Why Do Japanese MNEs Enter and Exit Foreign Markets?

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Abstract

This paper examines the FDI entry and exit behavior of Japanese multinational enterprises (MNEs) in foreign markets using firm-level panel data for the period of 1995-2015. We construct "sales verticalness" and "purchase verticalness" for each country, which is a novel index to measure the degree of connection with Japan in terms of overseas affiliate sales and procurement and present several stylized facts. Unlike exporter dynamics, the exit rates of FDI are much lower, but increase with market-specific age, implying larger sunk costs pertaining to FDI. At the country level, the exit rates of FDI increase with distance whereas entry rates show no correlation. Sales verticalness declines with distance exhibiting gravity, while purchase verticalness does not. Probit regression analysis of firm entry and exit of FDI reveals that a firm's past experience of exporting raises the probability of FDI entry and lowers the probability of exit in the region implying that learning by exporting reduces the uncertainty entailed in FDI. Sales verticalness promotes entry and lowers exit propensity after controlling for country characteristics such as GDP and distance. In contrast, purchase verticalness discourages entry and raises exit propensity.

Keywords: export experience, intra-firm trade, foreign direct investment, multinational enterprises

JEL classification: F10, F14, F21

1. Introduction

Multinational production is considered to be an important driver of global production and international trade (Antràs and Yeaple, 2014). An important aspect of multinational enterprises (MNEs) behaviour is the pattern of entry and exit in foreign markets. Although such dynamics has been studied extensively for exporters, there has been a limited focus on MNEs. To the best of our knowledge, Gumpert *et al.* (2019) is an exemplary exception.

In approaching the dynamics of foreign direct investment (FDI) entry and exit, a natural question arises about the determinants of MNEs behavior. A usual distinction is made about the motive to serve the foreign market: market-seeking versus efficiency-seeking. Nonetheless, when an MNE decides how to operate in the foreign market, it should consider its sales and production structure, which may leed to the need to purchase inputs from the FDI source country, along with sales of output back to the source country. Therefore, the motive of operation may not be limited to the market seeking and efficiency-seeking behaviour.

The objective of this paper is two-fold. First, our paper unveils various patterns of FDI entry and exit using Japanese micro-level data. Second, the paper attempts to reconcile the motive of FDI operation as a function of sales and purchases behavior with respect to the FDI's home country (Japan). From the theoretical point of view, the traditional proximity-concentration framework focuses on the so-called horizontal FDI (Helpman *et al.*, 2004). Within this framework, a firm that establishes a foreign affiliate seeks to decrease its trade costs, and therefore substitutes export activity by multinational production activity. This is the market-seeking motive of FDI entry and operation. In such a case, trade costs should stimulate horizontal FDI. Alternatively, a firm may seek to decrease its variable costs of production, and thus moves a part of its production activities to the countries with low production costs. This is the efficiency-seeking or so-called vertical FDI. One would expect that such affiliates sell a

high share of their output back to the source country. Interestingly, however, affiliates may need to source inputs from their parents or from the home country. As Irarrazabal *et al.* (2013) show, such intra-firm trade from parent to affiliate is an important mechanism that can explain a decrease of FDI activity with distance.

Therefore, when MNE's decide to operate in the foreign market they may consider a more complicated production and trade structure, which cannot be defined as solely the market-seeking or solely the efficiency-seeking motive. We conjecture that expected affiliates' sales to and from the home country, and the associated costs of such production structure play an important role in the decision where to locate foreign affiliate.

In this paper we provide an extensive examination of FDI entry and exit behavior of Japanese MNEs. Our rich micro-level data allow us to examine both extensive and intensive margins of Japanese affiliates behaviour. We unveil several features in regards to the dynamics of Japanese foreign affiliates. Japanese firms entry rate is decreasing in distance while exit rate is increasing in distance. The affiliates survival rate with respect to age reveals negative, close to linear, functional relationship rather than exponential decay, which is typically observed for exporters.

We augment this analysis by introducing two country-level measures of the sales and purchase patterns with respect to the home country: "sales verticalness" and "purchase verticalness". These measures are aimed at capturing both extensive and intensive margins in the behavior of Japanese affiliates. Sales verticalness measures a tendency of a country to host affiliates that sell most of their output to Japan as opposed to affiliates that sell most of their output locally or to third countries. Purchase verticalness of a country measures its tendency to host affiliates that purchase most of their inputs from Japan as opposed to those who purchase most of their inputs locally. We associate sales verticalness with importing activity of Japanese firms, while purchase verticalness with exporting behavior. For instance, Germany showed a high level of purchase ver-

ticalness. We infer that this could be the result of FDI activity of big firms from automobile and machinery industries that aim at bringing intermediate good from Japan to serve local markets. On contrary Asian countries exhibit relatively higher level of sales verticalness which could mean that Japanese firms establish affiliates to purchase intermediate goods and bring them to Japan.

By examining these two country-level measures we document that on average Japanese affiliates tend to be located in countries with the majority of affiliates selling and purchasing locally. Nevertheless, the distribution of sales to and purchases from Japan is bimodal, implying that there is a significant number of affiliates that sell a high share of output back to Japan and purchase a high share of input from Japan. Such multi-dimensional behavior of Japanese affiliates was also documented in Baldwin and Okubo (2014).

Finally, we conduct an empirical analysis of the effect of sales and purchase verticalness on FDI entry and exit decision by Japanese MNEs. The results show that these countries' characteristics are important determinants of the MNEs' decisions to operate in a market. Sales verticalness encourages FDI entry and discourages FDI exit, while purchase verticalness works in the opposite direction: decreases the probability of FDI entry and increases the likelihood of FDI exit. We conjecture that by examining the behavior of exiting affiliates at destination, MNEs can reveal the potential for the future production structure and the costs associated with their future activities. Therefore, sales patterns of other firms' affiliates serve as a signal that affects firm's decision where to locate foreign affiliate.

This paper brings two important innovations to the existing literature. First, it extends the understanding of the dynamics of FDI entry and exit for Japanese affiliates. Second, it emphasizes the importance of sales and purchases verticalness in the decision to operate in the foreign market. Our unique micro-level data allow us to test and confirm this hypothesis.

The paper is structured as follows. Section 2 describes our data, followed by the overview of FDI dynamics in Section 3. Section 4 describes our empiri-

cal methodology, and Section 5 presents the results and discussions. Section 6 concludes.

2.   Data

To unveil the FDI dynamics of MNEs, we use two micro-level datasets that are both compiled by the Ministry of Economy, Trade and Industry (METI) in Japan. Our main dataset is the Basic Survey on Overseas Business Activities (the FDI survey hereafter), which provides information on foreign affiliates that belong to Japanese parent companies. A foreign affiliate is defined as an overseas firm in which a Japanese corporation has invested capital of 10% or more (subsidiary). Also, an overseas firm funded over 50% by a subsidiary that is funded over 50% by a Japanese parent company is counted as a foreign affiliate (sub-subsidiary).[1] The data are recorded at an annual frequency, and cover a period of 1995-2015. All Japanese firms that have foreign affiliates in the above definition are subject of the survey. The response rate is around 70%, and we assume no systematic difference between respondents and non-respondents.

The FDI survey consists of two layers: firm-level and affiliate-level data. The firm-level data report parent firm's characteristics such as sales, employment, value added, industry classification, total exports and imports. The affiliate-level data contain information of each affiliate, such as its parent firm in Japan, location (country), industry classification, operating status, date of establishment or capital participation, employment, sales and purchases. Affiliate sales are broken down into three categories: local sales, exports to Japan, and exports to third countries. Affiliate purchases of intermediate inputs are categorized similarly: local purchases, imports from Japan, and imports from third countries. This breakdown of sales and purchases enables us to construct the measure of FDI "verticalness", degree of connection with Japan in physical good

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[1]Most of the affiliate observations are subsidiaries. Even though the 10% threshold for equity share might seem low, more than half of affiliates report 100% shares, and more than three quarters of affiliates report that at least 75% of capital is invested by Japanese parent companies.

flows.

Main focus of our analysis is overseas affiliates' entry and exit patterns. We define the year of entry as the date of affiliate establishment or capital participation. For exit, we use information on operating status. Every year, affiliates report whether their business is in operation or in suspension, or whether they exited from the market. Dissolution or decline in control share are defined as an affiliate exit. Also, if a parent firm stopped reporting an affiliate, and the affiliate never shows up again in the sample, it is counted as an affiliate exit. There are some firms that drop out from the sample but reappear in the FDI survey after a few years. If they report the same affiliates operating in both periods, we assume those affiliates were operating in the "missing periods". The typical duration of the missing periods is one or two years. To mitigate the sample selection bias due to our treatment of data, last two years of the panel are dropped whenever we analyze affiliate exits. Firm exits from a country are defined as losing all affiliates in the country. The time of a firm entry into a country is defined as the year when the firm established or acquired its first affiliate in the country. We drop "tax haven" countries from our sample because we focus on analysis of the FDI dynamics that entails real economic activities in host countries.[2]

The second database used in this paper is the Basic Survey of Japanese Business Structure and Activities (the basic survey hereafter), which provides detailed information on financial statements, profits and losses, and other strategic activities of firms. This survey is compulsory for firms with over 50 employees and for firms with capital of more than 30 million yen (roughly 300,000 USD). We have access to the data for a period of 1994-2015, and use firm-level export information from this survey to supplement the FDI data. The export data of the basic survey report only destination regions (rather than countries), belonging to one of the following seven: North America, South America, Asia,

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[2]The excluded "tax heaven" countries are Panama, Liberia, Cayman Islands, Virgin Islands, British Bermuda, Bahamas, Northern Mariana Islands, and Netherlands Antilles, in the order of the number of affiliates. There are many lists of tax haven published by various organizations such as OECD or EU. Our list might be a bit arbitrary, but we aim to remove countries that have disproportionately high number of affiliates in a gravity sense.

