Export intensity of foreign subsidiaries of multinational enterprises: the role of trade finance availability

EXPORT INTENSITY OF FOREIGN SUBSIDIARIES OF MULTINATIONAL ENTERPRISES: THE ROLE OF TRADE FINANCE AVAILABILITY

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ABSTRACT

We examine the relationship between the role of trade finance availability and the export intensity of foreign subsidiaries of multinational enterprises (MNEs). In developing our hypotheses, we draw upon insights derived from "new" internalisation theory (international business literature) and international trade finance (international economics literature). We empirically test these hypotheses using survey data compiled from subsidiary managers in six ASEAN countries, supplemented with host-country level data. We conceptualise, empirically test, and establish that the subsidiary-level capability in combining and utilising internal and external debts is an important subsidiary-specific advantage to support export intensity. We find that subsidiaries employ intra-firm loans from MNE internal capital markets and, to some extent, bank loans from external financial institutions to boost their export intensity. Subsidiaries may have concerns about foreign exchange risks, but the use of appropriate foreign exchange risk management is positively associated with export intensity. We discuss the implications of our findings for theory and practice.

Keywords: financing subsidiary exports; subsidiary export intensity; subsidiary-specific advantages; new internalisation theory.

EXPORT INTENSITY OF FOREIGN SUBSIDIARIES OF MULTINATIONAL ENTERPRISES: THE ROLE OF TRADE FINANCE AVAILABILITY[1]

1. INTRODUCTION

Over half of international trade in the world is conducted by the largest multinational enterprises (MNEs) and their foreign subsidiaries (Rugman & Collinson, 2012). Even when exports are not the initial mandate for a subsidiary, many subsidiary managers discover new ways to combine their local knowledge with resources from the parent firm in order to develop new business opportunities outside of a national market (Birkinshaw, 1996). In cases where the parent firm does not establish a foreign subsidiary in each host country, or where the geographic distance from the headquarters (HQs) to export markets is high, it is more viable for the parent firm to bestow a foreign subsidiary which is located near export markets with a mandate to sell products and services internationally. Furthermore, a subsidiary may develop strategic specialised resources and acquire a world product mandate (D'Cruz, 1986; Rugman & Bennett, 1982). A subsidiary's mandate is broadly defined as a business or a part of a business in which the subsidiary is involved and for which it has duties beyond its national market (Birkinshaw, 1996). Indeed, it has been agreed that a subsidiary's mandate may be extended to include exports, because exporting is central to the overall strategy of subsidiaries (Birkinshaw, 1996, 1997; Estrin, Meyer, Wright, & Foliano, 2008; Nguyen, 2014, 2015; Nguyen & Rugman, 2015b).

Financing is instrumental in the export success of foreign subsidiaries of MNEs. Exporting involves substantial fixed and variable costs, a longer trading time relative to domestic trade, and increased risks (e.g. exchange rate movements) (Foley & Manova, 2015; Manova,

2013). Subsidiaries may also require more capital to finance equipment for export-oriented production (Manova, 2013) or service provision. Sufficient working capital and liquidity are needed to allow them to offer attractive terms of payment and thus win purchase orders and contracts from foreign customers. They are also needed for the execution of shipments and deliveries (Antràs & Foley, 2015). Most of these large upfront costs cannot be funded through retained earnings and internal cash flows from operating activities (Foley & Manova, 2015; Manova, 2013; Manova, Wei, & Zhang, 2015). We explain this point in detail in the theoretical development section. This is referred to as (international) trade finance: the financing of international trading activities. Thus, the financing of subsidiary exports requires the availability of internal and external debts (i.e. intra-firm loans, bank loans, and export credit finance).

However, little is known about the financing of exports of MNE foreign subsidiaries. Many of the previous international business (IB) studies on the subsidiary export mandate in particular (Birkinshaw, 1996), as well as subsidiary management in general, pay little or no attention to finance considerations and the financial management strategies of foreign subsidiaries (Aulakh & Mudambi, 2005; Mudambi, 1999; Nguyen, 2013; Nguyen & Rugman, 2015a). As such, our academic and managerial understanding of this important topic that underlies subsidiary export success is significantly limited.

This study aims to address this limitation and contributes to the literature examining how the exports of foreign subsidiaries are financed. We build upon "new" internalisation theory (Rugman & Verbeke, 1992, 2001, 2003), which is an extension of "classic" internalisation theory (Buckley & Casson, 1976; Hennart, 1982; Rugman, 1981), in the IB literature. "New" internalisation theory postulates that firm-specific advantages (FSAs) can be created by both

parent firms and by foreign subsidiaries. These FSAs are strengths and benefits of the firm relative to its rivals, which arise from product and process technology, innovation, R&D, brands, finance resources and access to finance, and management skills. If FSAs are developed at the subsidiary level, they allow national responsiveness in a host-country economy, a type of location-bound (LB) FSAs, and they are known as subsidiary-specific advantages (SSAs). Furthermore, we also draw upon insights from the international economics (IE) literature into international trade finance and multinational activity. It is noted that we focus on factors within the control of subsidiaries and that we aim to address two key research questions:

(i) How do foreign subsidiaries use internal and external debt finance to support export intensity?

(ii) Do subsidiaries' perceived concerns about foreign exchange (FX) risks affect their export intensity? What are the effects of using FX risk management on subsidiary export intensity?

We empirically test our hypotheses using survey data from the subsidiary managers of British MNEs in six countries (Malaysia, Indonesia, the Philippines, Singapore, Thailand, and Vietnam) of the Association of Southeast Asian Nations (ASEAN) and control for a wide range of alternative explanations. The ASEAN bloc is an interesting context for our research. It is one of the most open economic regions in the world, with total merchandise exports of over $1.2 trillion – nearly 54% of total ASEAN GDP and 7% of global exports (Asian_Development_Bank, 2015). Member countries are characterised by rapid economic growth and their active involvement in the world economy. They are growing markets that provide business opportunities, as well as being important sources of inputs for MNEs such

as products, technology, value-adding capabilities, commodities, and labour (Nguyen, 2014; Rugman & Collinson, 2012). As a group, the ASEAN bloc has free-trade agreements with Japan, Korea, China, India, Australia, and New Zealand (ASEAN+6). Moreover, ASEAN member-country governments support the export initiatives of multinational subsidiaries, which help to promote national competitiveness and improve balances of payments.

British MNEs are among the largest and the most active investors in the ASEAN bloc, and they have achieved significant international success (Yip, Rugman, & Kudina, 2006). Our survey results show that manufacturing and service ASEAN subsidiaries of British MNEs are predominantly driven by market-seeking motives, in which exports contribute to profitable growth.

Our study makes three new contributions to the IB literature. Firstly, our core theoretical contribution is to conceptualise, empirically test, and establish that the financing of exports by MNE foreign subsidiaries is an important SSA. Specifically, we highlight that, relative to the HQs, foreign subsidiaries have in-depth knowledge and understanding of the underdeveloped financial markets in the host countries in the context of emerging economies. Furthermore, these subsidiaries develop sustainable export financing strategies to overcome these challenges. Foreign subsidiaries are often well positioned to tap into MNE internal capital markets (Aulakh & Mudambi, 2005; Foley & Manova, 2015; Mudambi, 1999; Nguyen & Rugman, 2015a; Rugman, 1980). Furthermore, we show that foreign subsidiaries can access external debt finance not only from local banks within the host countries but also from international banks outside of them, which arise from the benefits of multinationality and the international nature of the MNE (Doukas & Pantzalis, 2003; Eiteman, Stonehill, & Moffett, 2012; Nguyen & Rugman, 2015a; Rugman & Collinson,

2012). These multiple funding sources help these subsidiaries to overcome the credit constraints of external capital markets in the host countries and take advantage of differences in the cost of financing across countries. Thus, the subsidiary-level capability in recombining and utilising internal and external debts as trade finance sources is conceptually an important SSA (a type of LB FSA). As such, we extend "new" internalisation theory with a specific focus on financing subsidiary export intensity. This is an interesting and new theoretical contribution, given that the extant IB literature that focuses on subsidiary export mandates (Birkinshaw, 1996) but pays no attention to the important role of trade finance availability and the development of subsidiary-level sustainable export financing strategies.

Secondly, we develop a parsimonious model to examine how the financing of exports and the use of FX risk management affects subsidiary export intensity. Our distinct and innovative approach, which clearly demarcates the differences between intra-firm loans and bank loans, is an innovation in this field. Previous studies of international trade and multinational activity in the IE literature, which introduces corporate finance as a consideration, have not distinguished between sources of finance, although it is identified as a particularly important matter (Foley & Manova, 2015). Furthermore, the role of intra-firm trade finance is under-researched empirically, meaning that it is critical to tackle this relevant issue. Our empirical evidence illustrates the important role of internal debt in supporting subsidiary export intensity, which is consistent in all statistical models. To a certain extent, subsidiaries might combine intra-firm loans with external debt if it is accessible and available. We also find that subsidiaries may have concerns about FX risks but that the use of appropriate FX risk management is positively associated with export intensity.

Thirdly, our innovative research approach of integrating the perspectives of "new" internalisation theory and international trade finance is original. The results provide useful new insights into the relationship between trade finance availability and export intensity at the subsidiary level, which has been largely under-researched in the IB literature. Our findings offer important strategic implications for subsidiary managers and policymakers regarding the contributions of MNE foreign subsidiaries in promoting the exports, finance, and ultimately economic growth of the host countries.

The remainder of the paper is organised as follows. The next section provides a theoretical synthesis and discusses how trade finance availability enhances the export intensity of the subsidiary. The third section is dedicated to theory development and the generation of hypotheses, while the fourth section describes the data and the methods employed to test these hypotheses. The subsequent sections present the results of the analyses and discuss the findings. The final section is the conclusion, including a discussion of the limitations of this research and suggestions for the direction of future research.

