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# **Moving Out of China? Evidence from Japanese Multinational Firms (Revised)**

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## **Moving Out of China? Evidence from Japanese Multinational Firms<sup>\*</sup>**

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### **Abstract**

This study examines the firm-level and macroeconomic factors affecting foreign divestment in China. It employs a unique dataset of Japanese multinational enterprises (MNEs) from 1995 to 2016. Based on survival analysis, we find that affiliate size, profitability, labor productivity, and export proportion to Japan are negatively associated with MNEs' divestment probability. Moreover, the probability of divestment increases with the size of the parent firm and its experience in the Chinese market but decreases with business relatedness between affiliate and parent firms, industrial minimum effective scale, and market concentration. We further examine the determinants of different divestment modes, and post-divestment investment adjustment across regions and industries. Finally, we find that the Senkaku/Diaoyu Islands conflict and an increase in the minimum wage significantly raise the probability of Japanese divestment.

**Keywords:** multinational enterprises, divestment, survival analysis

**JEL classification:** F14, F23

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## 1. Introduction

After the global financial crisis, the rise of antiglobalization and trade protectionism has induced international trade and investment to chart a downward trend. As shown in Fig. 1, global foreign direct investment (FDI) inflow has been seeing a yearly decline since 2015. Moreover, China has been witnessing a significant slowdown in FDI inflow since 2011. Furthermore, international divestment by multinational enterprises (MNEs) has proven to be an important global phenomenon recently (Borga et al., 2020). MNEs account for large shares of world output, exports, and employment (Antràs and Yeaple, 2014); therefore, foreign divestment can affect a substantial share of global economic activity.

[Insert Figure 1 here]

Meanwhile, with the slowdown of China's economic growth and the rising labor costs, divestment by MNEs in this country has increased significantly. According to estimates, China's scale of foreign divestment has gradually increased from 2.4 billion USD in 2000 to 90.6 billion USD in 2014.<sup>1</sup> The COVID-19 pandemic has intensified the concerns of some developed countries (e.g., Japan and the US) regarding their dependence on supply chains in China. Further, the withdrawal of foreign investment from China has garnered wide attention. As an East Asian neighbor, Japan has always been an important trading partner and source of foreign investment to China. However, with the continuous expansion of FDI in China, the relative scale of Japanese investment has declined. In 1988, Japan's direct investment accounted for 16.1% of the total FDI in China, which decreased to 2.7% in 2018.

The relative decline in Japanese investment in China involves the decrease in and withdrawal of Japanese investment in China. This study focuses on the latter, that is, divestment by Japanese MNEs. According to the Ministry of Economy, Trade, and Industry (METI) of Japan, from 2000 to 2017, 2,945 Japanese affiliates in China withdrew their capital, and this number has been increasing (see Fig.

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<sup>1</sup> *Source:* Balance of payment, China's State Administration of Foreign Exchange. The data on debit and credit sides of foreign direct investment account are only available before 2014.

2).<sup>2</sup> China's share in total Japanese divestment in all regions increased from 15.8% in 2000 to 37.2% in 2017. Before the global financial crisis in 2008, the divestment ratio of Japanese MNEs in China was lower than that of Japanese overall overseas investment. However, the situation reversed after 2008. In 2012, the island dispute between China and Japan led to large-scale anti-Japanese demonstrations and boycotts of Japanese goods in China, damaging the China–Japan political and economic relationship. After 2012, the number and proportion of Japanese divested affiliates increased significantly. According to METI of Japan, the total number of employees of Japanese affiliates in China decreased from 1.79 million in 2014 to 1.53 million in 2017, a likely reason being the withdrawal of Japanese capital.

[Insert Figure 2 here]

Against the background of the FDI slowdown in China and world, the factors influencing the divestment of MNEs must be investigated. However, foreign divestment is an understudied subject, especially in the context of China, which is among the largest FDI destinations.

Theories and empirics on firm heterogeneity and FDI suggest additional fixed costs relative to domestic production involved in FDI; therefore, only the most productive firms choose to serve foreign markets via FDI. The parents and affiliates of multinational firms tend to be larger, more productive, and more export-oriented than nonmultinational firms (Antràs and Yeaple, 2014). However, little is known about firm heterogeneity and foreign divestment. This study attempts to fill this gap by empirically examining the relationship between firm heterogeneity (i.e., productivity, size, and profitability) and foreign divestment. Specifically, we test the hypothesis that among MNEs, the probability of divestment is larger for firms with lower productivity, lower profitability, and smaller size.