Middle East, Europe, Oceania, and Africa. We merge this export information with the FDI survey to test whether past export experience affects the propensity of FDI entry and exit in the same region. Though firms covered in these surveys are not representative of the entire population of firms operating in Japan, our sample provides a good picture of FDI and export activities, which are dominated by larger firms.

3. Overview of the FDI Dynamics

In our cleaned sample of the FDI survey, 10,524 firms and 51,494 affiliates are recorded in the 20-year window of 1995-2015. The number of affiliates by firm is quite skewed. Throughout the sample period, the median and mean numbers of affiliates per firm are 1 and 4.06 respectively. Most of the firms have only one affiliate but a handful of firms have more than 600 affiliates.

With entry and exit, the stock of affiliates operating in a particular country changes over time. In Figure 1 we show data on stock, entry, and exit aggregated into four regions: North America, Asia, Europe, and Other Regions (South America, Middle East, Oceania, and Africa). As one can see from Figure 1, the evolution of affiliate stock exhibits different patterns across regions. By comparing years t and $t+1$, we can identify entrants and exiters. Entry and exit rates are calculated as the fraction of entrants and exiters to the total number of affiliates in year $t+1$. Since the late 1990s, the number of affiliates in North America has been declining, whereas Asia shows a rapid growth. Our sample period corresponds to the surge of the Chinese economy and its accession to the WTO, as well as the Japanese conclusions of economic partnership agreements with Asian countries. The rapid growth of affiliates in Asia was caused by a high entry rate after the year of 2000, whereas entry rates in other regions are lower than exit rates leading to a decline in stock.
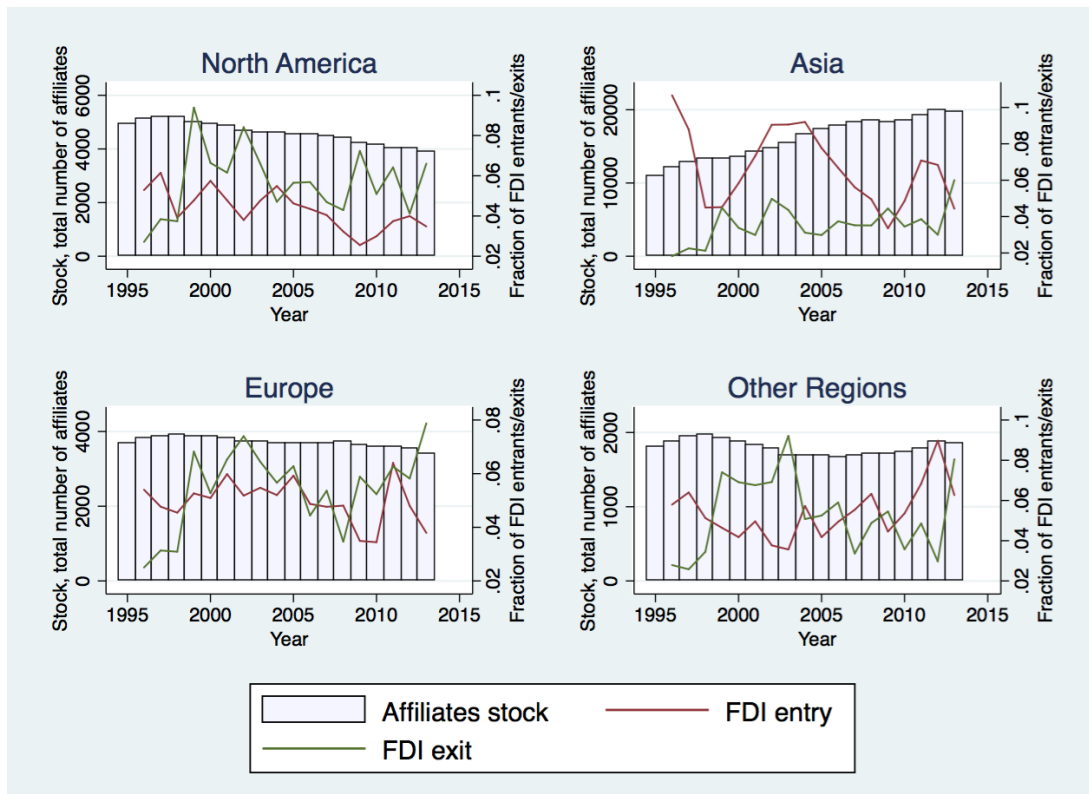
Figure 1: Stock, entry, and exit rates of overseas affiliates by regions