2. LITERATURE SYNTHESIS AND THEORY DEVELOPMENT

2.1 "New" internalisation theory

"Classic" internalisation theory (Buckley & Casson, 1976; Hennart, 1982; Rugman, 1981) is a firm-level theory that explains the existence, the function, and the reasons why the MNE exerts proprietary control over knowledge-based FSAs by creating a network of foreign subsidiaries instead of exporting or licensing. Internalisation theory recognises imperfections in goods and factor markets, information asymmetries between sellers and buyers, market failure in information and knowledge, and government regulations, such as

trade barriers and tariffs. This forces firms to create their own internal markets, and the process of internalisation permits MNEs to overcome the externalities.

"Classic" internalisation theory predicts that particular configurations of FSAs are created and subsequently deployed and recombined with other complementary resources abroad if required (Rugman, 1981; Verbeke, 2013). The FSAs are a set of strengths specific to firms and relative to their rivals, such as R&D knowledge, patented technology, brands, trademarks, financial resources and access to capital markets, and international management skills (Rugman, 1981; Rugman, Verbeke, & Nguyen, 2011). When MNEs expand internationally, they transfer FSAs developed in home countries to foreign subsidiaries in host countries. The benefits of FSAs must outweigh the liability of foreignness, which includes the additional risks and costs of doing business abroad (Hymer, 1960/1976; Zaheer, 1995). Moreover, "classic" internalisation theory also considers the role of the firm's external business environment, and the concept of home and host country-specific advantages is indicative of this perspective (Rugman, 1981).

"Classic" internalisation theory has been subject to a number of extensions, eventually forming "new" internalisation theory. This can be observed in the works of several authors (Benito, Petersen, & Welch, 2009; Buckley & Casson, 1998, 2009; Chen, 2005, 2010; Hennart, 2009; Rugman & Verbeke, 1992, 2001, 2003; Verbeke, 2013). The theoretical focus has shifted from (a) explaining parameters that would stimulate firms to expand across borders and investigating entry mode choice to (b) the MNE's internal organisation and its capabilities (Verbeke & Kano, 2015). Rugman et al. (2011) and Rugman and Nguyen (2013) have provided a comprehensive literature review on the development of internalisation

theory, the dynamics of resource recombination, and the creation of new knowledge by both parent firms and foreign subsidiaries.

Rugman and Verbeke (1992) make an important extension of internalisation theory by introducing the concept of non-location bound NLB FSAs and location bound LB FSAs. The NLB FSAs (e.g. technology, marketing, or administrative knowledge) are typically developed at the HQs and internationally transferred to the entire network of the MNE, bringing the benefits of economies of scale and scope. In contrast, the LB FSAs are idiosyncratic strengths with limited geographic deployment and exploitation potential. The LB FSAs are tied to certain subsidiaries, whether in the home country or host countries. They can include stand-alone resources linked to location advantages (e.g. a network of privileged retail locations), local resources, local best practices, and routines. If developed at the subsidiary level, these FSAs allow national responsiveness in a host country. They are not transferrable to the network of the MNE. However, some LB FSAs can become best practices and be transformed into NLB FSAs (for a comprehensive discussion, see Rugman et al. (2011)).

In reality, the MNE faces difficulties in transferring FSAs to foreign subsidiaries due to the tacit nature of knowledge and location-boundedness of FSAs (Rugman & Verbeke, 1992). This necessitates the development of new knowledge, capabilities, and strategic resources by foreign subsidiaries. They are known as SSAs, which are fundamentally context-specific. They are not only locally embedded but also path-dependent on the subsidiary's earlier technological and organisational trajectories. Rugman and Verbeke (2001) have identified 10 distinct patterns of SSAs' development and building of competence across borders in foreign subsidiaries that result from particular interactions between FSAs and country-

specific advantages (CSAs). Rugman and Verbeke (2003) have maintained that each subsidiary commands idiosyncratic SSA bundles. These SSAs arise from the innovative combination, recombination, and bundling of knowledge and resources from the parent firm with new knowledge and resources created by the foreign subsidiary in a local business environment.

Furthermore, Birkinshaw (1996, 1997), Birkinshaw and Hood (1998), Cantwell and Mudambi (2005), Nguyen and Rugman (2015a), among other studies, capture this subsidiary development beyond headquarters-driven strategy to include a subsidiary's world product mandates, export mandates, competence creation, and subsidiary initiatives (a type of corporate entrepreneurship). This reflects the dynamic capabilities of the MNE and the subsidiary and emphasises the view that knowledge and competence can be developed anywhere in the MNE network by both the parent firm and the foreign subsidiary (Rugman & Nguyen, 2013; Rugman et al., 2011; Verbeke, 2013).

In addition, Rugman and Verbeke (2003) show that the focus on FSAs advanced earlier by Rugman (1981) in "classic" internalisation theory that predates the resource-based view of the firm (Barney, 1991; Rumelt, 1984). However, it is entirely compatible with the implications of the resource-based view with its emphasis on unique resources, capabilities, and core competencies. The concept of dynamic capabilities (Teece, Pisano, & Shuen, 1997) in the strategic management literature is compatible with the concepts of NLB FSAs, LB FSAs, and the patterns of SSA development in foreign subsidiaries, resource recombination, and bundling in "new" internalisation theory (Rugman & Verbeke, 1992, 2001, 2003) (for a discussion, see Rugman et al. (2011)).

On the other hand, we make an effort to interconnect IB and IE because our study benefits from the IE literature in examining the role of trade finance and subsidiary export intensity. Related works by economists that pay attention to some aspects of "classic" internalisation theory, following insights from the seminal works of Buckley and Casson (1976), Casson (1979) and Rugman (1981), appear in Ethier (1986), Ethier and Markusen (1996), Helpman (1985), and Horstmann and Markusen (1989).

The transfer of knowledge-intensive FSAs from HQs to foreign subsidiaries in the IB literature is known in the IE literature as the transfer of HQs services (e.g. management, financial, and/or marketing services). The concept of HQs services (initially understood as blueprints) is coined by Helpman (1985) and revisited and extended by Antràs (2003), and Antràs and Helpman (2004). HQs services are a joint input across plants, creating firm-level scale economies, also referred to in the literature as multi-plant economies of scale. It is argued that HQs services are often knowledge based and can be provided to additional production facilities at low or zero marginal cost (Markusen & Maskus, 2001). In addition, the IE literature examines the choice between FDI and exporting as being exemplified in the proximity-concentration trade-off (Brainard, 1993). The property rights problem of the firm in the IB literature is related to the hold-up problem described by Grossman and Hart (1986) and extended to the MNE by Antràs (2003) in the IE literature.

More recently, Cuadros, Martín-Montaner, and Paniagua (2016) develop a gravity model using country-level data to explain how credit constraints affect the transfer of HQs services (specifically financial services), as well as how migrants can provide valuable information about local finance, and thereby eased the credit constraints foreign investors faced during the 2007 financial crisis.

It is interesting to observe that the IE literature has developed theoretical models that rationalise the emergence of the MNE at the level of the parent firm (Antràs, 2003; Antràs & Helpman, 2004; Ethier, 1986; Ethier & Markusen, 1996; Helpman, 1985; Horstmann & Markusen, 1987; Markusen, 1984). In contrast, "new" internalisation theory in the IB literature analyses both the parent firm and the subsidiary, and shifts the view of the MNE as a hierarchical organisation steered by firm-level HQs toward an analysis of the MNE as an interdependent network of subsidiaries differentiated by roles and capacities (Bartlett & Ghoshal, 1989; Nohria & Ghoshal, 1997; O'Donnell, 2000; Rugman, 2014; Verbeke & Kano, 2015; Zander, 1998). Thus, in this study, we demonstrate how MNE foreign subsidiaries develop unique financial management capabilities in combining internal and external debt financial resources to fund export activities. This helps them to overcome the challenges of underdeveloped financial markets in emerging economies and to grow and expand their export business despite challenging external environments.

2.2 Theory development: Financing exports of foreign subsidiaries is an important subsidiary-specific advantage

There is a large volume of research in the IE literature establishing that financial development is associated with long-term economic growth (for a review, see Levine (2005)). At the cross-country level, King and Levine (1993a, 1993b), Levine, Loayza, and Beck (2000), and Fisman and Love (2007) show that financial development promotes growth and general economic activity. Bekaert, Harvey, and Lundblad (2001, 2005) report in their cross-country time-series studies that financial liberalisation boosts economic growth by improving the allocation of resources and the investment rate. By using cross-country data at the firm and industry levels, respectively, Demirgüç, Kunt and Maksimovic (1998)

and Rajan and Zingales (1998) demonstrate that reduced access to external finance is associated with slower growth.

Moreover, the finance, macroeconomic, and economic development literatures have emphasised the variation in financial constraints across firms (Beck, Demirgüç, Kunt, & Maksimovic, 2005; Forbes, 2007). Financial frictions shape MNE activities and cross-border capital flows (Antràs & Caballero, 2009; Antràs, Desai, & Foley, 2009). However, there are few insights into how internal and external trade finance availability affects the export intensity of foreign subsidiaries.

Financial arrangements to provide working capital and the required liquidity associated with international trade are often referred to as (international) trade finance (Antràs & Foley, 2015; Foley & Manova, 2015; Schmidt-Eisenlohr, 2013). In some respects, international trade finance resembles domestic trade credit extended between buyers and suppliers (Burkart & Ellingsen, 2004; Foley & Manova, 2015; Giannetti, Burkart, & Ellingsen, 2011; Klapper, Laeven, & Rajan, 2012; Ng, Smith, & Smith, 1999; Petersen & Rajan, 1997). According to Burkart and Ellingsen (2004), many firms offer trade credit to their customers in order to win purchase orders and contracts, even though they have to take bank loans and their suppliers' trade credit to finance their operations.

