoby (1971) proved that the number of scale points are independent to the reliability and validity of the measurement.

The advantages and disadvantages of this type of unbalanced Likert-scale without mid-point neutral scale has been well addressed in the literature. The unbalanced scale points can cause biasedness if the questions are controversial or sensitive to the local socio-cultural or political norms, in which the respondents tend to give answers that are socially more acceptable (Garland, 1991; Johns, 2010). By contrast, the topic of this study is neither politically nor socio-culturally sensitive and during the pilot study the respondents showed a strong tendency to choose the neutral scale when the mid-point scale option is available. Hence, the three-point Likert scale without mid-point was used to force a choice without sacrificing the reliability, validity and unbiasedness principles.[14]

However, we first reduce the 50 export barrier items into a smaller number of variables underlying broader dimensions of export barriers using the Principal Component Analysis (PCA). The summated scales/factor scores for each extracted and retained factor/component are calculated and used as input data in the regression model. Following the PCA procedure explained by Rencher (2012), Tufféry (2011), Abdi & Williams (2010) and PSU (2017), we can reduce the dimensions of export barriers as follows. We initially have a vector of 50 export barrier items:

$$\mathbf{B} = (\mathbf{b_1}, \mathbf{b_2}, \cdots, \mathbf{b_{50}}) \tag{4}$$

The population variance-covariance matrix of the vector is given by:

$$\mathbf{var}(\mathbf{B}) = \sum = \begin{pmatrix} \sigma_1^2 & \sigma_{12} & \cdots & \sigma_{150} \\ \sigma_{21} & \sigma_2^2 & \cdots & \sigma_{250} \\ \vdots & \vdots & \ddots & \vdots \\ \sigma_{501} & \sigma_{502} & \cdots & \sigma_{5050}^2 \end{pmatrix} \tag{5}$$

Consider the following linear relationships/equations:

$$Z_1 = a_{11}b_1 + a_{12}b_2 + \cdots + a_{150}b_{50}$$
$$Z_2 = a_{21}b_1 + a_{22}b_2 + \cdots + a_{250}b_{50}$$
$$\vdots$$
$$\mathbf{Z_{50}} = \mathbf{a_{501}b_1} + \mathbf{a_{502}b_2} + \cdots + \mathbf{a_{5050}b_{50}} \tag{6}$$

Each of the relationships above can be viewed as a linear regression equation that predicts Z_i from the export barrier variables $b_1, b_2, \cdots, b_{50}$. Accordingly, $a_{i1}, a_{i2}, \cdots, a_{i50}$ can represent the regression coefficients.

Z_i is random because it is a function of random variable $b_1, b_2, \cdots, b_{22}$. Hence, its population variance is given by:

$$var(Z_i) = \sum_{k=1}^{50} \sum_{l=1}^{50} a_{ik}a_{il}\sigma_{kl} = A_i' \sum A_i \tag{7}$$

where A_i is a vector, $A_i = (a_1, a_2, \cdots, a_{50})$. Consequently, Z˙i and Z˙j have the following population covariance:

$$cov(Z_i, Z_j) = \sum_{k=1}^{50} \sum_{l=1}^{50} a_{ik}a_{jl}\sigma_{kl} = A_i' \sum A_j \tag{8}$$

We aim to obtain the first principal component of export barriers (Z_1), which is a linear combination of b-variables (barriers) and that has maximum variance among all linear combinations. Maximum variance is required for Z_1 to explain as much export barriers variation as possible. To obtain a unique solution for Z_1, we must define the regression coefficients $a_{11}, a_{12}, \cdots, a_{150}$ that maximise Z_1's variance:

$$var(Z_1) = \sum_{k=1}^{50} \sum_{l=1}^{50} a_{1k}a_{1l}\sigma_{kl} = A_1' \sum A_1 \tag{9}$$

Subject to the constraint that the sum of the squared coefficients is equal to 1:

$$A_1' A_1 = \sum_{j=1}^{50} a_{1j}^2 = 1 \tag{10}$$

This first principal component of export stimuli (Z_1) retains the largest amount of variation in the sample.

Accordingly, to obtain the ith principal component of export barriers (Z_i), we must define the regression coefficients $a_{i1}, a_{i2}, \cdots, a_{i50}$ that maximise Z˙i's variance:

$$var(Z_i) = \sum_{k=1}^{50} \sum_{l=1}^{50} a_{ik}a_{il}\sigma_{kl} = A_i' \sum A_i \tag{11}$$

Subject to the constraint that the sum of the squared coefficients is equal to 1:

$$A_i' A_i = \sum_{j=1}^{50} a_{ij}^2 = 1 \tag{12}$$

We also add another constraint that Z_i is uncorrelated with all previously defined principal components of export stimuli. Formally:

$$cov(Z_1, Z_i) = \sum_{k=1}^{50} \sum_{l=1}^{50} a_{1k}a_{il}\sigma_{kl} = A_1' \sum A_i = 0$$

$$cov(Z_2, Z_i) = \sum_{k=1}^{50} \sum_{l=1}^{50} a_{2k}a_{il}\sigma_{kl} = A_2' \sum A_i = 0$$

$$\vdots$$

$$cov(Z_{i-1}, Z_i) = \sum_{k=1}^{50} \sum_{l=1}^{50} a_{i-1,k}a_{il}\sigma_{kl} = A_{i-1}' \sum A_i = 0 \tag{13}$$

Hence, all principal components obtained with the PCA are uncorrelated with one another. In addition, the ith principal component of export stimuli retains the ith largest fraction of variation in the sample.