Source: The Basic Survey on Overseas Business Activities from METI

3.1. Entry and Exit
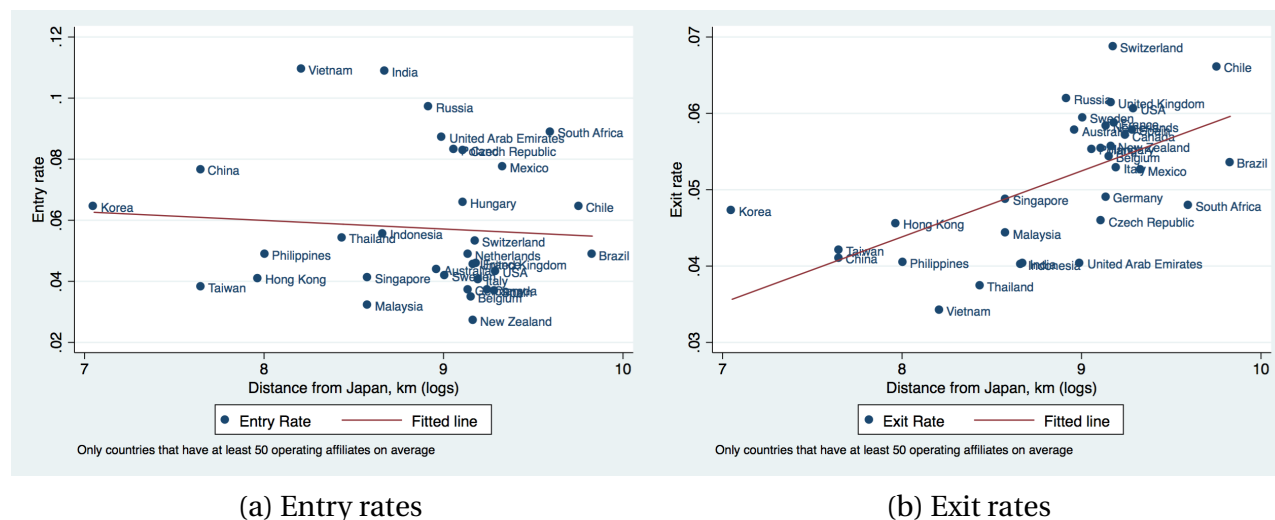

(a) Entry rates

(b) Exit rates

Figure 2: Entry and exit rates versus distance

Source: The Basic Survey on Overseas Business Activities from METI

Figure 2 displays the scatter plots of entry and exit rates against distance by country. Entry and exit rates are computed according to the above definition for each year, then averaged across 20 years. For the purposes of this figure, we focus on countries in which at least 50 affiliates are observed on average. The figure tells us that entry rates are not correlated (or, if anything, slightly negatively correlated) with distance whereas exit rates exhibit a clear positive correlation. Gumpert *et al.* (2019) document that, in terms of entry and exit rates, young exporters exhibit gravity, while young MNEs do not. Although we computed exit rates using all operating affiliates in each year (rather than just the first-year exit rates for young MNEs), we confirm gravity for Japanese MNEs in terms of exit rates. Figure 3 is the scatter plot of entry and exit rates by country. We see that entry and exit rates are negatively correlated. Also, we see that Asian countries are below the fitted line, whereas European countries and the United States are above the line, implying that Asian countries attract relatively more
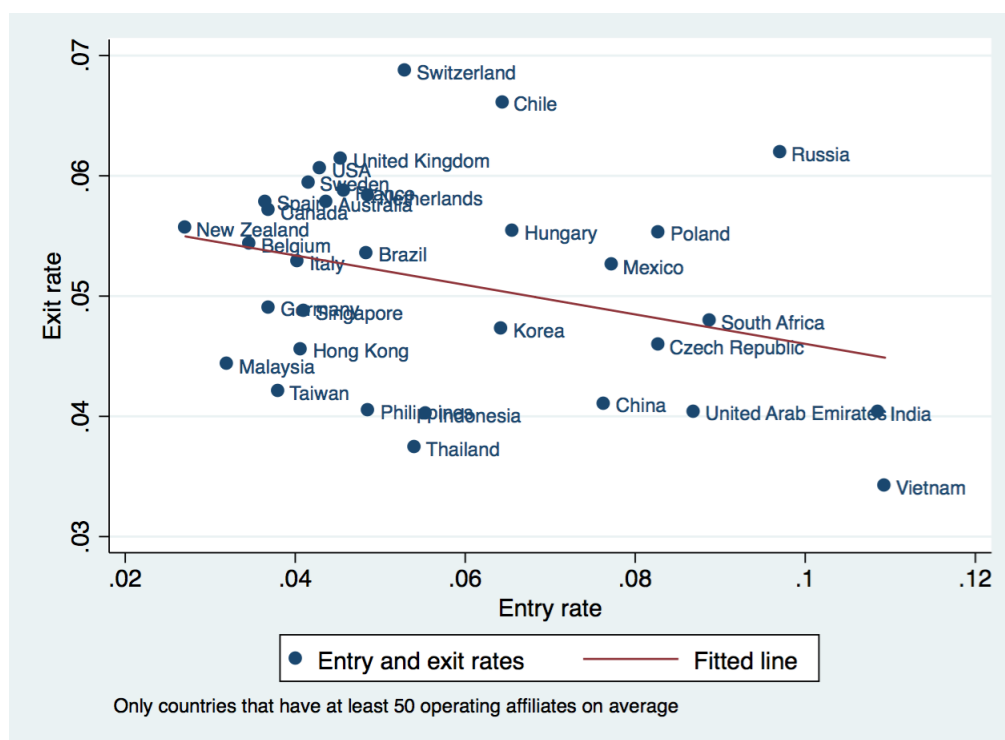
Figure 3: Entry rates versus exit rates by country

Source: The Basic Survey on Overseas Business Activities from METI

affiliates and tend to retain them more.

Some studies report that the most of exporters tend to exit from the destination market within a few years after entry, but once they survive for several years, they tend to remain. This implies a negative relationship between exit rates and market-specific age. To check this pattern in the case of FDI, Figure 4 plots exit rates and market-specific age. For this analysis, we focus on affiliates that were established after 1995. For each entry cohort since 1995, we compute age-specific exit rates (the number of exiters at the particular age divided by the total number of affiliates of the same age), then averaged across all cohorts using the number of operating affiliates as weights. A positive relationship between exit rates and market-specific age is observed in Figure 4, which contrasts with exporter dynamics. The same analysis is conducted for French and
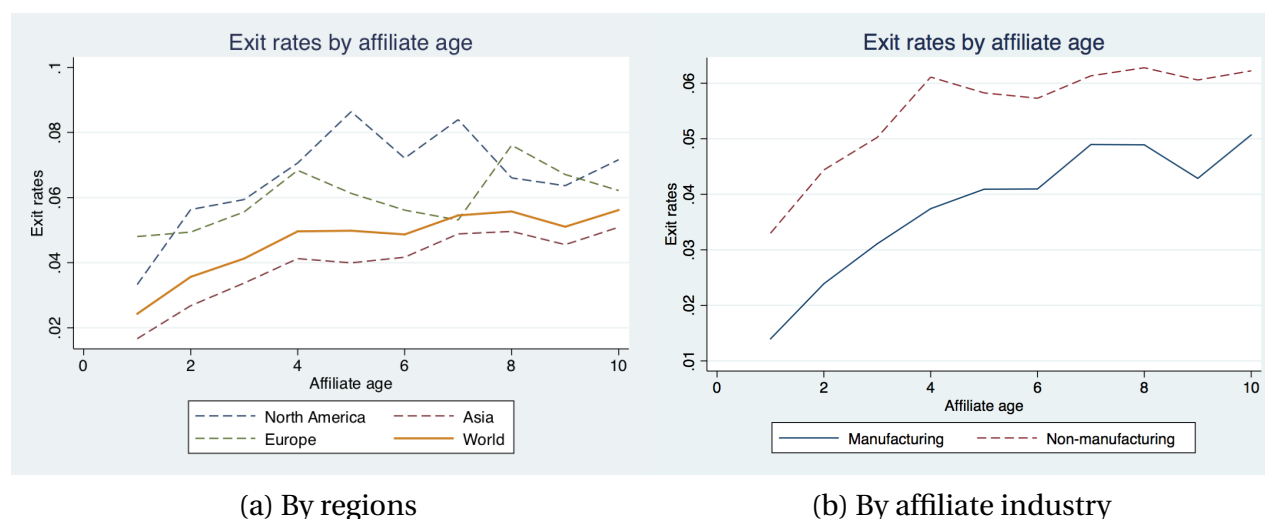
(a) By regions

(b) By affiliate industry

Figure 4: Exit rates and affiliate age

Source: The Basic Survey on Overseas Business Activities from METI

Norwegian firms in Gumpert *et al.* (2019). They find a clear negative relationship for exporters but a less clear (still slightly negative) relationship for FDI exits. Also, the magnitude of exit rates in our data is much smaller than their numbers. Further investigation is required to conclude that this is a unique feature of Japanese MNEs or some issue with our data. Figure 5 shows cohort survival by regions and by entry cohorts. The left panel is the survival of entry cohort 1996 for three main regions and the rest of the world. Asia exhibits a higher survival rate than any other regions, and this is observed in all entry cohorts. The right panel is the survival of six different entry cohorts 1995-2000 for world aggregate. The survival pattern is very similar across cohorts implying there is little cohort effect on exit rates. Because of the positive relationship in market-specific age and exit rates, our survival figures are close to a linear (not exponential) decay. FDI by Japanese MNEs are very tenacious; more than half of the original cohort still remain in the market even after 15 years after entry.
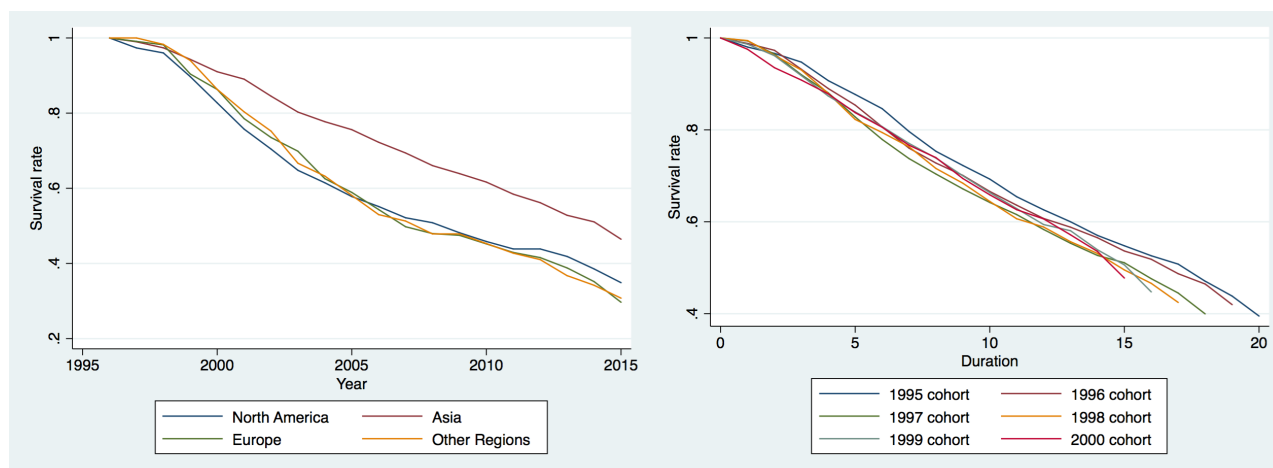
(a) Survival of the entry cohort 1996 by regions   (b) Survival of entry cohorts 1995-2000, world aggregate