Financing is central to a subsidiary's export strategy because exporting involves substantial fixed and variable costs (Foley & Manova, 2015; Manova, 2013; Manova et al., 2015). Fixed costs include gauging market profitability, investing in product customisation and regulatory compliance, and setting and managing foreign distribution networks (Manova, 2013). Variable costs include freight, insurance, and duties. The international trade cycle is relatively long: the time between the start and completion of a transaction is often 60 days

longer than it would be when trading locally (Djankov, Freund, & Pham, 2010; Foley & Manova, 2015; Manova, 2013; Manova et al., 2015). Exporting entails increased risks. For example, FX rate movements can change the value of the expected cash flows of exports, and they require the implementation of appropriate exchange risk management strategies.

We argue that foreign subsidiaries need to develop sustainable export financing strategies. It is essential to recognise that, unlike HQs, foreign subsidiaries of Western MNEs operating in Southeast Asia in our research context have in-depth local knowledge of idiosyncratic challenging business environments, especially in the context of underdeveloped financial markets (Singapore is the only exception, with a developed capital market). Subsidiaries face challenges in accessing domestic capital due to the following factors: a limited availability of external credit opportunities; the high costs of borrowing due to external capital market imperfections, as well as limited FX hedging services due to the short supply of hard foreign currencies; and weak banking systems (Nguyen & Rugman, 2015a; Stephens, 1998). Thus, we argue that they utilise intra-firm loans from MNE internal capital markets (Aggarwal & Kyaw, 2008; Aulakh & Mudambi, 2005; Desai, Foley, & Hines, 2004; Dewaelheyns & Van Hulle, 2010; Gugler, Peev, & Segalla, 2013; Mudambi, 1999), and combine with bank loans (if they are accessible and available) from external financial institutions to support their exports, and use appropriate FX risk management techniques to deal with perceived concerns surrounding exchange rate risks in export transactions.

Rugman (1980) was the first to develop the concept of internal capital markets within the MNE from the perspective of "classic" internalisation theory. This involves arguing that the MNE is able to overcome segmented international capital markets, as well as that it can operate an efficient internal market within its own organisational structure. Indeed,

convincing empirical evidence shows that MNEs use their own internal capital markets when there are differences in financial developments and costs of financing between home- and host-country capital markets (Aggarwal & Kyaw, 2008; Aulakh & Mudambi, 2005; Desai et al., 2004; Dewaelheyns & Van Hulle, 2010; Gugler et al., 2013; Mudambi, 1999).

Furthermore, we argue that MNE foreign subsidiaries can raise external debt financing at competitive and favourable terms and conditions not only from local banks in the host countries but also from international financial institutions outside the host countries (Doukas & Pantzalis, 2003; Eiteman et al., 2012; Nguyen & Rugman, 2015a; Rugman & Collinson, 2012). The access to financial resources from multiple countries (Desai, Foley, & Forbes, 2008; Nguyen & Rugman, 2015a) enables foreign subsidiaries to overcome the credit constraints which they may face in the host countries. This reflects the finance-factor competitive advantages of MNEs over purely domestic firms (Oxelheim, Randøy, & Stonehill, 2001).

On the other hand, we suggest that exports cannot be financed through limited internal funds (retained earnings) and cash flows from operating activities. Retained earnings, which are a type of internal equity financing (Nguyen & Rugman, 2015a), may be used to fund other investment alternatives, such as R&D, innovation, and knowledge creation activities rather than exports. By its nature, R&D is intangible and offers little or no collateral value for debt finance. Because of severe information asymmetries between firms and external investors about the likelihood of success of R&D, debt is precluded as a financing source for R&D. Empirical evidence in the finance literature evidences a strong negative association between R&D and leverage across firms, supporting the idea that debt is poorly suited to fund R&D

(for a survey, see Brown, Fazzari, and Petersen (2009); Brown, Martinsson, and Petersen (2013); Brown and Petersen (2011); Hall and Lerner (2010)).

In summary, we theorise that the capability to combine financial resources of intra-firm loans from MNE internal capital markets with bank loans (if any) from external financial institutions in an effective and innovative way to enhance export intensity by foreign subsidiaries is conceptually a valuable SSA (a type of LB FSA). In this way, we extend "new" internalisation theory with a specific focus on the financing of subsidiary export intensity by emphasising that only local foreign subsidiaries can develop such a LB FSA relative to the parent firms. The HQs lack sufficient knowledge about the financial development of the host countries to engage in an efficient and effective combination of financing sources to support subsidiary export intensity. Local subsidiaries can understand and operate successfully within the idiosyncratic nature of the financial markets in ASEAN countries. Thus, when we examine export financing at the subsidiary level, it is important to modify analysis accordingly, as each subsidiary develops individual LB FSAs. As such, our theoretical contribution to extending "new" internalisation theory is novel, given that we focus on the development of subsidiary-level trade finance to support export intensity.

3. HYPOTHESES DEVELOPMENT

3.1 Trade finance availability and subsidiary export intensity

Previous studies in the IE literature provide firm-level evidence related to the UK, Belgium, China, Italy, and Japan that implies a relationship between financial resource availability and firms' export product scope, number of destinations, and value of foreign sales (Greenaway, Guariglia, & Kneller, 2007; Manova, 2013; Manova et al., 2015; Manova & Yu, 2012; Minetti & Zhu, 2011; Muuls, 2008). The IE literature also examines to what extent

trade credit between sellers and buyers, foreign direct investment, and portfolio investment can compensate for weak financial institutions (Antràs & Foley, 2015; Manova, 2008; Manova et al., 2015).

We suggest that the availability of trade finance (a type of finance-factor FSA) helps MNE foreign subsidiaries to improve their ability to convert export opportunities into actual sales. For example, the availability of trade finance may enable foreign subsidiaries to offer attractive terms of payment to buyers, enhancing their competitiveness in export markets and making it easier for them to maintain successful trading relationships. According to a survey report by the IMF (2009), importer finance (cash in advance) corresponds to 19-22% of international trade transactions, exporter finance (open account) accounts for 42-48%, and bank intermediation (letter of credit and documentary collection) accounts for the rest.

The IMF survey results suggest that because of intense competition in export markets, foreign buyers press exporters to offer open account terms, and exporters who do not do so may lose sales to their competitors. However, exporters should thoroughly examine the export markets and the creditworthiness of their foreign buyers to ensure that payment is received in full and on time. It is possible to substantially mitigate the risk of non-payment associated with open account payment terms by using trade finance techniques, such as factoring and export credit insurance (Trade_Finance_Guide, 2012).

Our theoretical setup here is consistent with the study by Antràs and Foley (2015). These scholars theoretically and empirically examine international trade finance practices, which involves the financing terms (cash in advance versus post-shipment, letter of credit versus post-shipment, and cash in advance versus letter of credit) that support international trade.

The choice of trade finance terms arguably needs to balance the risk of an importer defaulting on an exporter and/or the possibility of an exporter not delivering goods as specified.

On the one hand, we argue that MNE foreign subsidiaries need sustainable sources of external debt finance (bank loans) that can be secured with collaterals. Such external financial resources are used to fund production for export shipments, service provision, and liquidity requirements while waiting to receive payment. This involves the effective planning and management of working capital during the international trade cycle. For example, during pre-shipment finance, once they have a confirmed order, backed by a documentary letter of credit, they might discuss obtaining working capital with their banks to help them to produce and ship the goods or to provide services. This allows them to take on new contracts and grow their business. As for post-shipment finance, once a subsidiary has shipped goods to a customer or delivered services, they may need to obtain a loan from their bank, rather than waiting for the customer's payment before using the funds (Lloyds_Bank, 2016).

Our subsidiary-level theoretical perspective is aligned with findings from previous studies in the IE literature that illustrate how institutions that facilitate access to capital give rise to a comparative advantage in sectors that require external finance (Antràs & Caballero, 2009; Beck, 2002; Kletzer & Bardhan, 1987; Manova, 2008, 2013). Thus, we can expect external debt finance to play a major role in supporting subsidiary export intensity.

On the other hand, we argue that MNE foreign subsidiaries have access to internal debt finance (intra-firm loans) from their parent firms and/or sister affiliates through the use of MNE internal capital markets, which helps to facilitate their exports. Manova et al. (2015) study export behaviours of domestic and multinational subsidiaries in China, employing

appropriate statistical techniques to address potential endogeneity concerns. They use transaction-level customs data from China and find that foreign subsidiaries and joint ventures export 62% and 50% more, respectively, than domestic firms in sectors that are relatively highly reliant on costly external finance. Empirical evidence suggests that MNE subsidiaries exploit their internal capital markets to overcome fixed trade costs, which domestic firms may be incapable of doing. This finding is consistent with the idea that multinational subsidiaries might be more likely to operate in more financially vulnerable sectors because they face less competition from local firms there. Thus, we can expect that internal debt finance plays an important role in enhancing the export intensity of a subsidiary. Based on these arguments, we produce the following hypotheses:

Hypothesis 1a: Intra-firm loans are positively associated with a subsidiary's export intensity.

Hypothesis 1b: Bank loans are positively associated with a subsidiary's export intensity.

3.2 Foreign exchange management and subsidiary export intensity

Exchange rate volatility influences export's behaviour of firms and international trade flows (Arize, Osang, & Slottje, 2008; Bernard & Jensen, 2004; Campa, 2004; Ekanayake, Thaver, & Plantel, 2012; Salomon & Shaver, 2005). Exchange rate risks increase transaction costs, create uncertainty in exporters' earnings, and reduce income from international trade. Indeed, there is evidence that exchange rate volatility negatively impacts on firms' level of exports, an effect that is magnified for financially vulnerable firms and dampened by financial development (Héricourt & Poncet, 2015). Thus, FX volatility is a matter of concern for subsidiaries when they engage in exports, and it thus has a potentially negative impact on export intensity.