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[13]For the use of a three point scale without a neutral scale in the survey for export barrier survey questions, see OECD (2012).

[14]For the use of the three-point Likert-scale without a neutral scale/mid-point, see OECD (2012).

Table 4. Export Barrier Items Used in the Survey

	Export Barrier Items	Types of Barriers
B1	Obtaining information about potential markets	Internal – Informational Barriers
B2	Obtaining reliable data on target markets' economy	Internal – Informational Barriers
B3	Identifying business opportunities in target markets	Internal – Informational Barriers
B4	Contacting potential customers in target markets	Internal – Informational Barriers
B5	Devoting managerial time to deal with export activities	Internal – Human Resource Barriers
B6	Inadequate quantity and capability of personnel	Internal – Human Resource Barriers
B7	Shortage of working capital	Internal – Financial Barriers
B8	Shortage of investment capital	Internal – Financial Barriers
B9	Shortage of export insurance	Internal – Financial Barriers
B10	Granting credit facilities or payment delay to foreign customers	Internal – Financial Barriers
B11	Developing new products suitable for foreign markets	Internal – Marketing Barriers
B12	Adapting product design/style demanded by foreign customers	Internal – Marketing Barriers
B13	Meeting foreign product quality/standards/specifications	Internal – Marketing Barriers
B14	Offering satisfactory prices to foreign customers	Internal – Marketing Barriers
B15	Matching competitors' prices in target markets	Internal – Marketing Barriers
B16	Lack of excess production capacity for exports	Internal – Marketing Barriers
B17	Establishing/using distribution channels in target markets	Internal – Marketing Barriers
B18	Obtaining reliable representation in foreign markets	Internal – Marketing Barriers
B19	Supplying inventory abroad	Internal – Marketing Barriers
B20	Excessive export transportation and insurance costs	Internal – Marketing Barriers
B21	Offering technical/after-sales service in target markets	Internal – Marketing Barriers
B22	Adjusting promotional activities to the target markets	Internal – Marketing Barriers
B23	Unfamiliar exporting procedures/paperwork	External – Procedural Barriers
B24	Communicating with overseas customers	External – Procedural Barriers
B25	Slow collection of payments from abroad	External – Procedural Barriers
B26	Enforcing contracts/resolving disputes in target markets	External – Procedural Barriers
B27	Lack of home government export assistance/incentives	External – Governmental Barriers
B28	Unfavourable home country's export rules and regulations	External – Governmental Barriers
B29	Restriction of asset ownership in target markets	External – Governmental Barriers
B30	Unequal treatment in tax/eligibility to affiliate in target markets	External – Governmental Barriers
B31	Restriction on the movement of people in target markets	External – Governmental Barriers
B32	Unequal treatment in business competition law in target markets	External – Governmental Barriers
B33	Sophisticated target markets' laws/ regulations	External – Governmental Barriers
B34	Different foreign customer attitudes/habits	External – Task Barriers
B35	Stiff competition in target markets	External – Task Barriers
B36	Economic fluctuations in target markets	External – Environmental Barriers
B37	High risks of foreign currency	External – Environmental Barriers
B38	Unfamiliar business practices in target markets	External – Environmental Barriers
B39	Different socio-cultural traits	External – Environmental Barriers
B40	Verbal/nonverbal language differences	External – Environmental Barriers
B41	Lack of e-commerce infrastructure in target markets	External – Environmental Barriers
B42	Political instability in target markets	External – Environmental Barriers
B43	Negative image of Indonesia or Indonesian products	External – Environmental Barriers
B44	High tariff costs in target markets	External – Environmental Barriers
B45	(Intellectual) property rights protection in target markets	External – Environmental Barriers
B46	Health, safety & technical standards in target markets	External – Environmental Barriers
B47	Tariff classification & reclassification in target markets	External – Environmental Barriers
B48	Quotas and/or embargoes imposed by target markets	External – Environmental Barriers
B49	Customs administration cost in target markets	External – Environmental Barriers
B50	Preferential tariff for exporters from other countries	External – Environmental Barriers

Source: OECD-APEC (2006), Leonidou (2004), OECD (2012)

The next step is to determine the number of components to retain. We will use the Kaiser Criterion for component retention. This criterion dictates that we retain all components whose variance is greater than that of the variables analysed (with eigenvalues larger than 1.0). We also require that the retained components account for at least 50% of the export stimuli variation.[15] The retained components can be interpreted as the broad dimensions/typology of export barriers for our survey data.

4. Results

4.1 Descriptive Statistics

The survey asked the exporting SME respondents to indicate their export intensity (i.e. the share of export sales in the firms' total sales). The average export intensity is 0.4101 (41% of total revenue is received from export revenue). However, Table 5 shows that export intensity differs across firm category, owners' gender and education level and SMEs' province location.