Figure 5: Cohort survival

Source: The Basic Survey on Overseas Business Activities from METI

3.2.   Verticalness of FDI

About a third of the affiliates in the FDI survey report sales and purchase values with detailed breakdowns. We use information on sales to Japan and import from Japan to construct a measure of "verticalness" of FDI, and see how it is related to country-level characteristics. Figure 6 illustrates the share of sales to Japan and purchase from Japan, and how they are correlated to distance at country level. Those shares are computed as aggregate sales to Japan divided by total sales (and imports from Japan divided by total purchase) at country level for each year, and averaged over the sample period. We dropped countries with less than 10 affiliates that report either sales or purchase information. Observe that the ratio of sales to Japan versus total sales exhibits a negative correlation with distance at country level while the ratio of import from Japan versus total purchase does not show such a clear relationship. A standard proximity-concentration theory predicts a negative relationship for both cases, but we do
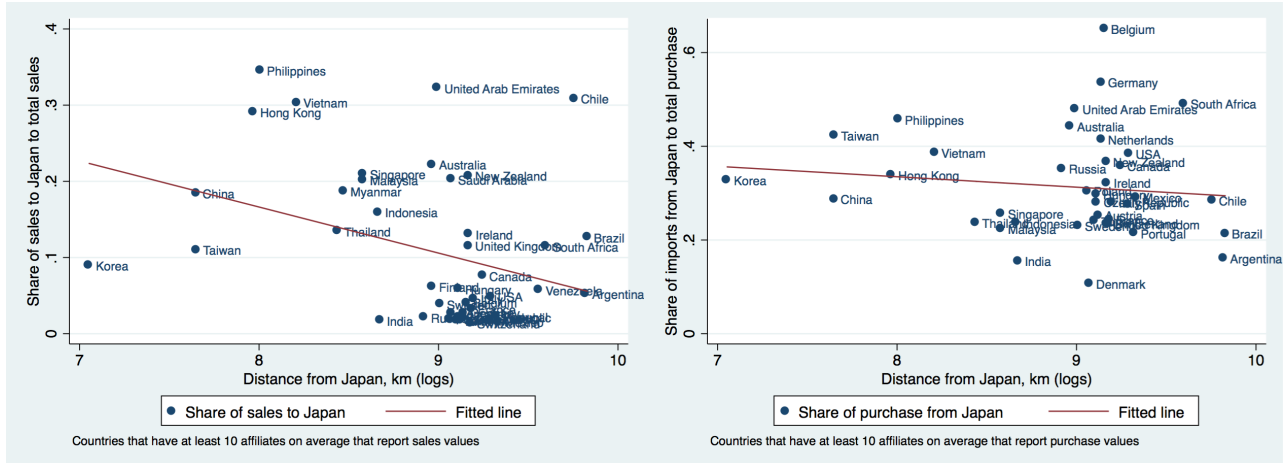
(a) Sales to Japan/total sales

(b) Imports from Japan/total purchase

Figure 6: Vertical connection to Japan in affiliate sales and purchase

Source: The Basic Survey on Overseas Business Activities from METI

not find a strong negative correlation for affiliate purchase. The aggregate share of sales to Japan to total sales may be dominated by a few large firms due to the granularity of MNEs. To capture the country-level degree of connection to Japan more correctly, we construct a verticalness index of FDI sales and purchase using the distribution of the sales and import share to/from Japan. For sales, we calculate the share of sales to Japan to total sales for each affiliate. We define vertical affiliates in terms of sales as affiliates whose share of sales to Japan is more than 80%. Similarly, horizontal affiliates are defined as affiliates whose share of sales to Japan is less than 20%. Let N_i^V and N_i^H be the number of vertical and horizontal affiliates in country i. Then, the verticalness index of country i is constructed as

$$\text{Verticalness of country } i = \frac{N_i^V - N_i^H}{N_i^V + N_i^H}.$$

This verticalness index ranges from −1 to 1, and has a nice feature that it can deal with N_i^V or N_i^H being zero. If the index is positive, we have more vertical affiliates than horizontal affiliates and vice versa for negative values of index. For most countries, the distribution of the sales to Japan/total sales is bi-modal. Two masses are observed for 0% (complete horizontal) and 100% (complete vertical). Our definition of vertical and horizontal affiliates captures the majority of affiliates.

We construct the verticalness of purchase analogously. Figure 7 summarizes the verticalness of sales and purchase for countries with more than 20 affiliates on average that report sales and purchase information. As we can see, sales verticalness is negative for all countries meaning that there are more horizontal affiliates than vertical affiliates in any country. Asian countries such as Vietnam, Philippines and China have high sales verticalness while European and Latin American countries have low sales verticalness. For purchase verticalness, Germany shows positive number while all other countries have negative index. It is surprising that the top country in terms of purchase verticalness is not necessarily close to Japan in terms of distance.

Figure 8 plots sales and purchase verticalness against distance. A gravity-type theory predicts negative relationship between verticalness and distance. We see a negative correlation for sales but much less correlation for purchase. This pattern is similar to Figure 6. Both intensive and extensive margins of verticalness suggests that overseas affiliates tend to sell products back to Japan if they are located in nearby countries, but this does not hold for affiliate purchase from Japan.

Figure 9 depicts the relationship between sales verticalness and purchase verticalness. We see that both verticalness indices are negative implying that Japanese MNEs build overseas affiliates mainly to engage in horizontal business activities. The red line is the 45-degree line. If sales verticalness is higher than purchase verticalness (above the red line), the country has more affiliates that sell back to Japan than affiliates that import from Japan. From the Japanese
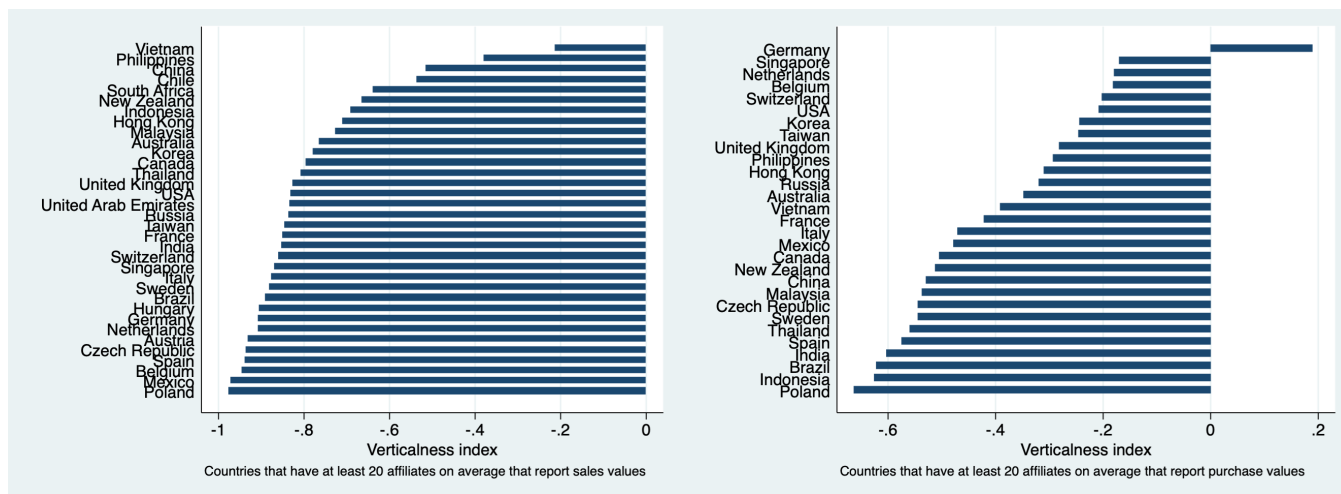
(a) Sales verticalness   (b) Purchase verticalness

Figure 7: Verticalness index of sales and purchase

Source: The Basic Survey on Overseas Business Activities from METI
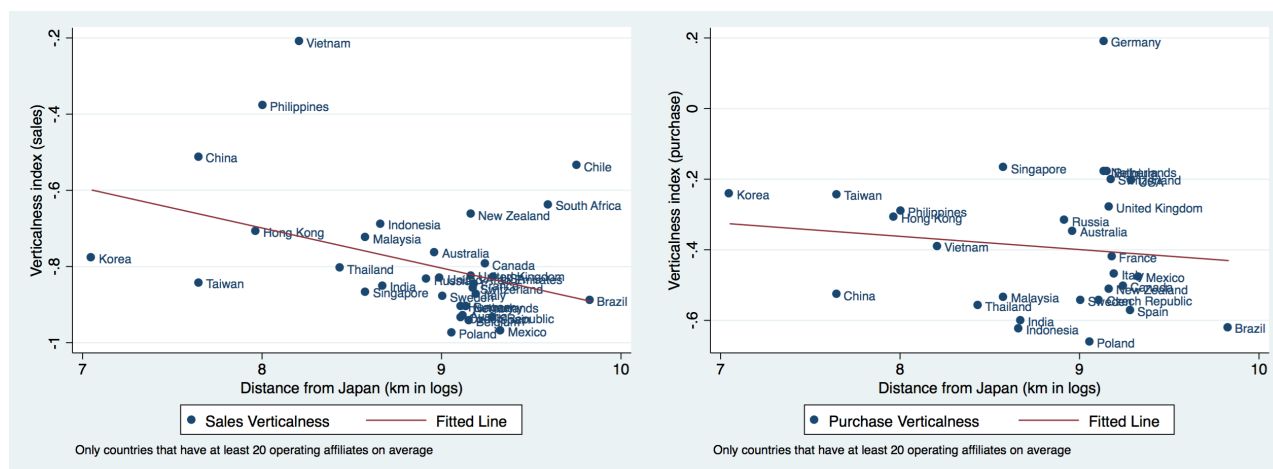
(a) Sales verticalness   (b) Purchase verticalness