On the other hand, we argue that it is more important to examine whether or not foreign subsidiaries take the necessary actions to manage FX risks instead of speculating on FX fluctuations. This requires them to recognise the implications of FX exposures on their exports and/or to coordinate with the corporate treasury in the HQs to centrally manage FX risks. This is a type of NLB FSA. Bowe, Filatotchev, and Marshall (2010) and Marshall (2000) document that MNEs and their foreign subsidiaries use a wide range of hedging techniques in FX risk management. These involve the use of formal contractual arrangements with financial institutions. An example of this is taking positions in FX derivative instruments, such as forward and option contracts.

On the other hand, ASEAN subsidiaries have developed unique subsidiary-level FX risk management through experiential learning from the challenges of volatile FX rate fluctuations in the 1997 Asian currency crisis (Nguyen & Rugman, 2015a). The baht (Thailand), rupiah (Indonesia), and ringgit (Malaysia) were sharply devaluated, and the operating results of these subsidiaries were negatively affected. Companies made strategic decisions to introduce effective tools to reduce the risks of losses resulting from FX volatility (Nguyen & Rugman, 2015a). They invested significant efforts in sourcing input materials from local suppliers for their final export products in order to reduce adverse impacts of having to pay for imported inputs in strong foreign currencies. For example, Clay (2005) documents that Unilever Indonesia increased the use of local sourcing from local suppliers during the Asian currency crisis.

Furthermore, they could not rely on formal hedging techniques of forward and option contracts because these types of financial derivatives may not be available due to the shortage of supply of strong foreign currencies and weak banking systems in Southeast Asian

countries (Stephens, 1998). Also, currency controls, currency inconvertibility, and restrictions on fund transfers by host countries' regulations made it infeasible to centrally manage FX risks through HQs' corporate treasuries or centralised shared services. This experience has been immensely valuable in helping these subsidiaries to smoothly navigate the global financial crisis of 2007-2009 (Nguyen & Rugman, 2015a). In other words, they have developed LB FSA (SSAs) in FX risk management using alternative solutions. Thus, we predict the following:

Hypothesis 2a: The perceived concerns of FX risks are negatively associated with a subsidiary's export intensity.

Hypothesis 2b: The use of FX risk management is positively associated with a subsidiary's export intensity.

4. RESEARCH METHODOLOGY

4.1 Research context and primary data

We use an original survey dataset with foreign subsidiaries of the largest British MNEs in six Southeast Asian countries (Malaysia, Indonesia, the Philippines, Singapore, Thailand, and Vietnam) for several reasons. Firstly, British MNEs are amongst the first to internationalise, and they have achieved significant success in many industries (Yip et al., 2006). Secondly, they have been doing business in Asia (Iran, India, Thailand, Malaysia, China, Russian Asia, and Japan) since 1860 (Davenport-Hines & Jones, 2003). Today, they are amongst the largest and most active of foreign investors, having made important contributions to the economic and social development of the host countries (Nguyen, 2013).

Thirdly, the findings from the study of behaviours of foreign subsidiaries of British MNEs may be generalisable to those of other Western MNEs.

ASEAN countries are of particular interest to the research questions of this study. Firstly, they have development strategies that are largely geared toward attracting FDI from MNEs, promoting trade liberalisation and international competitiveness in the world economy through regional free-trade agreements and regional economic integration and cooperation. Secondly, they support export initiatives of multinational subsidiaries. Thirdly, the choice of the ASEAN context extends the empirical setting of previous studies on subsidiary management, whose samples have primarily been drawn from subsidiaries of Western MNEs operating in advanced countries, such as the UK, the US, Canada, Sweden, and elsewhere in Europe (Ambos & Birkinshaw, 2010; Andersson, Forsgren, & Holm, 2002; Birkinshaw, 1996, 1997; Cantwell & Mudambi, 2005; Kawai & Strange, 2014; Mudambi & Navarra, 2004; Taggart & Hood, 1999).

We used several data sources to compile a complete list of foreign subsidiaries of British MNEs in ASEAN countries. These sources include the OneSource Global Business Browse database by Thomson Reuters, Reuters Research Inc., published by Avention Inc., parent firms' websites and their annual reports, and British, American, and European Chamber of Commerce websites in ASEAN host countries. The OneSource database provides only basic information, such as name, address, industry, and so on, without providing any financial data related to these subsidiaries. We found a total population of 504 foreign subsidiaries of British MNEs in Malaysia, Indonesia, the Philippines, Singapore, Thailand, and Vietnam.

There were no subsidiaries in Cambodia and Laos, and there were very few in Brunei Darussalam. Thus, we focused our efforts on contacting subsidiaries in six countries.

We developed a 40-question survey specifically designed for the ASEAN context and to collect data for several research papers on subsidiary strategy and performance. This study on subsidiary trade finance and export intensity is one of them. We carefully designed our questions, which were based on theories of IB, finance, and international accounting standards (e.g. IFRS8–*Operating Segments* and IAS24-*Related Party Disclosures*). Most of our questions were fact based, which subsidiary managers can answer by extracting data and information from their accounting and reporting systems. We used simple and concise English language to construct our survey. We pre-tested our questionnaire with five experienced subsidiary managers to ensure that they had no difficulties in understanding our questions. However, these managers indicated that because of the confidential and commercially sensitive nature of the information that we aimed to collect, they would not provide their latest, up-to-date information. Instead, they were willing to provide recent historical data, related to the five-year period of 2003-2007. We conducted our survey between 2010 and 2011.

We approached managers of 504 subsidiaries across six ASEAN countries by e-mail to invite them to participate in the survey. The e-mail survey method gave us opportunities to interact with subsidiary managers, to obtain their insights, to ask follow-up questions, and to collect additional information. However, it was a challenging, laborious, and time-consuming process. It took us eight months to send several rounds of invitations and friendly reminders to subsidiary managers to encourage them to participate in the survey.

We received usable responses from 101 subsidiaries. Our study achieved a response rate of 20%, which compares favourably to the extant literature (Harzing, 2000), given that obtaining information from multinational subsidiaries is fraught with difficulties and reluctance to provide data (Ambos & Birkinshaw, 2010; Andersson et al., 2002). Our questionnaire was responded to by the top management teams, who had an average of eight years of working experience in the ASEAN bloc.

Insert_Table_1_about_here

Table 1 shows that subsidiaries in Singapore account for 26%, Indonesia 18%, Vietnam 18%, Thailand 15%, Malaysia 13%, and the Philippines 10%. All are private subsidiaries, meaning that their shares are not listed on the stock exchanges in the host countries and that they are therefore not subject to financial information disclosure requirements. The survey is the only method that can be used to obtain data and information.

The average invested capital of the participating subsidiaries was US$78 million. The average age of the subsidiaries at the time of survey was 26 years. They operate in a wide range of manufacturing and service industries, ranging from chemicals, pharmaceuticals, and biotechnology to software development, among others. They are broadly grouped into two sectors: manufacturing, which accounted for 44% and included energy, petroleum, and refining; and service, which accounted for the other 56%. We find that market-seeking is the predominant FDI motive for these subsidiaries.

The results of a non-response bias test (independent t-test, two-tailed) confirmed that there were no significant differences across key attributes (sales, assets, and employees, data of

2008) between the parent firms of the respondent and non-respondent subsidiaries at a 5% significant level. Furthermore, we compared the data characteristics of early and late respondents, and we found no significant differences between these two groups. Our careful procedure here is in line with Armstrong and Overton (1977), who argue that late respondents represent non-respondents.

The sample size of 101 subsidiaries is sufficient for our empirical tests for two reasons. Firstly, it is enough for a total population of 504 foreign subsidiaries, which is required for continuous data (Barlett, Kotrlik, & Higgins, 2001). Secondly, it satisfies the ratio of observations to independent variables, which should not fall below five for multiple regression analysis. This helps ensure that the results are not too specific to the sample (Hair, Anderson, Babin, & Black, 2010). Therefore, the sample is statistically sufficient, given that there are 11 variables (four independent and seven control variables) in our regressions. Additionally, the inclusion of a broad range of ASEAN countries enhances the generalisability of our findings.

4.2 Secondary data

We also use public data, specifically the Economic Freedom of the World Index from the reports published by the Fraser Institute, Vancouver, Canada. The data in the index comes from more than 70 think tanks around the world (The_Fraser_Institute, 2015). This index is designed to measure the consistency of a nation's policies and institutions with economic freedom. The role of economic freedom has been studied extensively in the economic growth literature, with the consensus being that several elements of economic freedom enhance economic performance at the macro level (Barro, 1991; De Haan & Sturm, 2000; Easton &

Walker, 1997; Greenaway, Morgan, & Wright, 2002) (for a comprehensive literature review, see Hall and Lawson (2014)).

The index is comprised of five composite sub-indexes, which are rated on a scale of 0-10 with a higher value meaning representing better quality. In this study, we use 'sound money' sub-index, which represents access to sound money. Access to sound money includes composite measurements of money growth, standard deviation of inflation, inflation of the most recent year, and freedom to own foreign currency bank accounts. On the other hand, 'credit market regulations' sub-index, which considers the regulation of credit markets and includes composite measurements of ownership of banks, private-sector credit, and interest rate controls/negative real interest rate controls (for detailed information, see appendix of explanatory notes and data sources, The_Fraser_Institute (2015)).

4.3 Variables and metrics

Dependent variable: Export intensity ratio (ExportInt)

Previous studies in the IB literature use the ratio of export sales to total sales in order to measure export intensity (Almodóvar & Rugman, 2014, 2015; Estrin et al., 2008; Salomon & Shaver, 2005). We adopt an accounting-based approach, asking the managers of participating subsidiaries to report the approximate percentage of the aggregate value of export sales over the aggregate value of total sales of their subsidiaries during the period of 2003-2007. Subsequently, we use an average ratio to neutralise variance over time (Grant, Jammine, & Thomas, 1988).