Table 5 shows that SMEs with male owners on average exhibit higher export intensity than those with female owners. However, the difference in export intensity is not statistically significant. Likewise, the medium-sized enterprises' average export intensity is slightly higher than small-sized enterprises but the difference in export intensity between the two firm categories is not statistically significant.

SMEs whose owners have college degrees or higher

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[15]For a more thorough discussion on component retention criteria, see for example Hubbard & Allen (1987) or Tufféry (2011).

Table 5. Export Intensity, by Firm and Owner Characteristics

Categories		N	Mean	Std. Deviation	Mean Difference test
Firm Category					
	Medium Enterprises	173	0.4198	0.33109	t = 0.663
	Small Enterprises	98	0.3930	0.30105	
Owner's Gender					
	Male	203	0.4233	0.32891	t = 1.245
	Female	68	0.3707	0.29160	
Owner's Education Level					
	College or higher	187	0.4370	0.31540	t = 2.071**
	High school or lower	84	0.3504	0.32475	
Province					
	DI Yogyakarta	53	0.6119	0.32074	F = 13.226***
	Jabar	19	0.5695	0.39042	
	Bali	43	0.5537	0.28557	
	Banten	11	0.2636	0.20260	
	Jateng	13	0.4308	0.33074	
	Jatim	76	0.2809	0.26280	
	DKI Jakarta	56	0.2541	0.22842	

Note: The equal variance assumption was checked with Levene's test prior to the t-test
Source: Author's calculation based on the survey data

education on average exhibit higher export intensity than those whose owners are high school graduates or with lower levels of education. The t-test value (significant at the 5% level) indicates that export intensity significantly differs across SME owners' education level. SMEs' export intensity also varies significantly by provinces (the ANOVA test value is significant at the 1% level). Exporting SMEs in DI Yogyakarta (a small province and important tourist destination) have higher average export intensity than SMEs in the other six provinces. In contrast, SMEs in DKI Jakarta (a large and industrialized province) exhibit the lowest average export intensity.

4.2 Export-Inhibiting Factors

Principal component analysis (PCA) was performed on the survey responses for the 50 export barrier items' Likert scale questions to reduce the dimensions of the items into a smaller number of variables (principal components) that may represent a broader dimension of export barriers. The correlation matrix indicates that 981 of 990 correlation values (99.1%) are significant at the 5% level and the Bartlett's Test of Sphericity is significant at the 1% level, both of which indicate the appropriateness of PCA for the export barrier survey data. The KMO test value of 0.906 and the minimum sample adequacy (MSA) value for each export stimuli item (all above 0.60) indicate the adequacy of overall and individual items' sample size.

The PCA factor extraction was estimated five times which resulted in 45 retained export barrier items. Five export barrier items were eliminated from the analysis because the initial PCA factor extraction results showed that they either had a low level of communalities (below 0.40), showed cross-loadings problems or had insignificant factor loadings (below 0.40). The PCA extracted all factors with latent root criterion (eigenvalues) that exceeded 1 (i.e. no certain number of factors was specified to be extracted). The PCA gave an eleven-factor solution factors that explain 59.703% of the total variance.

Table 6 shows the rotated component matrix and the eleven extracted factors. Based on the export barrier items

that have high loadings on each factor, the eleven factors that represent eleven dimensions of export barriers are named as follows: tariff and non-tariff barriers in host countries, informational and human resources barriers, distribution, logistics and promotional barriers, business environment barriers in host countries, product and transaction barriers, financial barriers, foreign government barriers, procedural barriers, price barriers, home government barriers, and foreign customer and competitor barriers, respectively. Hence, we have eleven variables to represent export barriers/export inhibiting factors, named as follows: *Barrier_Tariff*, *Barrier_Human*, *Barrier_Distribution*, *Barrier_ForeignEnviro*, *Barrier_Product*, *Barrier_Financial*, *Barrier_ForeignGovt*, *Barrier_Procedur*, *Barrier_Price*, *Barrier_HomGovt*, *Barrier_Customer*. The data series for each export barrier variable is obtained from PCA's factor scores and calculated with the Regression Score method.[16]

4.3 Estimation Results

We estimate SMEs' export intensity with two regression models: Generalized Linear Model (GLM)-fractional logit regression and least square regression (OLS). The OLS regression method is applicable because the dependent variable (export intensity) is a continuous variable. However, since the export intensity is double-bounded (has a minimum value of 0 and a maximum value of 1), the OLS regression method may not give the best estimators. Papke & Wooldridge (1993) proposed the fractional logit regression model – a GLM estimation procedure to model proportion/fractional outcome.[17] However, the fractional logit model performs better and has more meaningful interpretations if there are observations with extreme values of the

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[16]Factor scores can be calculated with non-refined methods (Sum Scores or Summated Scales) and refined methods (e.g. Regression Scores, Bartlett Scores, Anderson-Rubin Scores) (DiStefano, Zhu, & Mindrila, 2009). We used the Regression Score method to calculate the factor scores for the eleven variables that represent export barriers. However, we also simulated the factor score calculation with two other refined methods (Bartlett Scores and Anderson-Rubin Scores) and obtained very similar results.