Figure 8: Verticalness and distance

Source: The Basic Survey on Overseas Business Activities from METI
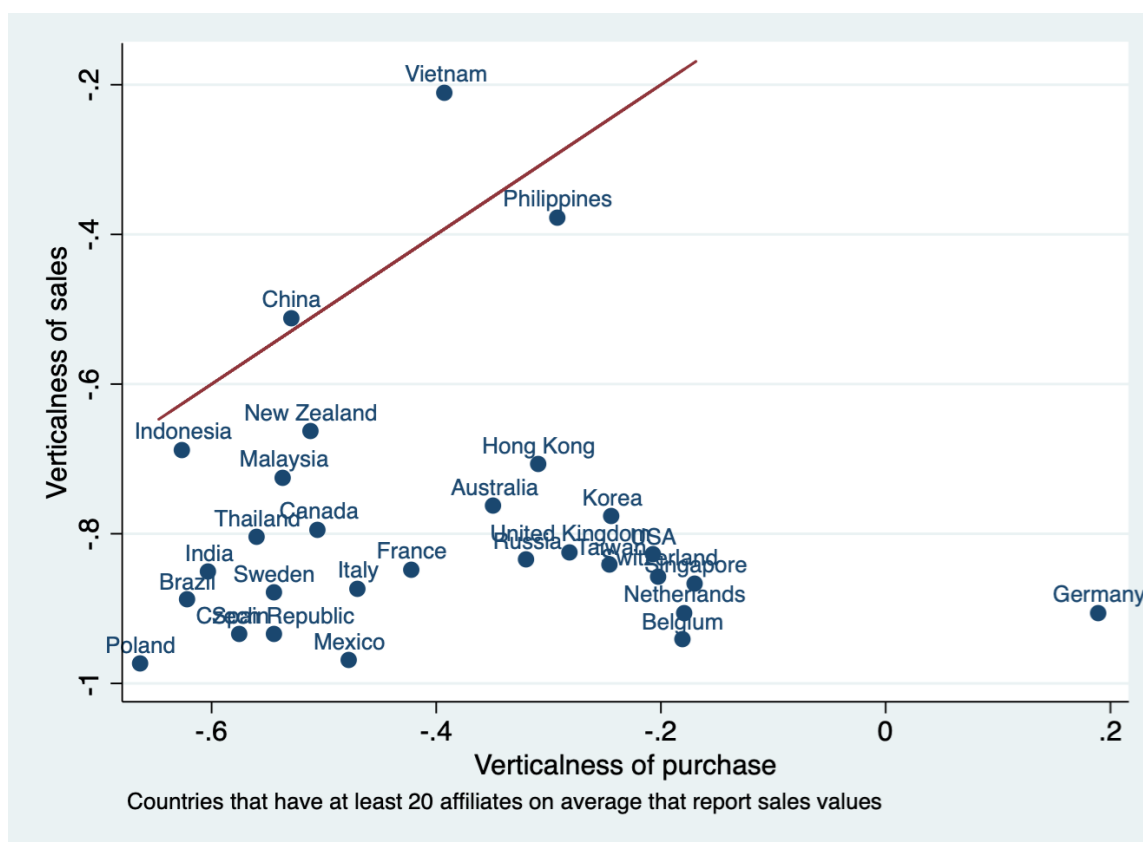
Figure 9: Verticalness of sales and purchase

Source: The Basic Survey on Overseas Business Activities from METI

MNE's perspective, this is similar to importing activity. In the extreme case where sales verticalness is 1 and purchase verticalness is −1, Japanese MNEs are importing goods from the host country via FDI. Similarly, if a country is located below the red line, there are relatively more affiliates that engage in importing from Japan compared to exporting to Japan. From the Japanese MNE's perspective, this is close to exporting activity. Almost all countries have higher purchase verticalness than sales verticalness. FDI can be considered as an alternative way to bolster exporting.

4.   Empirical Methodology

The scope of our empirical analysis is to know how sales and purchase vertical-
ness of the country affect the probability of entry and exit in the market. First,
we examine the probability of firm entry into a foreign market. After that we
perform an analysis of the likelihood to exit from a market. We discuss our em-
pirical strategy below.

4.1.   Firm's entry

The dataset for the analysis of entry decision is constructed as follows. We
merge the information from the basic survey and from the FDI survey using
the converter prepared by the Research Institute of Economy, Trade and Indus-
try (RIETI). This converter provides a matching of the unique identifiers from
both surveys for each year. The firms include those serving only domestic mar-
kets, exporters, and MNEs. All firms are observed from their appearance in the
sample until the latest year when they participated in the survey. Thus, we end
up with 41,533 firms. Some firms are observed for the whole period of years
1995-2015, and some only for a shorter period of time. Each firm has an option
to establish foreign affiliate in one of 46 countries every year that we observe
the firm. The starting list included 143 countries where at least one affiliate
was reported in our sample period of years 1995-2015. We dropped all coun-
tries that had less than 20 affiliates on average for the whole period. We also
dropped eight "tax heaven" countries as explained in Section 2. Our approach
to examine all possible location choices is an attempt to overcome the usual
bias due to the limited variability of some location determinants which may re-
duce the generalization of results. We include all pairs of firm-countries even if
we observe zero FDI entries. If a firm establishes an affiliate in a country we ex-
clude country-firm observations in the period after the entry. As a result we are
working with unbalanced panel dataset that has three dimensions at the firm,
country and time-level.

The firm will start an affiliate if the expected revenue is greater than expected costs and sunk costs of FDI entry. We would like to estimate the effects of various factors on the probability of FDI entry using the following equation:

$$
\begin{aligned}
\text{Prob}\left[\text{Entry}_{f,c,t}\right] = & \beta_1 \text{SalesVerticalness}_{c,t-1} + \beta_2 \text{PurchaseVerticalness}_{c,t-1} \\
& + \beta_3 \log\left(\text{Distance}_c\right) + \beta_4 \log\left(\text{RealGDP}_{c,t}\right) \\
& + \beta_5 \log\left(\text{NmbOfAffiliates}_{c,t-1}\right) \\
& + \beta_6 \log\left(\text{ExportExperience}_{f,r,t-1}\right) + \boldsymbol{\gamma X_{f,t}} + \delta_t + \varepsilon_{f,c,t},
\end{aligned}
\tag{1}
$$

where $\text{Entry}_{f,c,t}$ is dummy equal to 1 if firm f established a foreign affiliate in a country c in year t for the first time. The key explanatory variables are $\text{SalesVerticalness}_{c,t-1}$ and $\text{PurchaseVerticalness}_{c,t-1}$. We conjecture that when a firm observes a potential market it takes into consideration its expected production structure, the need of inputs from Japan, and potential for sales back to Japan. The patterns of existing Japanese affiliates' behavior in terms of sales to Japan and purchases from Japan serve as a country-level characteristics that affect the decision to enter. Therefore firm's expected profitability (and thus the probability of entry) is a function of country-level sales verticalness and purchase verticalness conditional on other factors held fixed.

Our goal is to find the probability that a firm f will establish an affiliate in country c in year t. One of the problems in estimating equation (1) concerns the unobserved characteristics of the firm such as product attributes and marketing activities which could affect the decision to establish an affiliate in a foreign country. There are several potential strategies to estimate the parameters in this binary-choice model with unobserved heterogeneity such as linear probability models with fixed or random effects, logit with fixed or random effects, probit with fixed or random effects, conditional logit, mixed logit (Train, 2009). First, we can assume that unobserved factors that affect Japanese firms' decisions are independent over repeated choices. However, we acknowledge that such an assumption of independent errors over time is likely violated. For instance,

product attributes could affect each of the Japanese firms' choices. We choose to estimate the problem using probit model, which is known to provide robust estimates if this assumption is violated.

Another decision that we need to make is the choice in between fixed and random effects. We choose to work with random effects as they allow for additional flexibility of the model; although we recognize that unobserved firm characteristics may be correlated with the regressors such as parent's productivity and size. We also include year fixed effects δ_t to control for time-varying characteristics that are constant for all firms.

As our objective is to examine country-level key variables such as sales verticalness and purchase verticalness, we do not include country fixed effects.[3] Finally, we recognize that our estimation results can be sensitive to the industry in which the firm is operating. Therefore, we split our sample in manufacturing and non-manufacturing firms and provide additional estimates of our model for both sub-samples.

4.2. Effect of Sales Verticalness and Purchase Verticalness

Our key explanatory variables are SalesVerticalness$_{c,t-1}$ and PurchaseVerticalness$_{c,t-1}$. The measurement procedure as well as data characteristics are explained in Sections 2 and 3. We conjecture that these measures can serve as a proxy for signals that are observed by firms when they face a decision to enter a foreign market via FDI, i.e., to establish an affiliate. SalesVerticalness$_{c,t-1}$ reflects the property of a country that shows a presence of firms selling higher share of output to Japan. The logic behind this measure

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[3]In setting our problem, we assumed that Japanese firms are in a position of choosing a location to invest. However, as the firm internationalization process suggests, firms first choose whether or not to serve the foreign market. Then, conditional on this decision, they choose whether to serve a particular location via exports or FDI. Thus, the decision process takes the form of a nested approach. One possibility to tackle this problem is the nested logit model. However, given the complexity and computational difficulty of such approach, we chose to work with the probit model. As a robustness check, we estimated linear probability model and confirmed that the results are similar to the probit model.

is the following. If a foreign affiliate sells a lot back to Japan instead of selling locally (or to third countries), then this foreign affiliate was established with a purpose of using some cheap foreign inputs to produce its goods and to serve the Japanese market. This is the so-called efficiency-seeking or "vertical" FDI. Moreover, as discussed in section 3.2 sales verticalness can be associated with importing activity of Japanese firms. For instance, the affiliates can facilitate intermediate goods purchase in the local market in order to bring them to Japan. In such case, a cost of finding supplier plays an important role. Given that these costs are relatively lower compared to the costs of finding a customer we can hypothesize that smaller Japanese firms are more likely to engage in such FDI activities. Therefore, if a firm that considers FDI entry recognizes a potential to establish such-type affiliate then likelihood to enter the market via FDI will increase. Positive β_1 would imply that FDI entry is likely to happen in countries with high level of sales back to Japan, and thus such FDI entry is likely to be established for a similar purpose. For these affiliates, trade costs should be important as they have an effect on the intensive margin of trade between Japan and a host country.