Our measurement of export intensity ratio using survey data is aligned with the IE literature. In a study of the intensive and extensive margins of trade in the U.S. context by Coughlin (2012), the intensive margin refers to the average exports per firm, whereas the extensive

margin refers to the number of exporting firms. Our study refers to the intensive margin of trade.

Independent variables: Internal and external debt finance (Intra-firm_loans & Bank_loans)

We apply the international financial reporting standard conceptual framework and the international accounting standard *IAS24-Related Party Disclosures* (IAS24) to develop this construct. We asked the managers of participating subsidiaries to report the approximate percentages of major financing sources of the subsidiary's capital. These included retained earnings, intra-firm borrowing from parent firms and/or sister affiliates, capital investment from the parent firms, borrowing from local banks; borrowing from venture capital and international financial institutions in the host countries, and borrowing from international banks and international financial institutions outside the host countries. In this study, we focus on intra-firm loans (Intra-firm_loans) from MNE internal capital markets and bank loans (Bank_loans) from external financial institutions as trade finance sources to fund exports.

Independent variable: Perceived concerns with foreign exchange risks (FX_concerns)

Subsidiary managers were asked whether or not they were concerned about FX risks when they engaged in export activities. We use a dummy variable with a value of 1 if the answer was yes and 0 otherwise.

Independent variable: Use of foreign exchange risk management techniques (FX_management)

Subsidiary managers were asked whether or not they implemented any measures to manage FX risks. These included working with the corporate treasury in the HQs to centrally manage FX risks. They also included achieving the same purpose by hedging locally using forward

and option contracts, as well as alternative solutions, such as local sourcing of inputs like materials, parts, components, services, and so on (Bowe et al., 2010; Nguyen & Rugman, 2015a; Rugman & Collinson, 2012; Verbeke, 2013). We use a dummy variable and assigned the value of 1 if the answer was yes and 0 otherwise.

Control variable: Host-country business environment (SoundMoney_index)

Previous studies show that host-country business environmental factors influence subsidiary exports (Estrin et al., 2008; Gao, Murray, Kotabe, & Lu, 2010; Li, Vertinsky, & Zhang, 2013; Salomon & Shaver, 2005). We use the average Economic Freedom of the World Index, specifically the 'access to sound' money sub-index for the period 2003-2007, to measure the quality of the host country-specific advantages where the subsidiaries are located. This helps to account for the fact that Singapore is a developed country, whereas Malaysia, Indonesia, the Philippines, Thailand, and Vietnam are developing countries.

Control variable: Relatedness to parent firms' activities (Relatedness_parent)

Foreign subsidiaries can draw upon the product-specific knowledge of their parent firms when their activities are related to those of their parents (Li, 1995; Slangen & Hennart, 2008). The information provided by subsidiary managers was triangulated with the information in the OneSource database. We follow the procedures outlined in Slangen and Hennart (2008) to create a dummy variable, which assumes a value of 0 if the subsidiary performed related activities and assumes the value of 1 if the subsidiary performed unrelated activities.

Control variable: Subsidiary age (Subsidiary_age)

This variable captures the host-country cumulative experience of foreign subsidiaries (Autio, Sapienza, & Almeida, 2000). It is measured by determining the number of years in operation

since foundation. It is coded in such a way that a value of 1 represents it being established in the 2000s and later, and a value of 7 represents it being established since 1880.

Control variable: Subsidiary size (Subsidiary_size)

Previous studies show that subsidiary size is a critical control variable (Nguyen & Rugman, 2015a). It is measured by calculating the number of employees. It is coded in such a way that a value of 1 represents there being fewer than 500 employees, whereas a value of 7 represents there being more than 2,000.

Control variable: Subsidiary autonomy (Subsidiary_autonomy)

The literature on subsidiary management emphasises the role of the subsidiary in knowledge creation and knowledge transfer. Subsidiary autonomy facilitates this process (Kostova, Marano, & Tallman, 2016). To assess the degree of subsidiary autonomy, we follow the approaches used by previous studies of Birkinshaw and Hood (1998), Roth and Morrison (1992), and Slangen and Hennart (2008). Subsidiary managers were asked to self-assess their subsidiaries' level of freedom to make decisions related to a wide range of functions without the HQs' involvement. These included the following: supply chains (key suppliers, production/service delivery process), sales, marketing, and distribution (product/service offerings, customer relationship management, advertising, promotion, and brands); human resources management (selection, recruitment, remuneration, training, and development of employees); international financial management, and host-country stakeholder relationship management. We use a Likert 5-point scale with the following values: 1=decisions exclusively made by the HQ, 2=decisions largely made by the HQ, 3=shared decisions, 4=decisions largely made by subsidiary; and 5=decisions exclusively made by subsidiary. The scale reliability test shows a Cronbach alpha of 0.870.

Control variable: Parent firm size (Parent_size)

The core resources of a foreign subsidiary are often transferred from the parent firm, which might affect subsidiary export intensity (Estrin et al., 2008). This variable is measured by recording the number of employees of the parent firms. Data is sourced from OneSource and is coded as 1=10,000 employees and 7=70,000 employees or more.

Control variable: Sectors (Sectors)

Sectors tend to have different export dynamics. As stated by Makino, Isobe, and Chan (2004), Hansen and Gwozdz (2015), and Venaik, Midgley, and Devinney (2005), industry effects and country effects are difficult to be untangled, and sector features may vary between countries. Thus, as sectors' effects might have the potential to confound the results of our study, we used a dummy variable where 1=manufacturing and 0=service.

4.4 Econometric model

This study analyses the impact of trade finance variables on subsidiaries' export intensity. In order to explore our sample in depth, we initially use a multiple linear regression model as a departure point for the full analysis (Greene, 2002). Next, we apply more sophisticated techniques, such as censored regression (Tobit) models and fractional response regression models.

4.4.1 First Part: Initial Empirical Analysis

As our dependent variable is measured at the continuous level, we use a **multiple linear regression** (Ordinary least squares -OLS-) model. This technique analyses the linear relationship between a dependent variable and several independent and control variables. The generic form is as follows: $y_i = x_i'\beta + \varepsilon_i$; i=1…N (subsidiaries), where y_i is the

dependent/explained variable -export intensity-; x_i' are the explanatory variables (intra-firm loans, bank loans, perceived concerns of FX risks, use of FX management, and control variables); β is the vector of unknown parameters; and ε_i is a random disturbance. We test whether our model suffers from heteroscedasticity by using the Breusch-Pagan test, where the null hypothesis is that residuals are homoscedastic. We reject the H_0 (p-value<0.001) and conclude that residuals are not homogeneous. One way to deal with this problem is by using White-corrected standard errors in the presence of heteroscedasticity (White, 1980). Furthermore, it is reasonable to expect that British subsidiaries located in the same Asian country also share unobservable features that would cause our regression disturbances to be correlated. Following Moulton (1986, 1990), Bertrand, Duflo, and Mullainathan (2004), and Kezdi (2004), we cannot assure the independence of these observations, and we need to relax the independence assumption and require only that the observations (subsidiaries) be independent across the clusters (countries). Our final model is a **multiple linear regression model with cluster effects** by country and robust standard errors. This model relaxes the homoscedasticity assumption and allows the error terms to be heteroscedastic and correlated within groups/clusters. Thus, subsidiaries can be separated into M groups G_1, G_2, . . ., G_M which are independent. The formula for the robust estimator of variance when there are cluster effects is as follows (Stata, 2015): $\hat{v} = \hat{V}\left(\sum_{K=1}^{M} u_k^{(G)\prime} u_k^{(G)}\right)\hat{V}$ where $\hat{V} = (-\partial^2 ln/\partial\beta^2)^{-1}$ is the conventional estimator of variance; and, $u_k^{(G)}$ is the contribution of the k^{th} group to $\partial lnL/\partial\beta$.

According to Reeb, Sakakibara, and Mahmood (2012), we need to consider the potential existence of endogeneity as we allow for the potential endogeneity concerns of higher exports leading to higher external borrowing, e.g. subsidiaries which export can borrow

more easily. We adopt an instrumental variable approach for our model. We use an instrumental variable for bank loans that is measured by the average Economic Freedom of the World, calculated by the Fraser Institute. Specifically, we use the 'credit market regulation' sub-index for the five-year period of 2003-2007. This instrumental variable is a multi-item composite construct comprised of measurements of bank ownership, private-sector credit, and interest rate controls/ negative real interest rate controls. The data sources come from 70 think tanks around the world, including the World Bank's World Development Indicators; the World Bank's bank regulations and supervision survey; the IMF's international financial statistics; and the World Economic Forum's Global Competitiveness Report. The correlation matrix (Table 3) shows that the credit market regulation sub-index is positively related with external bank loans and this relationship is significant, which indicates instrumental variable acceptability. We use the Durbin-Wu-Hausman test, which compares the instrumental variable and OLS estimates to determine whether they are "similar enough" (H_0: all variables are exogenous). There is insufficient evidence to reject the null (p-value=0.5169), so our OLS regressors are exogenous, and our estimations are consistent and unbiased.

4.4.2 Second Part: Complementary Empirical Analysis

As our continuous dependent variable is a percentage that ranges from 0 to 100, two alternative statistical techniques will refine our results:

We consider the family of *censored regression (Tobit) models*. Inside this Tobit family, we perform two variations. Firstly, we perform a **Tobit model with cluster effects**, where the general formulation is $y_i^* = x_i'\beta + \varepsilon_i$; $y_i = 0$ if $y_i^* < 0$; $y_i = y_i^*$ if $0 \leq y_i^* \leq 100$; and

$y_i = 100$ if $y_i^* > 100$. Here, y^* is the latent dependent variable subsidiary export intensity. The vector of exogenous regressors is represented by x', and the vector of unknown parameters is represented by β ; ε_i is the error term.