Using comprehensive and confidential parent–affiliate matched data on Japanese MNEs collected

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<sup>2</sup> Recently, typical cases of Japanese capital withdrawal include the following. In 2009, Suntory withdrew its investment in the Shanghai Donghai Beer Company. In 2013, Panasonic closed its factory in Shanghai, and in 2015, Nissin Foods sold its shares in Jinmailang. Meanwhile, in 2018, Suzuki withdrew its shares in Changhe Suzuki and Changan Suzuki.

by the Japanese government for the period from 1995 to 2016, this study examines the firm-level and macroeconomic factors affecting foreign divestment in China.<sup>3</sup> In our dataset, affiliates report their capital structure and operation status containing information on divestment. Divestment is classified into dissolution or withdrawal and reduction in control share. The 22-year long panel dataset contains rich information on affiliate sales, exports, employment, founding year, location, and information on parent firm size and industry classification, allowing us to examine the firm-, industry-, and region-level factors affecting foreign divestment.

We first conduct a standard survival analysis and find that the probability of capital withdrawal is negatively correlated with an affiliate's firm size, profitability, productivity, and export share to Japan. Moreover, the probability of divestment increases with the size of the parent firm and experience in the Chinese market; however, it decreases with business relatedness between affiliate and parent firms, minimum effective scale, and market concentration. The results are robust to various specifications and alternative measurements, controlling for a full set of industry-, region-, and year-fixed effects. We then extend our analysis by examining the determinants of different divestment modes and investment adjustment across regions and industries accompanied by divestment.

Further, we examine the impact of exogenous shocks on Japanese divestment. First, we exploit one of the most important political conflicts between China and Japan, that is, the Senkaku/Diaoyu Islands dispute in 2012, to investigate its impact on the probability of divestment by Japanese MNEs. Using city-level data on the anti-Japanese protests, we conduct a difference-in-differences (DID) analysis. Second, we merge our MNEs dataset with city-level data on minimum wage to study the effects of the minimum wage increase in China on the probability of divestment. In both analyses, we especially focus on the heterogeneous effects across different firm characteristics of Japanese affiliates. Our results reveal that these shocks significantly raise the probability of divestment by Japanese MNEs from China over 2006–2014. Importantly, the effects on divestment are stronger for small, low-productivity, and low-profitability firms. Our findings suggest that these negative demand and supply shocks have strong but uneven effects on Japanese multinational firms.

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<sup>3</sup> The terms affiliates, foreign affiliates, and MNEs are used interchangeably in this study. We refer to their parents in Japan as parent firms.

The contribution of this study is threefold. (1) Using unique and high-quality microdata on Japanese MNEs, we examine foreign divestment in China. We use two different strategies, in addition to survival analysis commonly used in the literature, to investigate the impact of exogenous shocks on foreign divestment. (2) Relative to the studies on a single factor affecting foreign divestment, we investigate various factors regarding an affiliate, parent firm, and business environment (both region and industry factors). Further, we pay attention to different divestment modes, that is, dissolution or withdrawal and reduction in control share. (3) Relative to the literature on divestment, we also consider Japanese investment's spatial and industrial distribution in China and examine investment adjustment across industries and regions following divestment. Thus, we provide a full picture of foreign divestment.

The rest of this paper is organized as follows. Section 2 summarizes the literature. Section 3 describes the data and descriptive statistics. Section 4 conducts empirical analysis and reports the results. Section 5 concludes the paper.

## **2. Related literature**

The theoretical and empirical literature on FDI determinants is very rich (e.g., Helpman et al., 2004; Antràs and Yeaple, 2014). Contrastingly, the economic literature on foreign divestment is less developed, with no workhorse model being available.<sup>4</sup> At the affiliate level, existent studies have found that the larger the size of foreign affiliates, lower the probability of divestment (Chen and Wu, 1996; Berry, 2013). Moreover, poor operating performance and low investment return are sufficient reasons for foreign investors to withdraw capital (Chen and Wu, 1996; Haynes et al., 2003; Berry, 2013). Deseatnicov et al. (2020) found that an affiliate's productivity is positively associated with

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<sup>4</sup> Business literature provides some insights into the motivations of firm's FDI and divestment decisions. Dunning (1981) argued that a firm engages in FDI if three conditions, namely, ownership, location, and internalization advantages, are satisfied simultaneously. Boddewyn (1983) applied Dunning's eclectic paradigm and argued that when at least one of the three advantages are not satisfied, MNEs tend to withdraw their capital. Specifically, foreign divestment occurs whenever (i) a firm loses the advantage over firms of other nationalities, (ii) the firm no longer finds it profitable to internalize its advantage rather than sell them to foreign firms, or (iii) the firm no longer considers it profitable to use its advantage in the host country.