PurchaseVerticalness$_{c,t-1}$ captures the characteristics of a country that attracts affiliates purchasing a relatively high share of their input from Japan. This can be associated with exporting activity of Japanese firms. In this case, the cost of finding a customer becomes crucial. Note that the cost of finding a supplier (associated with Sales verticalness) is usually lower than the cost of finding a customer. Given a particular country and comparing different firms, the higher is the share of intermediate inputs that a parent firm needs to provide, the lower is the probability that this firm will make FDI. Thus, we expect that if the presence of affiliates importing inputs from Japan is abundant then the probability of new FDI entry is lower. Negative β_2 would signify that Japanese firms tend to avoid countries in which many affiliates exhibit vertical purchase behavior. In such countries a newly established affiliate is likely to purchase high share of input from Japan as well. As it is emphasized by Irarrazabal *et al.* (2013), such

intra-firm trade from parent to affiliate may be of a non-negligible size. Then, distance plays a key role in shaping the choice of Japanese firms to establish the affiliate of this type. Therefore we extend our baseline model to include the interaction term between our key explanatory variables and distance in order to examine how trade costs shape the decision of FDI entry.

$$
\begin{aligned}
\text{Prob}\left[\text{Entry}_{f,c,t}\right] =& \beta_1\text{SalesVerticalness}_{c,t-1} + \beta_2\text{PurchaseVerticalness}_{c,t-1} \\
& + \beta_3\log\left(\text{Distance}_c\right) \\
& + \beta_4\text{SalesVerticalness}_{c,t-1} \times \log\left(\text{Distance}_c\right) \\
& + \beta_5\text{PurchaseVerticalness}_{c,t-1} \times \log\left(\text{Distance}_c\right) \\
& + \beta_6\log\left(\text{RealGDP}_{c,t}\right) + \beta_7\log\left(\text{NmbOfAffiliates}_{c,t-1}\right) \\
& + \beta_8\log\left(\text{ExportExperience}_{f,r,t-1}\right) + \boldsymbol{\gamma}\boldsymbol{X_{f,t}} + \delta_t + \varepsilon_{f,c,t},
\end{aligned}
\tag{2}
$$

4.3.   Firm-Level Exit

Our analysis of exit decision of the firm mirrors the estimation of FDI entry decision. As explained in the data section, we define the firm's exit from a country as the situation when all affiliates of that firm exit from the country. Again, our dataset represents panel data with three dimensions at the firm, country and year level. We keep only countries that reported more than 20 affiliates on average for the whole period and that are not "tax heaven" countries. As explained in Section 2, in order to avoid right-censoring problem given our definition of exit, we restrict our sample to the period of 1995-2013 years. Thus, we end up with a sample of 10,470 firms and 46 countries. We estimate the following specification for the probability of exit of a firm f from country c in year t:

$$
\begin{aligned}
\text{Prob}\left[\text{Exit}_{f,c,t}\right] =& \beta_1\text{SalesVerticalness}_{c,t-1} + \beta_2\text{PurchaseVerticalness}_{c,t-1} \\
& + \beta_3\log\left(\text{Distance}_c\right) + \beta_4\log\left(\text{RealGDP}_{c,t}\right) \\
& + \beta_5\log\left(\text{NmbOfAffiliates}_{c,t-1}\right) \\
& + \beta_6\log\left(\text{ExportExperience}_{f,r,t-1}\right) + \boldsymbol{\gamma}\boldsymbol{X_{f,t}} + \delta_t + \varepsilon_{f,c,t},
\end{aligned}
\tag{3}
$$

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where $\text{Exit}_{f,c,t}$ is a dummy equal to 1 if firm f stops operation of all of its foreign affiliates in country c in year t. Again, as with the entry specification (1), the key variables of interest are $\text{SalesVerticalness}_{c,t-1}$ and $\text{PurchaseVerticalness}_{c,t-1}$. We expect that the relationship between firms' exit behavior and these measures is complementary to the correspodning relationships between these variables and FDI entry decision. Namely, we expect that the logic of the effect of these measures on the likelihood of exiting a market is opposite to the one to enter the market as described in Section 4.2. In addition, as with the FDI entry decisions, we believe that trade costs must shape the exit decision of firms, and thus we also consider the specification where we interact our key variables of interest with distance:

$$
\begin{aligned}
\text{Prob}\left[\text{Exit}_{f,c,t}\right] = &\beta_1 \text{SalesVerticalness}_{c,t-1} + \beta_2 \text{PurchaseVerticalness}_{c,t-1} \\
&+ \beta_3 \log(\text{Distance}_c) \\
&+ \beta_4 \text{SalesVerticalness}_{c,t-1} \times \log(\text{Distance}_c) \\
&+ \beta_5 \text{PurchaseVerticalness}_{c,t-1} \times \log(\text{Distance}_c) \\
&+ \beta_6 \log(\text{RealGDP}_{c,t}) + \beta_7 \log(\text{NmbOfAffiliates}_{c,t-1}) \\
&+ \beta_8 \log\left(\text{ExportExperience}_{f,r,t-1}\right) + \boldsymbol{\gamma X_{f,t}} + \delta_t + \varepsilon_{f,c,t},
\end{aligned}
\tag{4}
$$

In order to keep consistency with the entry behaviour analysis we use the probit model to estimate the decision of exit.[4] We run the regressions for the full sample, manufacturing firms, and non-manufacturing firms.

Along with our key independent variables we also control for country-level gravity variables and agglomeration effect, as well as firm-level explanatory variables.

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[4]We have also estimated the linear probability model and the hazard model. The results are qualitatively similar.

4.4. Country's Characteristics

We use several explanatory variables at the country level. Real GDP in constant 2005 USD ($\log(\text{RealGDP}_{c,t})$) serves as a proxy for market size. The data come from the World Bank World Development Indicators (WDI) database. Bigger markets are expected to attract Japanese FDI and decrease the probability of firms' exit from the market.

It is natural to include distance ($log(\text{Distance})$) in all our regressions as it is one of the key regressors in the gravity literature. The effect of distance on the probability of FDI entry and exit is ambiguous. Given a particular vertically-oriented firm and comparing different countries, the further away is a country, the costlier it is to ship intermediate inputs from Japan to the destination, and the costlier it is to ship final goods from the destination to Japan. This lowers the probability that this firm will make FDI to the country. On the other hand, for firms with the same low share of sales back to Japan, low share of imports from Japan and high share of local sales (that is, for horizontally-oriented foreign affiliates), the further away is a particular country, the more likely that these firms will do FDI in this country. This is the opposite relationship compared to vertically-oriented foreign affiliates. At the same time, given a high share of sales back to Japan, the further away is a country, the higher is the probability of exit for the firm. And given a high share of imports from Japan, a larger distance is expected to increase the likelihood of exit as well.

A significant body of work has emphasized the role of an increasing number of host country's firms at the destination for the firm's decision to enter a market via FDI. For instance, it is well known that big Japanese automotive firms are usually followed by their smaller suppliers in the destination. To control for such spillover effects at the country level ($Z_{c,t-1}$) we include total number of affiliates at destination in year $t-1$. We expect that the higher is the the presence of Japanese firms' affiliates at a destination, the higher are agglomeration affects leading to an increased probability of FDI entry. At the same time, the

probability of firm's exit from the market decreases.

4.5. Firm's Characteristics

We consider several hypotheses about the role of firm characteristics ($X_{f,t-1}$).
First, a vast literature discussed both theoretically and empirically that bigger
and more productive firms usually engage in outward FDI activities. Along
these lines we include as a control the size of the parent ($log(employment)_{f,t-1}$)
which is proxied by total employment. Total employment is the sum of head-
quarters employees, non-headquarters employees and employees seconded to
other companies. We also include as a control the parent's productivity
($log(Productivity)_{f,t-1}$) which is calculated as the value added divided by total
employment. Value added is defined as difference between sales and interme-
diate inputs.[5] We expect that bigger size and higher productivity increases the
probability of FDI entry and decreases the likelihood of FDI exit.