[17]For further discussion on fractional regression, see Baum (2008) and Papke & Wooldridge (1993, 2008).

Table 6. Rotated Component Analysis Factor Matrix of Export Barrier Items

					Component						
	1	2	3	4	5	6	7	8	9	10	11
Customs administration cost in target markets	0.698										
Quotas and/or embargoes imposed by target markets	0.663										
Preferential tariff for exporters from other countries	0.62										
Tariff classification & reclassification in target markets	0.568										
Unfamiliar business practices in target markets	0.45										
Health, safety & technical standards in target markets	0.418										
Obtaining information about potential markets		0.753									
Obtaining reliable data on target markets' economy		0.746									
Contacting potential customers in target markets		0.567									
Devoting managerial time to deal with internationalization		0.552									
Identifying business opportunities in target markets		0.549									
Inadequate quantity and capability of personnel		0.532									
Obtaining reliable foreign representation			0.644								
Offering technical/after-sales service in target markets			0.627								
Supplying inventory abroad			0.623								
Establishing/using distribution channels in target markets			0.598								
Adjusting promotional activities to the target markets			0.55								
Excessive export transportation/insurance costs			0.511								
Economic fluctuations in target markets				0.75							
High risks of foreign currency				0.606							
High tariff costs in target markets				0.511							
Political instability in target markets				0.503							
(Intellectual) property rights protection in target markets				0.477							
Adapting product design/style to foreign customers' demand					0.781						
Developing new products for foreign markets					0.773						
Meeting foreign product quality/standards/specifications					0.546						
Lack of e-commerce infrastructure in target markets					0.51						
Shortage of investment fund						0.791					
Shortage of working capital						0.781					
Shortage of export insurance						0.594					
Granting credit facilities/payment delay to foreign customers						0.538					
Unequal treatment in tax/affiliation eligibility in target markets							0.739				
Restriction of asset ownership in target markets							0.636				
Unequal treatment in business competition in target markets							0.618				
Sophisticated target markets' laws/ regulations							0.462				
Slow collection of payments from abroad								0.698			
Communicating with overseas customers								0.574			
Unfamiliar exporting procedures/paperwork								0.554			
Enforcing contracts/resolving disputes in target markets								0.467			
Offering satisfactory prices to foreign customers									0.832		
Matching competitors' prices in target markets									0.798		
Lack of home government export assistance/incentives										0.795	
Unfavourable home country's export rules and regulations										0.747	
Different foreign customer habits/attitudes											0.64
Stiff competition in target markets											0.6

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Rotation converged in 9 iterations.

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Rotation converged in 9 iterations.

dependent variable –i.e. the export intensity of 0 (no export) and 1 (100% of the products are exported) (Baum, 2008). Hence, we included the non-exporting SMEs' observations (with zero export intensity) in our estimation.[18]

Table 7 gives the estimation results of the fractional logit regression. The heteroscedasticity-consistent (robust) standard errors are used to ensure asymptotically valid inferences. The Log pseudo likelihood value of -139.5515767 suggests that the model including the explanatory variables is a significantly better fit than the null model. In other words, the 27 explanatory variables employed in the models significantly improve the baseline model that only includes the constant. Table 8 gives the estimation results of the OLS regression. The R-square and the Adjusted R-square values indicate that more than 50% of the variance in export intensity can be predicted by the explanatory variables in the model. The F-value indicates that the model is significant, i.e. the 27 explanatory variables together can reliably predict the export intensity. No multicollinearity problem is detected as indicated by VIF values that are close to one for each explanatory variable.

In short, both fractional logit and OLS regression models are appropriate to estimate the export intensity of the surveyed SMEs in our study. In addition, there are high degrees of consistency/ similarity in the estimated coefficients of the explanatory variables from fractional logit and OLS regressions. Thirteen explanatory variables are statistically significant in both estimations: *OwnerWorkAbroad*, *OwnerWorkMNC*, *NonGovt_Assist*, *ExportExperience*, *ProvinceX-National*, *Barrier_Human*, *Barrier_Distribution*, *Barrier_Financial*, *Barrier_ForeignGovt*, *Barrier_Procedur*, *Barrier_Price*, *FirmAge*, and *TotalEmployee*. Furthermore, those thirteen variables have the same signs in both estimations despite different values of estimated coefficients. The estimation results of the two models only differ in two variables that are significant only in fractional logit estimation (*GovCentral_Assist* and *ExportASEAN*) and one variable that is significant only in OLS estimation (*OwnerAge*).

However, Wagner (2001) claimed that the fractional logit regression can better explain export intensity than other regression models such as OLS and double-bounded

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[18]Wengel & Rodriguez (2006) argue that it is reasonable to treat non-exporting SMEs as SMEs that intend to export zero percent of their product.

Tobit models. Hence, we use the fractional logit estimation results as our main reference for further analysis. Table 6.5 gives the marginal effect of each explanatory variable from fractional logit estimations.