Secondly, a **Tobit multiplicative heteroscedasticity regression with cluster effects**. Maddala and Nelson (1975) and Hurd (1979) note that models can improve their efficiency if heteroscedasticity is properly specified. As we allow for the possibility that robust standard errors do not completely solve heteroscedasticity, we replicate our model under this Tobit variation. Following Harvey (1976) and Greene (2002), our formulation assumes a variance of the ε_i: $\sigma_i^2 = \exp(z_i'\delta)$ where δ is a second vector of coefficients; and z_i' represents a second vector of independent variables. z_i' may or may not be identical to x_i' (Greene, 1993).

Another suitable technique, when the dependent variable is a proportion/fraction is the family of *Fractional Response Regression models*. Papke and Wooldridge (1993) implement quasi-likelihood estimators to obtain robust estimators, and they propose direct models for the conditional mean to keep the predicted values in the unit interval (endpoint outcomes of zero and one are allowed). Thus, we divide our "ExportInt" variable by 100 to obtain a continuous dependent variable that ranges from 0 to 1. Firstly, we use a **fractional response model with cluster effects,** the general specification of which is as follows. $E(y_i|x_i) = \Phi(x'_i\beta), i = 1, \dots, N$, where $0 \leq y_i \leq 1$ is the dependent variable, and $\Phi(.)$ is a probit distribution function that leads to computationally simple estimators when unobserved heterogeneity appears (Papke & Wooldridge, 2008). Secondly, as our model suffers from heteroscedasticity, we also fit a **fractional heteroscedastic probit regression with cluster effects**, where the functional form $\Phi(x'_i\beta)$ is replaced by $\Phi\left\{x'_i\beta \Big/ \exp(z_i'\delta)\right\}$.

5. RESULTS

5.1 Descriptive statistics

Table 2 reports the details of internal and external debt financing sources that could be used as trade finance sources to support subsidiary export intensity. Intra-firm loans account for 8% of total funding. External bank loans account for 7% of total funding, of which borrowing from local banks in the host countries is 4%, borrowing from venture capital in the host countries is 1%, and borrowing from international banks outside of the host countries is 2%. In total, intra-firm loans and external bank loans account for 15% of total funding for these subsidiaries.

Insert_Table_2_about_here

One relevant assumption is that independent/control variables are not perfectly multicollinear. If multicollinearity exists, standard errors would be inflated and would produce unstable parameter estimates. We use different mechanisms to evaluate this aspect. Firstly, Hair et al. (2010) suggest that correlation among independent/control variables should be below 0.5. Table 3 shows the means, standard deviations, and Pearson's correlations of independent and control variables. Pearson's pair-wise correlations are all lower than the threshold of 0.5, except for the correlation between "Intra-firm_loans" and "Bank_loans" (-0.57). To further examine the severity of multicollinearity, we have used the variance inflation factor, which is an index that measures how much variance of an estimated regression coefficient is increased because of multicollinearity. Individual values are all below 1.8, well under the recommended cut-off point of 10. Moreover, the average value is 1.31, again under the threshold of 5. Thus, all of the diagnostic tests indicate that there is no

serious threat for multicollinearity (Montgomery, Peck, & Vining, 2015; Neter, Wasserman, & Kutner, 1989).

Insert_Table_3_about_here

5.2 Initial Empirical Analysis: Hypotheses testing

Table 4 reports the results from multiple linear regression models with cluster effects which are estimated on the relationship between trade finance availability and subsidiary export intensity. In order to evaluate the consistency and robustness of the results depending on the variables included, we present: Model 1 that introduces only the independent variables; Model 2 that reports results for the control variables; and Model 3 that presents the results for the full model. Coefficients and significance levels remain stable, except for "Bank_loans" which is not significant in Model 1 (see Section 5.3 for further discussion). Thus, we test if Models 1 and 2 are nested on Model 3. Because we estimate our models with robust standard errors clustered by country, our observations are not independent and the "likelihoods" do not reflect this. Korn and Graubard (1990) explain that standard likelihood-ratio tests should not be performed in this situation. Instead, we should use F-tests (or Wald tests) with p-values adjusted by the Bonferroni correction. Our p-values are all lower than 0.001, meaning that excluding the independent or control variables would significantly reduce the fit of the models. Thus, we focus on Model 3 to discuss the results and hypotheses.

We also check the goodness of fit. Thus, the p-values of our models are all lower than 0.001, meaning that we can state that at least one predictor is statistically different from zero. Regarding the coefficient of determination, R^2 is a statistical measure of how close data are to the fitted regression. Model 3 shows the best model fit where our variables explain

37.56% of the variance in ExportInt. Adjusted R^2 is the same as R^2 but adjusted by the number of subsidiaries and variables. This more conservative measure shows that Model 3 explains 29.8% of the variation in ExportInt.

Finally, following Stock and Watson (2003), we need to evaluate whether our model suffers from omitted variables, as this would bias the OLS estimator ($E(\widehat{\beta}) \neq \beta$). We use the Ramsey-Reset test, where H_0 states that the model has no omitted variables, so we fail to reject the null (p-value=0.2726) and conclude that our model is not biased.

Insert_Table_4_about_here

Both H1a, which predicts that intra-firm loans are positively associated with a subsidiary's export intensity, and H1b, which predicts that external bank loans are positively related to a subsidiary's export intensity, are fully supported. Our results confirm that for every 1% increase in the subsidiary-level ratio of intra-firm loans (holding all other variables constant), the ratio of subsidiary export intensity increases by 3.05%. This impact is significant (p-value<0.001) and positive, as predicted by H1a. In the same line, the coefficient for Bank-loans is significant (p-value<0.01) and positive, meaning that a subsidiary's export intensity will on average increase by 1.23% for every 1% increase in external bank loans. This finding supports H1b. These results are consistent with previous studies in the IE literature on the important roles of credit finance and trade finance in international trading activities (Antràs & Foley, 2015; Manova, 2013; Manova et al., 2015).

We also find support for H2a which predicts that subsidiary managers' concerns about FX risks are negatively associated with a subsidiary's export intensity. Thus, the export intensity is 22.92% lower (p-value<0.001) in subsidiaries that are concerned about FX risk than those that are not concerned. In the same line, H2b, which predicts that the use of FX management

is positively associated with a subsidiary's export intensity, is fully supported. The coefficient is statistically significant and positive (p-value<0.01). It means that the export intensity is 14.16% higher in subsidiaries that use FX risk management than in those that do not. The magnitudes of the estimated coefficient of perceived concerns about FX risks and the use of FX management in the full Model 3 suggest that FX risk concerns are negatively associated with a subsidiary's export intensity. However, they can be addressed by using FX management developed by the subsidiary.

The results related to the control variables are also interesting. We find that most control variables, including subsidiary age and size, have insignificant relationships with a subsidiary's export intensity. The only two control variables that are significant (p-values<0.001) and positively related to a subsidiary's export intensity are "Relatedness_parent" and "SoundMoney_Index". This is consistent with previous studies in the IB literature (Estrin et al., 2008; Gao et al., 2010; Li et al., 2013; Salomon & Shaver, 2005).

When countries improve one unit, their SoundMoney_index (progress in providing access to sound money) ExportInt experiences a significant boost of 10.63% on average. Export intensity is on average 19.50% higher in subsidiaries that perform activities that are unrelated to the parent company (p-value<0.001). Parent firm size exhibits no significant relationship with subsidiary export intensity. Our findings suggest that it is not sufficient to rely on economies of scale and knowledge of relatedness to parent-firm activities to boost export intensity at the subsidiary level. This reinforces the necessity of developing new knowledge-based LB FSAs (SSAs) in host countries, integrating with the existing knowledge base of

the parent firm, and exploiting the enhanced and integrated knowledge bundles effectively (Nguyen, 2015; Nguyen & Rugman, 2015a, b; Verbeke, 2013).

The degree of subsidiary autonomy has an insignificant relationship with subsidiary export intensity. This finding is consistent with McDonald, Warhurst, and Allen (2008) and Nguyen and Rugman (2015a), who find limited evidence for positive relationships between different forms of autonomy and subsidiary performance. Autonomy can lead foreign subsidiaries to engage in rent-seeking behaviour (Mudambi & Navarra, 2004), potentially exercise bargaining power and influence over their parent firms and sister affiliates (Birkinshaw, 1997; Ciabuschi, Dellestrand, & Kappen, 2012; Chen, Chen, & Ku, 2012; Dörrenbächer & Gammelgaard, 2011). Taggart and Hood (1999) suggest that autonomy should not be seen as an end in itself. Our findings suggest that ASEAN subsidiaries focus on financing solutions to support their export activities, rather than seeking bargaining power over their parent firms through autonomy per se.

Finally, sector is not significantly related to subsidiary export intensity. A plausible explanation for this is that ASEAN member countries have long pursued international trade liberalisation policies and support multinational subsidiaries' export activities. Thus, subsidiaries have accumulated experience in dealing with intensified competition, they have become familiar with the structure of these industries and sectors, and they have developed sector-specific knowledge to operate successfully in national and international markets.

5.3 Complementary Empirical Analysis: Hypotheses testing

We conduct additional statistical analyses to research our hypotheses in depth and to rule out alternative explanations. Table 5 displays results for Tobit models with cluster effects (Tobit), a Tobit multiplicative heteroscedasticity regression with cluster effects (HET Tobit),

fractional response models with cluster effects (FracRes), and a fractional hereroscedastic probit with cluster effects (HET FracRes).

Insert_Table_5_about_here

Consistently with the previous section, Models 1 include only independent variables; Models 2 include control variables; and Models 3 include full model specifications. With regard to robustness, coefficient signs and significance levels remain stable across the eight models.[2] Hence, we can conclude that Table 5's models are consistent and robust. Furthermore, Wald/F-tests are all significant (p-values<0.001). Therefore, we can assume that our models, as a whole, fit significantly better than an empty model. According to McFadden (1978), pseudo-R^2 values from 0.2 to 0.4 represent an excellent fit. HET Tobit presents 0.342, and it would thus represent the best model fit.