In addition, we consider the role of past experience in the foreign market.
We assume that if a firm has been exporting to a region within previous three
years before the entry then the likelihood of establishing an affiliate will in-
crease. This control relates to the literature on gradual internationalization pro-
cess (Conconi *et al.* 2016; Deseatnicov and Kucheryavyy 2017). The logic is that
by exporting to the foreign market the firm will reveal potential demand. There-
fore it will establish an affiliate if expected profits are greater than sunk cost of
investment and variable costs of serving the market.[6] We calculate cumulative

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[5]We compute intermediate inputs as follows: (Cost of sales + Selling, general and adminis-
trative expenses) - (Advertising expenses + Information processing communications expenses
+ Premises rent + Packing transportation costs + Gross pay + Depreciation and amortization +
Welfare expense + Taxes and dues + Interest expense discount fee + Lease payments). As some
of the values can be zero we use inverse hyperbolic sine transformation to log-transform them
as follows $g(y_t, \theta) = g_t = log(\theta y_t + (\theta^2 y_t^2 + 1)^{1/2})/\theta = sinh^{-1}(\theta y_t)/\theta$. Inverse hyperbolic sine trans-
formation can be applied instead of logarithmic transformation for non-positive values (Bur-
bidge *et al.*, 1988). The inverse hyperbolic sine transformation can be applied to data defined
on $\mathbb{R}$. For large values of y_t it behaves like a log transformation, regardless of the value of θ. As
$\theta \to 0, g(y_t, \theta) \to y_t$.

[6]We assume that the firm reveals the market potential of a country by exporting to the region
to which the country belongs. Unfortunately data limitations do not allow us to make a weaker

exports in a year *t − 1* before FDI entry ($E_{f,r,t-1}$) by summing up all export by a firm *f* in region *r* prior to FDI entry in a country *c* in this region for a period of three years. In case of firm's decision to exit export experience in the region is likely to decrease the probability of exit. Given the global scope of activities of Japanese firms we expect that they should be hesitant about exiting markets in which they already acquired some experience and thus the level of uncertainty is lower for them.

5. Results and Discussion

This section presents our empirical results and discusses the effect of country's sales and purchase verticalness on Japanese MNEs entry and exit in the foreign markets.

5.1. Firms' Entry

The regressions results for specifications (1) and (2) are presented in Table 1[7]. Column 1 presents the baseline results for all firms. Column 2 further includes the interaction term of sales and purchase verticalness with distance. Columns 3 and 4 estimate the same specification for manufacturing firms, columns 5 and 6 provide estimation results for non-manufacturing firms.

How does sales verticalness affect probability of FDI entry in foreign markets?

The coefficient of SalesVerticalness$_{c,t-1}$ is positive and significant implying that countries having higher extensive margin of affiliates that exhibit vertical FDI properties in terms of sales to Japan are likely to attract new FDI entries from Japanese MNEs. An increase in sales verticalness can be interpreted as a shift

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assumption. The data on exports are available only at the regional level in the basic survey. In fact if a firm exports to a country in the region then it will be more likely that the firm considers establishing an affiliate in the same country in this region.

[7]Source: the Basic Survey on Overseas Business Activities and the Basic Survey of Japanese Business Structure and Activities from METI

Table 1: Entry of firms. Country level determinants.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	All firms		Manufacturing		Nonmanufacturing	
Verticalness measures and interaction term with distance						
SalesVerticalness	0.260***	1.612***	0.216***	1.222***	0.156***	4.172***
	(0.028)	(0.376)	(0.029)	(0.386)	(0.045)	(0.643)
SalesVerticalness × log(Dist)		-0.163***		-0.120***		-0.465***
		(0.045)		(0.046)		(0.074)
PurchaseVerticalness	-0.236***	-0.945**	-0.169***	-0.591	-0.156***	-1.163**
	(0.022)	(0.386)	(0.022)	(0.389)	(0.041)	(0.593)
PurchaseVerticalness × log(Dist)		0.081*		0.048		0.113*
		(0.044)		(0.044)		(0.067)
Country-level gravity variables						
log(Distance)	-0.087***	-0.182***	-0.089***	-0.167***	-0.097***	-0.320***
	(0.009)	(0.034)	(0.011)	(0.035)	(0.016)	(0.049)
log(RealGDP)	0.039***	0.033***	0.046***	0.042***	0.009	-0.003
	(0.004)	(0.005)	(0.005)	(0.006)	(0.008)	(0.009)
Country-level agglomeration effect						
log(NmbOfAffiliates)	0.129***	0.125***	0.126***	0.124***	0.157***	0.154***
	(0.005)	(0.005)	(0.006)	(0.006)	(0.009)	(0.009)
Firm-level explanatory variables						
log(employment)	0.144***	0.144***	0.167***	0.168***	0.161***	0.162***
	(0.004)	(0.004)	(0.005)	(0.005)	(0.007)	(0.007)
log(productivity)	0.129***	0.129***	0.072***	0.073***	0.170***	0.170***
	(0.009)	(0.009)	(0.012)	(0.012)	(0.014)	(0.014)
log(ExportExperience)	0.069***	0.069***	0.054***	0.054***	0.087***	0.087***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
= 1 if Manufacturing	-0.014	-0.014				
	(0.012)	(0.012)				
Constant	-5.696***	-4.744***	-5.688***	-4.912***	-5.599***	-3.380***
	(0.120)	(0.319)	(0.145)	(0.343)	(0.233)	(0.488)
Observations	13,506,816	13,506,816	6,891,842	6,891,842	6,456,574	6,456,574
Firm-Country RE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Country FE	No	No	No	No	No	No
Method	Probit	Probit	Probit	Probit	Probit	Probit
Log likelihood	-29158	-29150	-20866	-20863	-8054	-8034

in affiliates activities from horizontal sales (local or to the third countries) to the vertical sales (to Japan). It would mean that efficiency-seeking motive gets stronger compared to market-seeking motive in case of Japanese firms. There could be several mechanisms behind this effect. High level of sales verticalness is similar to importing activity by Japanese firms. For instance, Japanese MNEs may decide to exploit the benefits of global production chains, procure intermediate goods in the local market and bring them back to Japan. Therefore it is easier to enter the local market and establish an affiliate as the firm needs to find a local supplier which doesn't require high fixed cost.

The result in column 2 shows that distance has a mitigating effect for sales verticalness suggesting that further away is a country the smaller is positive *sales verticalness effect.* This finding naturally aligns with the proximity-concentration framework implying that market-seeking motive increases in distance as firms tend to serve distant market via multinational production rather than by exports. The positive *sales verticalness effect* and the mitigating effect of distance are robust for manufacturing and non-manufacturing firms.

How does purchase verticalness affect probability of FDI entry in foreign markets?

The coefficient of PurchaseVerticalness$_{c,t-1}$ is negative and significant. This finding implies that the probability of Japanese FDI entry increases as countries tend to become more horizontal in terms of affiliates' purchases behavior. It would mean that at the extensive margin the number of affiliates purchasing locally increases relative to number of affiliates that purchase from Japan. How could we explain this effect? Purchase verticalness is more connected with exporting behavior of Japanese firms. That is a firm sells to the local market via its affiliates. Negative and significant effect of purchase verticalness can be associated with the difficulty to find customers in the local market. As the number of affiliates purchasing high share from Japan increases it becomes costlier to find customers and the probability of entry decreases.

The coefficient for the interaction term with distance is insignificant for all firms and for both manufacturing and nonmanufacturing firms implying that distance doesn't impact the *purchase verticalness effect*. Interestingly, *purchase verticalness effect* is insignificant for nonmanufacturing firms. This reinforces our interpretation as this result suggests that the horizontal purchase behavior is more important for affiliates established for production purposes. On contrary, such purchase behavior is likely to be less important for services, retail and other nonmanufacturing industries.

FDI entry and other control variables

Gravity variables and agglomeration effect reveal mostly the expected impact on the probability of FDI entry in the foreign markets. Distance has a negative and significant effect in all specifications implying that higher trade costs decrease the probability of FDI entry. This result was documented in previous studies as well (e.g., Deseatnicov and Kucheryavyy 2017) although it is not straightforward in light of the proximity-concentration framework. Given that we attempt to control for export experience as well as for vertical/horizontal motive of FDI the negative effect of distance suggests that trade costs are an important force in shaping the outward FDI behavior of Japanese firms.

Market size proxied by real GDP is positive and significant for all firms and for manufacturing firms implying that higher market potential attracts more Japanese FDI. Interestingly real GDP turned out to be insignificant for nonmanufacturing firms. This is surprising since one could expect that, for instance, retail industry is dependent on the local market sales opportunities. One explanation is that often services firms (e.g. financial sector) follows manufacturing production and enters the foreign market to provide services to Japanese affiliates. Agglomeration effect in terms of number of affiliates at destination is positive and significant in all specification. Therefore it might capture the motive of service firms entry in the foreign markets which is to extend cooperation with Japanese firms in both Japan's and foreign markets.

Firm's characteristics show the expected signs. Bigger and more productive firms are more likely to enter the foreign markets. Exports experience in the region also affects positively the probability to enter the foreign market. As market demand potential is revealed and uncertainty decreases Japanese firms are more likely to establish affiliates in such destination.