entry and negatively associated with an exit in case of Japanese MNEs. Regarding the role of a parent firm, Haynes et al. (2000) showed that the operating performance of a parent firm has no relationship with the divestment of affiliates in the UK. Wang and Larimo (2015) determined that the degree of diversification increases the divestment probability of North European firms in China, but the expansion of a parent firm's size is beneficial to the survival of the affiliate. Kim et al. (2010) determined that a Japanese parent firm's investment experience in the same industry is negatively associated with the divestment probability of the affiliate in China.<sup>5</sup> Regarding the host country's environment, at the region level, some studies have found that the higher the economic growth rate, lower the probability of divestment (Benito, 1997; Berry, 2013). Other studies noted that the higher the labor costs in the firm's region, higher the probability of divestment (Belderbos and Zou, 2006; Li et al., 2019; Borga et al., 2020). At the industry level, McCloughan and Stone (1998) showed that the effect of industry growth on foreign capital withdrawal is not significant, whereas Wang and Larimo (2015) found that the probability of divestment is negatively related to industry growth in China. Gao et al. (2017) determined that the lower the degree of industry competition, greater the risk of firm exit. Our study is also related to recent nascent literature that studied the dynamics of MNEs with life-cycle exit and growth rates, for example, Gumpert et al. (2020) for France, Norway, and Germany, Chen et al. (2020) for Japan, and Garetto et al. (2019) for the US.

Although previous studies have examined the factors potentially influencing divestment from different angles, only a few studies have empirically investigated the characteristics of the parent firm, foreign affiliate, and host country simultaneously. Contrastingly, this study examines various factors of an affiliate firm, parent firm, and investment environment that affect foreign divestment in China. Moreover, we examine the heterogeneous effects of divestment modes and investment adjustment. Importantly, we use two exogenous shocks to examine their impacts on divestment decisions.

### **3. Data and descriptive statistics**

#### **3.1. Data**

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<sup>5</sup> Additionally, the probability of divestment is low when parent and affiliate firms are in the same industry or have a vertical industrial connection (Benito, 1997; Berry, 2013).

This study employs data from the Basic Survey on Overseas Business Activities (BSOBA) collected by the METI, Japan. The survey covers Japanese firms with overseas affiliates and provides basic materials for the Japanese government to develop policies. This parent–affiliate matched dataset contains affiliate-level information on sales, exports, investment, employment, operation status, founding year, industry and region classifications, and parent-level information on firm size, business plan, and industry classification. To implement our analysis, we used the data on Japanese affiliates in China during the period from 1995 to 2016.

Regarding the outcome variables, we constructed three dummy variables: the divestment of Japanese affiliates, the interprovincial adjustment of Japanese affiliates, and the inter-industrial adjustment of Japanese affiliates. We defined divestment by the reported operation status of the affiliates. If the operation status of affiliate  $i$  in year  $t$  is a “dissolution or withdrawal” or “reduction in control share,” the affiliate has withdrawn its capital in year  $t$ , that is,  $divest_{it} = 1$ , otherwise  $divest_{it} = 0$ .<sup>6</sup>

Moreover, *exit* and *investment adjustment* must be distinguished from each other. The former means that the MNEs withdraw all their investment in China. The latter means that the MNEs adjust their investment in China. We define the following case as the divestment for the spatial adjustment of investment. In other words, after the divestment of affiliate  $i$  in province  $j$  in year  $t$ , its parent firm sets up a new affiliate outside province  $j$  within three years (i.e.,  $t$ ,  $t+1$ , and  $t+2$ ). Regarding this case, we consider that affiliate  $i$  divested because of the spatial adjustment of investment in year  $t$ . Thus,  $spa\_adj_{it} = 1$ ; otherwise,  $spa\_adj_{it} = 0$ . The industrial adjustment of Japanese affiliates in China is also worthy of attention. We defined the adjustment of Japanese affiliates from manufacturing to the service industry as follows: after the divestment of manufacturing affiliate  $i$  in year  $t$ , its parent firm establishes a service affiliate within three years (i.e.,  $t$ ,  $t+1$ , and  $t+2$ ). Regarding this case, we considered that manufacturing affiliate  $i$  divested, given the adjustment to the service industry in year  $t$ .