If we compare Table 4 with Table 5, independent variables behave consistently and remain stable, except "Bank_loans". Table 4 depicts "Bank_loans" as insignificant in Model 1 but significant in Model 3, while this predictor is insignificant in Table 5. Thus, when we run more sophisticated and demanding statistical procedures, "Bank_loans" is insignificant, and the behaviour of external bank loans is explained in the discussion section. Nevertheless, we obtain significant support for hypotheses H1a, H2a, and H2b. These three hypotheses maintain the sign and the significant effect on export intensity. If we statistically compare the magnitude of coefficients, we can state that FX_concerns have the greatest impact on ExportInt, followed by FX_management and Intra-firm_loans, respectively. Table 4 and Table 5 support this. Regarding control variables, "SoundMoney_index", "Relatedness_parent", and "Sectors" are significant and positive.

We also conduct additional robustness tests. Firstly, we perform the interaction term between intra-firm loans and bank loans, as well as the interaction term between concerns about FX risks and the use of FX exchange management. However, the unreported results for these relationships are insignificant. In other words, the explanatory variables are directly associated with the dependent variable, as predicted in our hypotheses.

Secondly, we test the moderating effects of subsidiary autonomy on the relationship between internal and external debt finance, FX management, and subsidiary export intensity. Autonomy is an important variable in the subsidiary management and subsidiary-parent relationship literature (Ambos & Birkinshaw, 2010). We find that the relationships are statistically insignificant, and we do not report the results here.

Thirdly, we run moderating effects of host-country economic freedom, the access to sound money sub-index by the Fraser Institute on the relationship between external bank loans and export intensity. We do not report the results because they are statistically insignificant.

Finally, we examine the relationship between subsidiary-level retained earnings (as an alternative trade financing source) and export intensity. We find that the relationship is statistically insignificant. Due to space constraints, we do not report the results here. The empirical findings confirm our earlier theoretical proposition that export intensity cannot be funded through retained earnings.

6. DISCUSSION

In this study, we examine the relationships between intra-firm loans and external bank loans as trade finance sources and the export intensity of a foreign subsidiary using survey data of ASEAN subsidiaries of British MNEs. We initially find that both intra-firm loans and bank

loans are instrumental in supporting subsidiary export intensity. We discuss the important role of intra-firm loans. Foreign subsidiaries have access to MNE internal capital markets, which help them to overcome the challenge of limited access to external credit finance due to thin and shallow capital markets in ASEAN countries (Nguyen, 2013; Nguyen & Rugman, 2015a). Our findings confirm the important role of MNE internal capital markets from the perspective of "classic" internalisation theory (Aggarwal & Kyaw, 2008; Aulakh & Mudambi, 2005; Desai et al., 2004; Gugler et al., 2013; Mudambi, 1999; Nguyen & Rugman, 2015a; Rugman, 1980).

Our results also resonate with previous studies on multinational activity and the role of internal debt finance. Desai et al. (2004) find that the foreign subsidiaries of U.S. MNEs use internal capital markets to overcome liquidity constraints in external capital markets and react to profitable opportunities. They raise less external finance in financially underdeveloped countries and compensate by borrowing more from the parent company. They can respond to credit-market imperfections in order to relax constraints faced by input suppliers (Antràs et al., 2009). Our empirical evidence is also consistent with Manova et al. (2015), who find that multinational subsidiaries are less credit constrained because they can access funding from internal capital markets. Overall, our study is amongst the first to provide direct evidence of the role of intra-firm loans and the use export intensity as a particular dimension of subsidiary performance and quantify its statistical significance.

On the other hand, intra-firm loans are often viewed as one of the potential mechanisms used by MNEs to manipulate profits of their foreign subsidiaries by charging high interest rates, which are tax deductible for corporate income tax declaration, thus reducing taxes in relatively high-tax host countries. However, in business reality, governments in Southeast

Asian countries have become more sophisticated in their use of legal regulations to curb the tax avoidance schemes of MNEs. The interest rates of intra-firm loans must be in compliance with the arm's length price standard, referring to external comparable interest rates in open market transactions between unrelated borrowers and lenders, as well as the transfer pricing documentation requirements as per OECD guidelines. For example, in business practice, the interest rate on a short-term three-month or six-month intra-firm loan/group undertaking is often based on a three-month or six-month London Interbank Offered Rate (LIBOR) plus certain basis points for risk premium.

In addition, we obtained the insights of the participating subsidiary managers during our data collection process. They emphasise that corporate reputation, local legitimacy, and relationships with host-country governments are important factors that must be taken into consideration. They also indicate that any aggressive tax planning in related party transactions, such as intra-firm loans which could result in news headlines in the mass media, detrimentally impact the image, the survival, and the profitability of foreign subsidiaries. Overall, our empirical evidence suggests that ASEAN subsidiaries of British MNEs use intra-firm loans to support efficiency-based and value-creating activities, such as exports, rather than for value appropriation and tax avoidance purposes (Penrose, 1959).

However, bank loans do not remain significant when more demanding statistical techniques are applied. A plausible explanation for this result can be derived from the findings of the survey (Table 2). Foreign subsidiaries have to raise external bank loans from multiple countries, which is to say both inside and outside of the host countries. The weak support for external bank loans suggests that subsidiaries have trouble accessing external bank loans due to limited credit availability in host countries. Consequently, the cost of external debt

financing increases (Desai et al., 2004), and the role of external debt finance becomes insignificant.

On the other hand, foreign subsidiaries must take into consideration the fact that the level of debt in the capital structure of subsidiaries should not cause the capital structure of parent firms to deviate from acceptable standards in the home countries, as parent firms' shares are usually listed and traded there (Rugman & Collinson, 2012). The external debt finance of foreign subsidiaries is consolidated in parent firms' balance sheets and thus affects both the leverage level and the cost of capital for the MNEs as a whole (Madura, 2011). The external debt financing of foreign subsidiaries can also affect the MNEs' overall exposure to exchange rate risks, and it, therefore, influences the risk premium on capital and the cost of capital (Madura, 2011). More debt also increases a firm's liquidity risks (Mishra & Tannous, 2010). The low ratio of external debt of ASEAN subsidiaries suggests that these foreign subsidiaries have to balance their financial resource needs with the acceptable capital structure norms of their parent firms.

Our study is among the first attempts to demarcate the forms of intra-firm loans, external bank loans, and subsidiary export intensity, which is a new theoretical and empirical critical contribution. Foley and Manova (2015) find that previous studies of international trade and multinational activity that introduce corporate finance considerations do not distinguish financing sources. Analyses of the impact of firms' needs to fund export costs generally consider the overall availability of capital without demarcating the forms that this capital might take, despite the fact that this is highly relevant for managers (Foley & Manova, 2015).

Overall, we demonstrate that ASEAN subsidiaries develop sustainable export financing strategies. They innovatively and effectively utilise, combine, and exploit intra-firm loans

from MNE internal capital markets and bank loans from external financial institutions (if accessible and available) in supporting their export intensity. Furthermore, we find that subsidiaries develop necessary FX management techniques to deal with concerns surrounding FX risks. Ultimately, it reflects the subsidiary-level financial management capabilities to enhance export intensity despite thin and shallow capital markets and credit constraints in the host countries. In this way, we extend "new" internalisation theory by conceptualising and providing new empirical evidence for subsidiary trade finance being a valuable SSA (a type of LB FSA).

7. CONCLUSIONS AND LIMITATIONS

7.1 Implications for Practice

Our findings have substantive practical implications for subsidiary managers and policymakers. Firstly, subsidiaries are recommended to use internal and debt finance (if accessible and available) to enhance their export intensity because this is a sustainable export financing strategy. The availability of these critical financial resources enables subsidiaries to fund the fixed costs of export production, as well as working capital, and the financial liquidity requirements of export operations.

Secondly, we show that MNE foreign subsidiaries promote host-country economic development through the use of their internal debt finance to grow export intensity (mainly to external customers), which ultimately contributes to the balance of payments and international competitiveness of the host countries. Therefore, public policies encouraging inward FDI, trade liberalisation, and economic freedom are needed. In addition, policies

facilitating routine access to external debt finance to support export activities would be useful for both local firms and multinational subsidiaries.

7.2 Implications for theory

We build upon "new" internalisation theory in the IB literature and incorporate insights into international trade finance from the IE literature to investigate the relationship between the role of trade finance availability and export intensity at the subsidiary level. We have developed a theory-driven explanation of export intensity that is derived from the development of subsidiary-level capabilities in combining and utilising intra-firm loans from MNE internal capital markets and bank loans from external financial institutions inside and outside the host countries in supporting export intensity. We also examine the subsidiary-level development of FX risk management to deal with perceived concerns about FX risks in export transactions. We empirically test our hypotheses by using survey data of foreign subsidiaries of British MNEs in six ASEAN countries. We show that foreign subsidiaries have in-depth knowledge of the challenges of underdeveloped financial markets in the host countries, and we demonstrate how they develop sustainable financing strategies that drive export intensity. We theorise, test, and find empirical evidence that the subsidiary-level capability to combine internal and (to some extent) external debt financial resources in an effective and innovative way to enhance export intensity is a conceptually relevant SSA (LB FSA). As such, we extend "new" internalisation theory in a novel and original manner. Thus, we hope that the results of our study provide a useful platform from which to advance future theory development regarding trade finance as a driver of subsidiary export intensity.