5.2. Firms' Exit

The regressions results for specifications (3) and (4) are presented in Table 2^8. As explained in Section 4 the estimation mirrors the model for analysis of FDI entry likelihood. Column 1 presents the baseline results for all firms. Column 2 further includes the interaction term of sales and purchase verticalness with distance. Columns 3 and 4 estimate the same specification for manufacturing firms. Columns 5 and 6 provide estimation results for non-manufacturing firms.

How does sales verticalness affect probability of FDI exit from foreign markets?

The coefficient of SalesVerticalness$_{c,t-1}$ is negative and significant implying that *sales verticalness effect* works in opposite direction for the likelihood of firms' exit from the market. The interpretation is that Japanese firms are less likely to leave countries that have a tendency of increase in number of affiliates that sell a higher share of their output to Japan. Thus, the presence of vertical FDI is encouraging firms to stay in the market. Combined with the case for firms' entry in the market we can associate sales verticalness with importing behavior of Japanese firms which is purchase of intermediate goods to bring them to Japan. Negative and significant effect means that the probability of exit is lower since finding a supplier is easier and less costly in the local market.

As evident from column 2 of Table 2, distance has a mitigating effect on sales

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[8]Source: the Basic Survey on Overseas Business Activities and the Basic Survey of Japanese Business Structure and Activities from METI

Table 2: Exit of firms. Country level determinants.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	All firms		Manufacturing		Nonmanufacturing	
Verticalness measures and interaction term with distance						
SalesVerticalness	-0.420***	-3.023***	-0.437***	-2.352***	-0.158*	-3.255***
	(0.058)	(0.708)	(0.065)	(0.840)	(0.084)	(1.219)
SalesVerticalness × log(Dist)		0.313***		0.231**		0.353**
		(0.084)		(0.101)		(0.138)
PurchaseVerticalness	0.218***	1.927***	0.192***	0.992	0.119*	2.397**
	(0.036)	(0.691)	(0.036)	(0.708)	(0.067)	(0.980)
PurchaseVerticalness × log(Dist)		-0.195**		-0.091		-0.254**
		(0.078)		(0.080)		(0.109)
Country-level gravity variables						
log(Distance)	0.013	0.197***	0.017	0.175**	0.020	0.131
	(0.016)	(0.064)	(0.019)	(0.079)	(0.030)	(0.088)
log(RealGDP)	0.002	0.011	-0.012	-0.004	0.030**	0.042***
	(0.007)	(0.008)	(0.009)	(0.010)	(0.015)	(0.015)
Country-level agglomeration effect						
log(NmbOfAffiliates)	-0.057***	-0.053***	-0.044***	-0.044***	-0.093***	-0.092***
	(0.0086)	(0.00881)	(0.01053)	(0.0107)	(0.01656)	(0.017)
Firm-level explanatory variables						
log(employment)	-0.025***	-0.025***	-0.032***	-0.032***	-0.026**	-0.026**
	(0.007)	(0.007)	(0.008)	(0.008)	(0.012)	(0.012)
log(productivity)	-0.033**	-0.035**	-0.040**	-0.042**	-0.024	-0.023
	(0.014)	(0.014)	(0.019)	(0.019)	(0.022)	(0.022)
log(ExportExperience)	-0.022***	-0.022***	-0.016***	-0.017***	-0.029***	-0.028***
	(0.002)	(0.002)	(0.003)	(0.003)	(0.004)	(0.004)
= 1 if Manufacturing	-0.061***	-0.060***				
	(0.020)	(0.020)				
Constant	-2.192***	-3.938***	-2.001***	-3.500***	-2.605***	-3.877***
	(0.198)	(0.584)	(0.235)	(0.725)	(0.386)	(0.909)
Observations	169,773	169,773	128,172	128,172	41,421	41,421
Firm-Country RE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Country FE	No	No	No	No	No	No
Method	Probit	Probit	Probit	Probit	Probit	Probit
Log likelihood	-11317	-11307	-8152	-8149	-3129	-3123

verticalness. The further away the country is the lower is probability to remain in the host country because of vertical integration motive. This finding seems natural as distant countries are likely to attract more horizontally oriented affiliates.

How does purchase verticalness affect probability of FDI exit from foreign markets?

In regards to *purchase verticalness effect*, we observe positive and significant coefficient. The logic is that firms are more likely to exit from the countries which accommodate higher number of affiliates receiving inputs from Japan. Thus, vertical behaviour of affiliates in terms of purchases discourages Japanese firms to stay in the market. This finding reinforces our point that purchase verticalness can be connected with exporting behavior of Japanese firms. This leads to the need to find a customer which is a high cost activity. Thus, an increase in purchase verticalness is likely to increase the probability of exit from the market.

The interaction term shows that distance has a mitigating effect for purchase verticalness as well. It is significant for all firms as well as for manufacturing and nonmanufacturing firms estimation. The interpretation is that the likelihood of exit due to affiliates' horizontal purchase activities is lower for more distant countries. This is surprising as we expect that trade costs should reinforce the probability of exit if affiliates need to purchase inputs from Japan. One explanation is that more distant markets usually attract smaller number of affiliates on average. Therefore, the competition effect for supplies from Japan is likely to be smaller as number of affiliates at destination decreases. Note that the results are robust for both manufacturing and nonmaufacturing firms.

FDI exit and other control variables

Distance is not significant in the benchmark result in column 1 as well as in columns 3 and 5. This result shows that trade costs do not affect directly the

probability of exit of Japanese MNEs from the market. The coefficient for distance turns out to be positive and significant when we include interaction terms with sales and purchase verticalness. This result implies that distance increases the probability, and sales verticalness reinforces this effect while purchase verticalness mitigates this effect.

The size of the market proxied by real GDP is not significant for all firms and for manufacturing firms estimation. This finding is interesting as it shows that although market size is important for FDI entry it turns out to be less relevant for the exit decision of the firm. Interestingly the opposite evidence is found for nonmanufacturing firms. Although the market size is insignificant for the case of FDI entry it becomes positive and significant for the case of FDI exit.

Agglomeration effect is negative and significant, and is robust in all specifications implying that higher presence of Japanese affiliates in the market decreases the likelihood of exit from the market.

Firm-level explanatory variables reveal the expected effects. Bigger and more productive firms are less likely to exit. Only for the case of nonmanufacturing firms we find that productivity is insignificant determinant of the probability to exit. Export experience in the region is likely to decrease the probability of exit. One interpretation is that once market uncertainty is revealed firms tend to remain in the market.

6. Concluding Remarks

Despite a growing body of work on export dynamics, few studies examined the dynamics of FDI. This paper attempts to address this question using the unique Japanese firm-level data. We rely on two micro-level datasets: the Basic Survey on Overseas Business Activities, which addresses the behavior of Japanese MNEs and their affiliates; and the Basic Survey of Japanese Business Structure and Activities, which examines the exporting behavior of firms in Japan.

This study has two unique features. First, it provides a detailed examina-

tion of FDI entry and exits, and unveils several interesting patterns of Japanese affiliates dynamics. Entry rate is not correlated with distance, while exit rates exhibit a clear positive correlation showing gravity for affiliates' exit pattern. Asian countries tend to attract and retain more of Japanese affiliates compared to other regions. Exit rate is increasing with affiliates' age which is contrary to exporter dynamics. This fact is documented for manufacturing and non-manufacturing affiliates. The survival pattern is closer to linear rather than to the exponential decay.

Second, our work introduces sales and purchase verticalness measures at the country level. These measures are constructed at the extensive margin, and are aimed at capturing the heterogeneity of affiliates behaviour in terms of sales to Japan and purchases from Japan. We found that affiliates operating in countries that attract Japanese FDI exhibit the properties of both vertical FDI and horizontal FDI. Sales verticalness can be associated with importing activity of Japanese firms, while purchase verticalness with exporting activity. We conjecture that the cost of finding supplier in the former case is higher than the cost of finding customer in the latter case.

The empirical analysis showed that sales verticalness positively affects FDI entry and has a negative impact on FDI exit. This implies that an increase in number of affiliates that sell most of their output to Japan encourages new entry and discourages FDI exit. We argue that this is related to the importing activity by Japanese firms, and the need to find supplier which is a relatively low cost activity. On the contrary, purchase verticalness decreases the probability of FDI entry and increases the probability of FDI exit. Thus, an increase in the number of affiliates that purchase from Japan discourages new entry and encourages exit from the market. In line with our argument that purchase verticalness is associated with the exporting activity this implies that higher cost of finding customers is likely to discourage FDI activity of Japanese MNEs. Distance showed a mitigating effect on sales and purchase verticalness.

These findings are conceptually new and bring another perspective to look

at the dynamic behavior of MNEs. Our broad message is that affiliates exhibit multi-dimensional behaviour in terms of relationship with their home country. Digging beneath this sales behaviour remains on our future research agenda.

From the policy perspective, these findings are important as they show that regional trade agreements can considerably facilitate and encourage such multi-dimensional sales behaviour between Japanese affiliates and their home country. This can be particularly beneficial for small and medium enterprises as they are sensitive to the fixed costs of importing and exporting activities.

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