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<sup>6</sup> Dissolution refers to a situation where the affiliate stops its business activities and loses its status as a legal entity. Withdrawal refers to a situation in which the overseas affiliate was sold, absorbed, merged, relocated (relocation to other country or region), or consolidated. Thus, the overseas affiliate was extinguished from the relevant location, and the ratio of investment by Japanese corporations is 0%. The reduction in control share refers to a situation in which the total ratio of investment by Japanese corporations in the overseas affiliate decreases beyond 10% (between 0% and 10%).



Thus,  $ind\_adj_{it} = 1$ ; otherwise,  $ind\_adj_{it} = 0$ . In the analysis, we used an affiliate's founding year to identify the establishment of the new affiliate. The choice of the timing between closing and opening (i.e.,  $t$ ,  $t+1$ , or  $t+2$ ) of an affiliate does not affect our results.

Referring to the existing literature, we constructed the explanatory variables at three levels. At the affiliate firm level, we introduced the following variables: *size*, the logarithm of the number of employees; *profit*, the ratio of after-tax profit to sales; and *labprod*, the logarithm of labor productivity measured by sales per employee. Japanese affiliates in China are heavily dependent on the trade with the Japanese market, and the sales to Japan account for more than 50% of the total exports and about 20% of the total sales. Accordingly, we introduced *jpexpshare*, the proportion of sales to Japan in total sales. At the parent firm level, we introduced the following variables: *par\_size*, the size measured by the logarithm of the number of employees of the parent firm; and *par\_affind*, whether the parent and affiliate firms are in the same industry (if yes, it is equal to 1 and equals 0 otherwise). The industry classification is based on the Japan Standard Industrial Classification (MIC), which is listed in Table A1 in the Appendix.

Regarding China's investment environment, at the region level, we introduced the following variables: *pro\_growth*, the provincial GDP growth rate; *pro\_waggrowth*, the provincial wage growth rate; *pro\_edu*, the provincial labor quality measured by the average education years of the labor force; and *pro\_transport*, the growth rate of freight turnover as a proxy of the transportation capacity.<sup>7</sup> At the industry level, we introduced three variables as follows: *ind\_growth*, the industry growth rate, which is the growth rate of the number of employees of an industry; *ind\_mes*, the minimum effective scale of an industry, which is the logarithm of the median asset size of the enterprises in this industry; and *ind\_HHI*, the degree of industry monopoly, which is captured by the Herfindahl–Hirschman Index (HHI) of the sales revenue of the firms in this industry.<sup>8</sup>

In the estimations, we controlled for affiliate's *age*, that is, the logarithm of the number of years

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<sup>7</sup> Region-level variables are obtained from the China Statistical Yearbook and China Labour Statistical Yearbook (of various years).

<sup>8</sup> The number of employees by industry is obtained from China Labour Statistical Yearbook (of various years). Moreover, the industry-level data on assets and revenues are obtained from the Wind database on Chinese listed companies.

of operation, and *par\_exper*, the parent's investment experience in China, which is the logarithm of the period after the parent firm's entry into the Chinese market. Meanwhile, affiliate age and parent experience control for the life-cycle dynamics of MNEs, highlighted in the recent studies (e.g., Chen et al., 2020, Gumpert et al., 2020). We also include a full set of region-, industry-, and year-fixed effects to eliminate time-invariant differences across regions and industries and control various macroeconomic shocks. The inclusion of fixed effects for Chinese regions is particularly important because the previous study finds that Japanese MNEs are less likely to invest in Chinese regions that suffered greater civilian casualties during the Japanese invasion of China from 1937 to 1945 (Che et al., 2015).

### 3.2. Descriptive statistics

This study employs data containing information on Japanese affiliates in China from 1995 to 2016. The survival analysis cannot tackle the left-censored data; thus, we excluded affiliates established earlier than 1995.<sup>9</sup> No special treatment is required for the right-censored data (i.e., firms that have not withdrawn their capital at the end of the observation period). We finally obtained 64,706 observations, including 9,909 Japanese affiliates in China, corresponding to 5,166 Japanese parent firms. During the sample period, 1,963 cases of divestment occurred, accounting for 19.8% of the total affiliates. For the number of divestment by industry, see Table A1 in the Appendix. Table 1 shows the descriptive statistics of the variables. To eliminate extreme values, we excluded the top and bottom 1% of the explanatory variables at the affiliate level.