A subsidiary perspective demands that the IB field takes a fresh look at how we theorise this phenomenon by more consciously analysing the subsidiary's engagement in exports beyond host-country national markets and especially the subsidiary-level capabilities in developing sustainable export financing strategies. Our study has attempted to make a new contribution to the IB literature. We believe that an understanding of the role of trade finance in export intensity adds new insights for both IB theory and practice. Our study provides a new departure point for future research avenues.

7.3 Limitations and suggestions for future research

Our study is subject to several limitations. Firstly, we focus on the subsidiaries of the largest British MNEs. The findings that emerge from our study might only reflect the behaviours of large Western multinational subsidiaries operating in the ASEAN countries. We suggest that future research might examine subsidiaries of MNEs from North America, Europe, and the Asia-Pacific area that have active operations in ASEAN countries. The results could then be compared with our findings.

Secondly, we use data from a questionnaire survey with complementary information on the parent firms derived from archival and public data sources for country-level factors. This approach of using both primary and secondary data sources is necessary. We focus on factors within the control of subsidiary managers (subsidiary-level explanatory variables) and control for the potential effects of country-level variables because we adopt a subsidiary's perspective. Future research may follow the traditional economic approach of a gravity model using country-level explanatory variables, such as geographical distance (e.g. freight

costs), cultural ties (e.g. former colonies), institutional and political ties (e.g. Commonwealth membership), and trade openness.

Thirdly, there are several promising directions for future research. Some elements of this work would benefit from additional study. Cross-country differences in capital access and taxation influence various strategic decisions of MNE foreign subsidiaries. We focus on how foreign subsidiaries fund their export activities and demarcate internal and external debt finance sources and how to deal with perceived concerns surrounding FX risks. Further work at the intersection of IB and international trade finance would enlighten our understanding of foreign subsidiary strategies. Future research may examine other topics. These could include what a subsidiary's export orientation is (e.g. exports to third-party external customers and arm-length's trade versus exports to internal customers and intra-firm trade), as well as the types of export products (e.g. finished goods or intermediate goods). Another area of focus could be whether transfer pricing manipulation in intra-firm trade and intra-firm loans for tax planning purpose is a primary objective. Finally, the ways that export orientation affects trade finance arrangements could be considered.

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Table 1: Sample Structure by Countries and Sectors

Countries	**British subsidiaries (percent)**	**Sectors**	
		Manufacturers (percent)	*Services (percent)*
Indonesia	18	39	61
Malaysia	13	46	54
Singapore	26	35	65
Thailand	15	53	47
The Philippines	10	50	50
Vietnam	18	50	50
Total	101 subsidiaries	44	56

Table 2. Intra-firm loans and bank loans of foreign subsidiaries in the ASEAN bloc

Intra-firm loans and external bank loans	**Percent**	**Percent**
Intra-firm borrowing, i.e. loans from sister affiliates and/or parent firms	8	
Intra-firm loans from MNE internal capital markets		**8**
Borrowing from banks in the host countries (1)	4	
Borrowing from venture capitalists in the host countries (2)	1	
Borrowing from international banks outside the host countries (3)	2	
Bank loans from external financial institutions (1) + (2) + (3)		**7**

Note: n = 101. Data is collected from a survey.

Table 3. Descriptive statistics and correlation matrix

Variables		Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12
1	Intra-firm_loans	7.77	2.92	1											
2	Bank_loans	7.01	2.89	-0.57	1										
3	FX_concerns	0.17	0.38	-0.04	-0.05	1									
4	FX_management	0.50	0.50	-0.04	-0.02	0.46	1								
5	SoundMoney_index	7.90	1.33	0.05	-0.39	-0.02	0.04	1							
6	Relatedness_ parent	0.02	0.17	0.03	-0.02	-0.08	-0.06	0.06	1						
7	Subsidiary_age	2.62	1.26	0.24	-0.19	-0.10	-0.10	0.05	-0.04	1					
8	Subsidiary_size	1.62	1.14	-0.07	-0.02	0.06	-0.11	-0.18	-0.04	0.26	1				
9	Subsidiary_autonomy	3.36	0.79	0.14	0.02	0.01	-0.14	-0.10	-0.08	0.01	0.07	1			
10	Parent_ size	3.29	2.56	-0.09	-0.03	-0.03	-0.07	-0.19	-0.02	0.33	0.37	-0.01	1		
11	Sectors	0.43	0.49	-0.08	0.05	-0.20	-0.16	0.03	-0.03	0.08	0.09	0.02	0.14	1	
12	CreditMarket_index	9.19	0.57	0.25	0.26	-0.08	-0.09	0.06	0.17	0.14	-0.06	-0.00	-0.23	-0.02	1

Note: n=101.

Table 4. Multiple Linear Regression Model with Cluster Effects by Country

		Dependent Variable: ExportInt→[0,100]		
		Model I	***Model II***	***Model III***
Independent Variables	Intra-firm_loans	4.24 **		3.05 ***
		(1.35)		(0.45)
	Bank_loans	1.57		1.23 **
		(1.37)		(0.26)
	FX_concerns	-27.38 **		-22.92 ***
		(9.48)		(3.21)
	FX_management	15.48 *		14.16 **
		(7.23)		(3.29)
Control Variables	SoundMoney_index		11.52 **	10.63 ***
			(2.13)	(0.97)
	Relatedness_parent		21.76 ***	19.50 ***
			(3.19)	(1.94)
	Subsidiary_age		0.81	-1.06
			(2.17)	(2.33)
	Subsidiary_size		-3.60	-1.70
			(2.39)	(1.61)
	Subsidiary_autonomy		1.44	0.86
			(2.27)	(1.21)
	Parent_size		-1.80	-1.47
			(1.01)	(1.25)
	Sectors		6.85	6.00
			(3.61)	(4.00)
Constant		-19.88	-61.73 *	-86.41 ***
		(17.97)	(17.05)	(8.32)
R^2		0.175	0.278	0.376
Adjusted R^2		0.141	0.224	0.298
Pseudo R^2		0.019	0.033	0.047
F-test (o)		61.44***	14.11**	88.33***

Notes: n = 101.
*p-value< 0.05; ** p-value< 0.01; *** p-value< 0.001
() Robust standard errors clustered by country.

(o) Bonferroni-adjusted p-values.

Table 5. Tobit and Fractional Response Models with Cluster Effects

		Dependent Variable: ExportInt→[0,100]						*Dependent Variable: ExportInt/100→[0,1]*					
		Tobit				**HET Tobit**		**Fractional Response**				**HET FracResp.**	
		Model I		***Model II***		***Model III***		***Model I***		***Model II***		***Model III***	
Independent Variables	Intra-firm_loans	6.44	**			5.32	***	5.56	***	0.13	***			0.11	***	0.08	**
		(2.08)				(0.52)		(1.17)		(0.04)				(0.02)		(0.03)	
	Bank_loans	1.11				0.43		0.43		0.05				0.01		0.01	
		(2.26)				(0.35)		(1.16)		(0.04)				(0.02)		(0.02)	
	FX_concerns	-59.24	***			-50.28	***	-56.89	**	-1.01	**			-0.98	***	-0.74	***
		(17.25)				(12.84)		(18.41)		(0.37)				(0.20)		(0.11)	
	FX_management	19.52	***			19.76	***	25.06	**	0.48	*			0.51	**	0.42	***
		(5.35)				(18.41)		(8.32)		(0.23)				(0.16)		(0.09)	
Control Variables	SoundMoney_index			16.66	***	15.89	***	15.18	***			0.37	***	0.37	***	0.26	***
				(4.76)		(0.97)		(1.66)				(0.07)		(0.03)		(0.04)	
	Relatedness_parent			44.16	***	33.89	***	32.52	*			0.62	***	0.53	***	0.49	***
				(6.67)		(4.54)		(15.75)				(0.07)		(0.11)		(0.13)	
	Subsidiary_age			1.56		-3.22		-3.86				0.01		-0.07		-0.05	
				(4.02)		(4.35)		(3.50)				(0.09)		(0.10)		(0.05)	
	Subsidiary_size			-7.31		-2.51		0.71				-0.19		-0.10		-0.02	
				(5.70)		(3.48)		(5.42)				(0.12)		(0.08)		(0.10)	
	Subsidiary_autonomy			1.32		-0.96		-2.23				0.05		0.01		0.01	
				(3.89)		(1.42)		(2.25)				(0.08)		(0.04)		(0.03)	
	Parent_size			-2.78	*	-2.15		-0.44				-0.05		-0.05		0.01	
				(1.20)		(1.68)		(2.30)				(0.04)		(0.05)		(0.04)	
	Sectors			19.01	*	17.56	*	19.33	*			0.28	*	0.28	+	0.19	
				(7.46)		(6.90)		(9.67)				(0.13)		(0.15)		(0.11)	
Constant		-47.29	+	-115.63	*	-144.70	***	-146.61	***	-2.14	***	-3.43	***	-4.32	***	-3.32	***
		28.35		(44.42)		(13.61)		(13.65)		(0.52)		(0.62)		(0.32)		(0.56)	
Pseudo R^2		0.035		0.045		0.074		0.342		0.100		0.155		0.223		0.186	
F-test//Wald-chi2(°)		136.27	***	56.71	***	309.33	***	23.02	***	72.26	***	318.16	***	166.98	***	536.03	***
		42 left-censored; 57 uncensored; 2 right-censored observations															

Notes: n = 101. // +p-value<0.1; *p-value< 0.05; **p-value< 0.01; ***p-value< 0.001 // () Robust standard errors clustered by country. // (°) Bonferroni-adjusted p-values.

[1] Acronyms: ASEAN=Association of Southeast Asian Nations; FSA=firm specific advantage; FX=foreign exchange; HQ=headquarter; IB=international business; IE=international economics; LB=location bound; MNE=multinational enterprise; SSA=subsidiary-specific advantage.

[2] Note that Tobit models' dependent variable is "ExportInt", while FracRes models use "ExportInt" divided by 100. This justifies the different magnitudes of coefficients.