With respect to SME owners' international exposure, *OwnerStudyAbroad* and *OwnerTrainAbroad* are not statistically significant while *OwnerWorkAbroad* and *OwnerWorkMNC* are significant. Owners' overseas work experience positively influences SMEs' export intensity at the 10% significance level. SMEs whose owners have worked abroad on average have a 5.2% higher export intensity than SMEs whose owners have no such experience, all else being equal. Owners' MNC/exporting firm work experience also positively influences export intensity (significant at the 5% level). SMEs whose owners have previous work experience in MNC/exporting firms on average have 5% higher export intensity than SMEs whose owners have no such experience, other things held constant. Work experience in international environments allows SME owners to build cross-border professional networks and acquire international business skills, which in turn may positively correlate with export expansion (Ruzzier et al., 2007).

The estimated coefficient of ProvinceXNational is negative and significant at the 1% level despite the small magnitude of the marginal effect. SMEs that operate in the provinces that have large shares in Indonesia's national exports tend to have low export intensity, and vice versa. This finding is in line with the negative impact of the province's contribution to national exports on SMEs' probability to export model discussed in Section 6.1. SMEs that are located in the province where there are already large numbers of exporters, trading companies or agents may consider selling their products to local exporters to avoid the risk of exporting (Gereffi, 1994; Hessels & Terjesen, 2010).

The estimated coefficient of ProductXNational is insignificant. SMEs' type of product has no significant effect on export intensity. Although SMEs that produce the types of merchandise that correspond to Indonesia's main export commodities have high probability to become exporters through "buyer effect" and "copying/imitation effect" (Wengel & Rodriguez, 2006), those two effects do not give SMEs the advantage for export expansion. Central government assistance positively affects SMEs' export intensity. *GovCentral_Assist* is positive and significant at the 10% level. SMEs that receive promotional assistance (including trade expos, trade fairs, trade shows and SME catalogues), assistance in business management (e.g. managerial training), assistance in finance or assistance in production (e.g. production techniques or equipment) from any central government agencies on average have a 3.9% higher export intensity than those who were not recipients. However, *GovtLocal_Assist* is not statistically significant. Technical training, managerial training, grants of equipment, grants of capital and trade fairs provided by provincial, municipal or regency governments have no significant effect on SMEs' export intensity. Local government assistance is possibly export assistance in name, but actually general business assistance with which SMEs can be more competitive in domestic markets, as opposed to central government agencies' assistance that has strong international market orientation (Uchikawa & Keola, 2008).

The estimated coefficient of *NonGovt_Assist* is posi-

tive and significant at the 1% level, which implies that the assistance free provision by non-government sources has a positive influence on SMEs' export intensity. SMEs that receive financial, technical, managerial and promotional assistance from various non-governmental networking sources including informal sources (family, relatives, business associates and overseas Indonesian emigrant communities) and formal non-governmental sources (including business chambers/associations, SOEs and universities/research institutes) on average have a 9.4% higher export intensity than non-recipient SMEs. Hence, network relationships with non-government sources not only help SMEs to become exporters but also to expand their international business activities (Zhou, Wu, & Luo, 2007).

Export intensity is also determined by SMEs' export destination. *ExportASEAN* positively affects export intensity at the 5% significance level. On average, SMEs whose destination markets include any ASEAN country have a 4.6% higher export intensity than SMEs that do not export to ASEAN markets. This is probably due to the ASEAN free trade area that took effect in 1992 that allows SMEs to expand the exports within the ASEAN market.[19]

The estimated coefficient of *YearsExporting* is statistically significant at the 1% level. The longer the SMEs have been exporting, the higher the export intensity. On average, one additional year of exporting correlates with a 1.1% higher export intensity, all else being equal. As SMEs accumulate export experience, they also accumulate foreign market knowledge that is crucial to expand their exports (Ling-Yee, 2004).

Of the eleven variables that represent export-inhibiting factors, six variables have significant effects on SMEs' export intensity: *Barrier_Human*, *Barrier_Distribution*, *Barrier_Financial*, *Barrier_ForeignGovt*, *Barrier_Procedur*, and *Barrier_Price*. However, those variables are composite variables obtained from PCA's factor extraction and the data series for each barrier is measured by perceived difficulties with the Likert-scale method. Hence, the estimated coefficients, marginal effects and odds ratio of those variables are not too insightful for interpretation. Rather, we focus on the estimated signs of the coefficients that indicate the direction of the effect of perceived export barriers on SMEs' export intensity. As expected, the estimated coefficients of those six variables are negative, which implies that the more difficult SMEs perceive those barriers, the lower the export intensity. SMEs are constrained in expanding their exports if they perceive high difficulties in informational and human resource barriers, distribution, logistics and promotional barriers, financial barriers, foreign government barriers, procedural barriers and price barriers. In contrast, the estimated coefficients of *Barrier_Tariff*, *Barrier_ForeignEnviro*, *Barrier_Product*, *Barrier_HomGovt*, and *Barrier_Customer* are not statistically significant. Hence, SMEs that perceived tariff and non-tariff export barriers in host countries, business environment barriers in host countries, product and transaction barriers, home government barriers and foreign customer and competitor barriers as difficult barriers do not

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[19]The survey was conducted in 2014. Therefore, the results may reflect the ASEAN free trade area implemented in 1992 but may not capture the effect of the ASEAN Economic Community that began to implement from 31 December 2015.