[Insert Table 1 here]

Before conducting survival analysis, we employed the Kaplan–Meier method to conduct a nonparametric estimation. The Kaplan–Meier statistics are calculated as Equation (1). The survival function  $\hat{S}(t)$  is the probability that the affiliate has not withdrawn until period  $t$ ,  $r_m$  is the number

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<sup>9</sup> Our results remain robust when affiliates established before 1995 were included.

of affiliates in the risk of divestment in period  $m$ , and  $d_m$  is the number of affiliates with divestment in period  $m$ :

$$\hat{S}(t) = \prod_{m=1}^t \frac{(r_m - d_m)}{r_m} \quad (1)$$

We used the Kaplan–Meier plot to illustrate the distribution of survival rates by various firm characteristics. For continuous variables, we divided the sample into two groups based on the median value of the variable. By comparing the survival function, we present a graphical representation of the influencing factors of Japanese divestment (Fig. 3). The horizontal (vertical) axis represents the years after the Japanese investment (the survival rates). Fig. 3 shows that the larger the affiliate’s firm size, profitability, productivity, and export intensity to Japan, the higher the survival rates. From the Kaplan–Meier method, the log-rank test is usually employed to check whether a significant difference exists between the two groups. The  $p$  values of the log-rank test on these variables are 0.000, indicating a significant difference between the two groups in survival function.

[Insert Figure 3 here]

## 4. Empirical analysis

### 4.1. Survival analysis

Following the literature on foreign divestment (e.g., Chen and Wu, 1996), we employed survival analysis to examine the life duration of Japanese affiliate firms in China. Survival analysis examines the risk of firms experiencing specific events at a specific time. Specifically, we considered the entry of a Japanese affiliate firm into the Chinese market as the beginning of the survival period and divestment as the ending. By introducing variables at different levels (affiliate, parent firm, region, and industry level) into the model, we investigated various factors that may affect the divestment of MNEs.

Moreover, we employed the discrete-time survival analysis method in the estimation. Suppose

that  $T$  is a discrete random variable of the time of divestment and  $t$  is the possible time point of divestment, where  $t$  belongs to the integer set  $\{1,2,3,\dots\}$ . Further,  $f_{it}$  and  $S_{it}$  are the unconditional probability of divestment of affiliate  $i$  in year  $t$  and the probability of not withdrawing capital, respectively. Then, Equation (2) presents the conditional probability of divestment in year  $t$  and the risk function  $h_{it}$ , if firm  $i$  is in normal operation in year  $t-1$ :

$$h_{it} = \Pr(T = t | T \geq t) = \frac{f_{it}}{S_{i,t-1}} \quad (2)$$

We then define a variable,  $c_i$ , as follows: if affiliate  $i$  withdraws capital during the sample period, then  $c_i = 1$ , otherwise,  $c_i = 0$ . Thus, the contribution of firm  $i$  to the likelihood function can be written as  $L_i = f_{it}^{c_i} S_{it}^{1-c_i}$ . The likelihood function of the whole sample is

$$\begin{aligned} L &= \prod_{i=1}^n f_{it}^{c_i} S_{it}^{1-c_i} \\ &= \prod_{i=1}^n [S_{i,t-1} h_{it}]^{c_i} [S_{i,t-1} [1 - h_{it}]]^{1-c_i} \\ &= \prod_{i=1}^n \left[ \frac{h_{it}}{1 - h_{it}} \prod_{k=1}^t (1 - h_{ik}) \right]^{c_i} \left[ \prod_{k=1}^t (1 - h_{ik}) \right]^{1-c_i} \\ &= \prod_{i=1}^n \left[ \left( \frac{h_{it}}{1 - h_{it}} \right)^{c_i} \prod_{k=1}^t (1 - h_{ik}) \right] \end{aligned} \quad (3)$$

The difference in various discrete-time survival analyses lies in the distribution of risk functions, including the cloglog, logistic, and probit models based on extreme value, logistic, and normal distributions, respectively, as shown in Equations (4) to (6):

$$\log[-\log(1 - h_{it})] = \mathbf{x}_{it-1}' \cdot \boldsymbol{\beta} + \gamma_t + \gamma_r + \gamma_s + \varepsilon_{it} \quad (4)$$

$$\log[h_{it}/(1 - h_{it})] = \mathbf{x}_{it-1}' \cdot \boldsymbol{\beta} + \gamma_t + \gamma_r + \gamma_s + \varepsilon_{it} \quad (5)$$

$$h_{it} = \Phi(\mathbf{x}'_{it-1} \cdot \boldsymbol{\beta} + \gamma_t + \gamma_r + \gamma_s + \varepsilon_{it}) \quad (6)$$

where  $\mathbf{x}_{it-1}$  is the explanatory variable. Further,  $\gamma_t$ ,  $\gamma_r$ , and  $\gamma_s$  denote fixed effects on time, regional, and industrial level;  $\varepsilon_{it}$  is the error term; and  $\Phi(\cdot)$  is the cumulative distribution function of the standard normal distribution.