Table 7. Fractional Logit Estimates for SMEs' Export Intensity Model

Independent Variables	Estimated Coefficients	Robust Std. Err.	Average Marginal Effects
Enhancing Factors			
OwnerStudyAbroad	0.038	0.282	0.004
OwnerTrainAbroad	-0.470	0.346	-0.054
OwnerWorkAbroad	0.457*	0.277	0.052
OwnerWorkMNC	0.439**	0.212	0.050
GovCentral_Assist	0.346*	0.192	0.039
GovtLocal_Assist	-0.161	0.181	-0.018
NonGovt_Assist	0.822***	0.294	0.094
ExportASEAN	0.403**	0.196	0.046
YearsExporting	0.101***	0.017	0.011
ProductXNational	0.242	1.171	0.028
ProvinceXNational	-0.208***	0.047	-0.024
Inhibiting Factors			
Barrier_Tariff	-0.100	0.082	-0.011
Barrier_Human	-0.378***	0.092	-0.043
Barrier_Distribution	-0.258***	0.092	-0.029
Barrier_ForeignEnviro	-0.131	0.087	-0.015
Barrier_Product	-0.073	0.096	-0.008
Barrier_Financial	-0.144*	0.081	-0.016
Barrier_ForeignGovt	-0.135*	0.076	-0.015
Barrier_Procedur	-0.260***	0.094	-0.030
Barrier_Price	-0.237***	0.080	-0.027
Barrier_HomGovt	0.073	0.081	0.008
Barrier_Customer	-0.031	0.088	-0.004
SMEs' Characteristics			
FirmAge	-0.069***	0.016	-0.008
TotalEmployee	0.010***	0.004	0.001
OwnerGende	0.057	0.198	0.006
OwnerAge	0.015	0.010	0.002
OwnerEducation	0.067	0.085	0.008
Constant	-2.650***	0.606	
Log pseudo likelihood		-139.5515767	
Akaike Information Criterion (AIC)		0.6756112	
Bayesian Information Criterion (BIC)		-2779.461	
Deviance		125.2163353	
Pearson		141.8420984	
Residual d.f.		468	
Total observations		496	

Note: (*), (**), and (***) represent 10%, 5%, and 1% significance levels, respectively
    Marginal effects are calculated as overall average marginal effects
Source: Author's calculation based on the survey data

exhibit different export intensity from SMEs that perceive them as less serious barriers. These findings are consistent with studies by the OECD (2008) and the OECD (2009) that argued that export barriers are crucial not only in SMEs' pre-exporting stage, but also at the exporting stage in which SMEs attempt to expand their exports (increase their export intensities), and that the level of difficulties/severities vary across types of barriers.

Two variables that represent firm characteristics (*FirmAge* and *TotalEmployee*) have statistically significant estimated coefficients. Total number of employees positively affects export intensity at the 1% significance level. On average, one additional employee correlates with 0.1% higher export intensity. The number of employees represents firm size and economies of scale that are required for product and export expansion (Majocchi et al., 2005). Interestingly, *FirmAge* has negative and significant estimated coefficient. On average, one additional year of firm age correlates with 0.8% lower export intensity. One possible explanation is that the export sales grow at a slower pace than the domestic sales. Consequently, the share of export revenue in total revenue decreases over time despite not necessarily being

lower in absolute value of export sales. On the one hand, this reaffirms that at the exporting stage SMEs face serious challenges to expand their exports. On the other hand, this may indicate that the exporting SMEs may also have established business in domestic markets and therefore have more solid domestic revenue growth.

5. Conclusions

5.1 Summary and major findings

SMEs are less able to take advantage of foreign market opportunities than larger enterprises, as indicated by the marginal contribution to Indonesia's exports. This study investigates the internationalization of Indonesian SMEs, particularly their direct-export activities at the post-export stage. More specifically, this study identifies the main factors that determine SMEs' export performance, measured by export intensity -the ratio of export revenue over total revenue.

We found that the following factors have positive and significant impacts on SMEs' export intensity: SME owners' overseas and MNC/exporting firm work experience; central

Table 8. OLS Estimations for SMEs' Export Intensity Model

Independent Variables	Estimated Coefficients	Standard Error	VIF
Enhancing Factors			
OwnerStudyAbroad	0.021	0.044	1.697
OwnerTrainAbroad	-0.072	0.047	1.315
OwnerWorkAbroad	.113**	0.045	1.531
OwnerWorkMNC	.078**	0.034	1.255
GovCentral_Assist	0.033	0.022	1.339
GovtLocal_Assist	-0.023	0.022	1.284
NonGovt_Assist	.049*	0.027	1.684
ExportASEAN	0.037	0.025	1.602
YearsExporting	.011***	0.002	2.421
ProductXNational	-0.053	0.151	1.116
ProvinceXNational	-.038***	0.006	1.523
Inhibiting Factors			
Barrier_Tariff	-0.013	0.010	1.110
Barrier_Human	-.048***	0.011	1.197
Barrier_Distribution	-.042***	0.01	1.153
Barrier_ForeignEnvi	-0.015	0.010	1.122
Barrier_Product	-0.009	0.010	1.167
Barrier_Financial	-.023**	0.010	1.133
Barrier_ForeignGovt	-.018*	0.010	1.096
Barrier_Procedur	-.035***	0.011	1.370
Barrier_Price	-.028***	0.010	1.051
Barrier_HomGovt	0.008	0.010	1.125
Barrier_Customer	0.003	0.010	1.145
SMEs' Characteristics			
FirmAge	-.005***	0.001	1.717
TotalEmployee	.001**	0.000	1.340
OwnerGender	0.015	0.023	1.121
OwnerAge	.002*	0.001	1.223
OwnerEducation	0.003	0.009	1.432
(Constant)	.222***	0.062	
F-value	21.529***		
df	27		
R Square	0.554		
Adjusted R Square	0.528		

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

government agencies' promotional, business management financial and production assistance; non-government actors financial, technical, managerial and promotional assistance; ASEAN export market; years of exporting; firm age and total number of employees. We also that being located in the provinces that have a high contribution to Indonesia's national exports adversely affect SMEs' export intensity. We also found that the following factors have no significant impacts on SMEs' export intensity: SME owners' overseas study and short courses/training experiences; SME owners gender, age and education; and assistance provided by local government agencies.

Perception on the difficulties to overcome the following types of export barriers significantly hamper SMEs' export intensity: informational and human resources barriers; distribution, logistics and promotional barriers; financial barriers; foreign government barriers; procedural barriers; and price barriers. However, SMEs that perceive tariff and non-tariff export barriers in host countries, business environment barriers in host countries, product and transaction barriers, home government barriers and foreign customer and competitor barriers as severe barriers exhibit no export intensity difference with SMEs that perceive those barriers as less difficult.

5.2 Implications of the Research Findings

The findings of our research have some policy implications. The government should not focus solely on the effort to assist non-exporting SMEs to become exporters but also address the obstacles encountered by exporting SMEs to sustain and expand their exports bases. Our study revealed that at the exporting stage SMEs still face severe barriers such as foreign currency risks, shortage of export insurance and granting facilities or payment delay to foreign customers.

Accordingly, the government should provide relevant assistance to remove those barriers and closely monitor SMEs' export performance beyond initial export success. The government should design export assistance based on a good understanding, accurate and updated information on the types and severity of export impediments encountered by SMEs in their post-export activities, with which effective policy measures to remove those barriers can be formulated. Misperceptions about the types and the difficulty level of export barriers may lead to under or over provision of export assistance in certain policy areas, which are not uncommon even in developed countries (Lloyd-Reason & Mughan, 2008; OECD-APEC, 2006).

The government should be knowledgeable of the functions and role of non-government actors in the internationalisation network such as business associations/chambers,

research institute/universities, finance/microfinance institutions, and other non-government organizations. Government intervention should take into account the network relationships between SMEs and other actors that are already in operation. Thus, the government can define the appropriate level of intervention for each policy area.

The central government must disseminate their policy measures to support SME internationalization to provincial, municipal and regency governments and coordinate its policy implementation. Since Indonesia's government decentralization in 1999, the local governments have played increasingly important roles in the policymaking (Brodjonegoro & Asanuma, 2000; Resosudarmo, 2004). However, our estimation results show that local government assistance has no significant effect in helping SMEs to sustain and expand their exporting. This might be due to local government's domestic market orientation in their assistance to local SMEs (Uchikawa & Keola, 2008).

The findings of this study have several important managerial implications. The exporting SME owners and the managerial teams should keep actively seeking to participate in various government export assistance programmes. The estimation results show that the exporters face severe barriers such as human resources, financial and procedural barriers, to sustain and expand their exporting. The types of assistance that might be beneficial to remove those barriers include managerial training (e.g. business planning, marketing, cultural differences awareness, language skills and knowledge of export procedures) and financial support (including export financing, export insurance and export guarantees).

Exporting SMEs should maintain and strengthen their relationships with non-government actors in the networks. For example, exporting SMEs may seek advice or information regarding export expansion opportunities from business associations/chambers and business partners/associates. In addition, the current exporters should build networking with Indonesian emigrant communities to access multiple foreign markets. The role of the Indonesian diaspora is still very limited and ineffective in facilitating SME internationalization as compared to other communities such as guanxi (China), kankei (Japan) and immak (Korea) (Zhou, Wu, & Luo, 2007).

5.3 Research Limitations

This research has a number of limitations regarding the scope of the study, the sample selection, the data and the estimation techniques. *First*, with respect to the scope of the study, this research is confined to SMEs' direct export activities, which is one specific form of outward internationalization. Thus, this study does not incorporate other forms of outward internationalization including indirect export through large exporting firms, involvement in global supply chains and foreign investment to set up shops or inventory facilities overseas. Direct exporting is an increasingly viable outward internationalization strategy for SMEs due to decreasing trade barriers and transportation costs, although indirect export and involvement in global supply chains remain as realistic options for SMEs owing to their risk aversion and lack of internal resources (Hessels & Terjesen, 2010).

Second, this research focuses on the internationalization of small-sized and medium-sized enterprises and therefore excludes the case of micro-sized enterprises. The micro enterprises' database in Indonesia is unavailable as they mostly take the form of individual businesses or home industries.

Third, this research covers seven provinces in Indonesia including all provinces in Java, Madura, and Bali Islands. The selection of the study area allows to some extent the generalisation of the study's results at country level (Indonesia). However, the results of the study are not reflective of the characteristics of provinces which differ greatly from the studied provinces. In particular, the results may not reflect the least industrialized and least developed provinces where the lack of transportation, communication and logistics infrastructure may pose greater barriers for exporting activities.

Fourth, this study does not specifically compare the SMEs' export intensity determinants across provinces and products despite employing two variables that represent province and SMEs' product group. As Revindo Revindo, Gan, & Nguyen (2015, 2017) suggest, Indonesian SMEs' internationalization processes and determinants may vary across province and product groups.

Fifth, this study limits itself to the supply-side analysis of SME internationalization and is therefore short of explanation with regard to the demand-side factors of internationalization. In this study, the foreign market barriers (foreign customers, government and distributors) and the export market destinations are discussed from SMEs' perspectives and thereby could be insufficient to represent overall demand-side factors of internationalization.

Sixth, the data collection of this study was conducted in April-August 2014. Hence, the results of this study do not capture the impact of the ASEAN Economic Community (AEC) that took effect from 1 January 2015. The implementation of AEC may decrease the trade barriers among member economies (Chia, 2013; Itakura, 2013) and may therefore bring about more positive attitudes towards export barriers in general. The implementation of AEC may also alter SMEs' market orientation where Indonesian SMEs can be more inclined to expand their export to ASEAN countries.

Finally, the study uses SMEs' point of view in discussing the role of local governments (provincial and municipal governments) in export assistance provisions but did not conduct interviews/surveys with local government agencies. Hence, the results do not capture local governments' perspective on SMEs' development. Local governments have increasingly important roles in policy-making in Indonesia since the rapid government decentralization began in 1999 (Brodjonegoro & Asanuma, 2000; Resosudarmo, 2004). It is possible that local governments have varying policies regarding local SMEs' market orientation. For example, some local governments may endorse local SMEs to focus on domestic markets or to sell their products to large exporters domestically as opposed to committing to direct exporting (Uchikawa & Keola, 2008).

5.4 Recommendations for Future Research

To increase the generalization of the research results, the scope of the study can be expanded to include other re-

gions or provinces in Indonesia. In particular, future study can attempt to include less developed/less industrialized provinces and provinces that are located close to the Indonesian borders with neighbouring ASEAN countries. To capture the variation in SME internationalization processes across provinces, a number of variables at provincial level can be added. For example, provinces may differ in port/shipping infrastructure and in the ICT development and utilisation levels, all of which may affect the internationalisation of local SMEs (Hagsten & Kotnik, 2017; Puthusserry, Child, & Rodrigues, 2014). Provinces can also differ in their local governments' policies towards local SMEs. Accordingly, cross-province comparison of SME internationalisation requires a larger sample size. The sample size should be calculated and randomized for each province to ensure sample sufficiency to perform statistical inferences at provincial level.

Alternatively, future research can be more specific on SMEs' export intensity in a particular province/region or product group/industry. For example, case studies of SMEs' export intensity in tourist destination provinces such as Bali and Yogyakarta can be considered. Case studies can also be drawn upon export intensity of SMEs in specific industries such as handicrafts, food and beverages, and garment and fashion accessories. Specific case studies will allow more specific policy measures recommendation to foster SME export.

SMEs' internationalization process involves other private actors in internationalization networks, including distributors, suppliers, business associations/chambers, financial institutions and other private agencies (Coviello & Munro, 1997; Coviello & Munro, 1995; Zain & Ng, 2006). Future studies can consider capturing the perspective of those actors with regard to SMEs' export activities to have a better understanding on how the network relationships can help foster SMEs' export intensity.

Future studies can also consider a more complex definition of SMEs. The SME definition by number of employees used in our study is practical for survey purposes but has its own drawbacks. The number of employees may not always represent the size of the enterprise's business activities. For example, a labour intensive fashion accessory or household utensils production may involve a large number of employees despite low product monetary value. By contrast, a small-scale jewellery craft producer has large product monetary value despite employing only a small number of artisans. Hence, future research on SMEs' export intensity can consider SME definitions that incorporate other dimensions of size including, for example, assets and turnover values (Ayyagari, Beck, & Demirguc-Kunt, 2005; "*Undang-undang No. 20 Tahun 2008 tentang Usaha Mikro Kecil dan Menengah* [Law on Micro, Small and Medium-Sized Enterprise Number 20 of 2008].", 2008).

Future studies can attempt to increase the accuracy and depth of the research data. To improve the accuracy of the research data, some perceptual data can be replaced with factual (quantitative) data. For example, the actual tariff rate, number of export documents, cost of exporting and time taken to export can be used to replace the perceptual barriers related to procedure and logistics barriers. Quantitative measures of firms' financial performances such as sales, profit and return on sales can be used in place of perceptual satisfaction with firms' financial performance.

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