As a robustness check, we applied the Cox semi-parametric model commonly used in continuous-time survival analysis, as shown in Equation (7):

$$h(t, X) = h_0(t) \exp(\mathbf{x}'_{it-1} \cdot \boldsymbol{\beta}) \quad (7)$$

where  $h(t, X)$  is the withdrawal risk of Japanese affiliate in year  $t$ ,  $h_0(t)$  is the benchmark risk function of year  $t$ , and  $\mathbf{x}'_{it-1} \cdot \boldsymbol{\beta}$  is the linear combination of the explanatory variables.<sup>10</sup>

In the extended analyses, we further used the competitive risk model. We regard the two modes of foreign divestment (dissolution or withdrawal and reduction in control share) as mutually exclusive events. Under the discrete-time setting, the multinomial logit model is usually used to analyze the competitive risk. The risk of event  $k$  in enterprise  $i$  is shown in Equation (8) where  $k = 0$  indicates that the Japanese affiliate has not withdrawn,  $k = 1$  indicates that the Japanese affiliate has dissolved, and  $k = 2$  indicates that the Japanese capital proportion has reduced:

$$h_{itk} = \begin{cases} \frac{1}{1 + \exp(\mathbf{x}'_{it-1}\boldsymbol{\beta}_1) + \exp(\mathbf{x}'_{it-1}\boldsymbol{\beta}_2)}, & k = 0 \\ \frac{\exp(\mathbf{x}'_{it}\boldsymbol{\beta}_1)}{1 + \exp(\mathbf{x}'_{it-1}\boldsymbol{\beta}_1) + \exp(\mathbf{x}'_{it-1}\boldsymbol{\beta}_2)}, & k = 1 \\ \frac{\exp(\mathbf{x}'_{it}\boldsymbol{\beta}_2)}{1 + \exp(\mathbf{x}'_{it-1}\boldsymbol{\beta}_1) + \exp(\mathbf{x}'_{it-1}\boldsymbol{\beta}_2)}, & k = 2 \end{cases} \quad (8)$$

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<sup>10</sup> Relative to the Cox semi-parametric model, the discrete-time survival analysis has the following advantages. First, the continuous-time Cox semi-parametric model has a strict risk proportion assumption (Hess and Persson, 2012). Second, the sample is annual data with a period of 22 years, and the time interval of the observation unit is relatively large. Thus, this study mainly employs the discrete-time survival analysis method in the estimation.

## 4.2. Baseline results

The occurrence of divestment causes more missing values in that year. Given this problem, we used the lagged value of the explanatory variables. Table 2 presents the estimation results based on the cloglog model.<sup>1 1</sup> Column (1) presents the regression results of the affiliate firms' variables. The larger the firm size, higher the profitability and labor productivity and lower the probability of divestment.<sup>1 2</sup> One unit increase in profitability (labor productivity) is associated with 22.4% (15.2%) lower probability of divestment.<sup>1 3</sup> Affiliates with higher export share to Japan are less likely to divest. Similar to the study on the survival of Chinese firms (He and Yang, 2016), the relationship between the operating years and probability of Japanese capital withdrawal is "inverted U-shaped." Because of the "liabilities of newness," the probability of the Japanese affiliate's divestment increases with the operating time in the early stage. When explanatory variables of the parent firm, region, and industry are included in Columns (2)–(5), the estimation results of variables of the affiliate level remain almost the same.

Column (2) includes factors at the parent firm level. The estimated coefficient of the parent firm size is not significant. The estimated coefficient of the parent company's experience is significantly positive, showing that an increase in the parent firm's investment experience in China is positively associated with the withdrawal probability of the Japanese affiliate.<sup>1 4</sup> Moreover, the estimated coefficient of the dummy variable of the parent and affiliate in the same industry is always significantly negative. Relative to different industries, if the parent and affiliate are within the same industry, the probability of divestment of Japanese MNEs is lower by approximately 25.5%, as in Benito (1997) and Berry (2013).<sup>1 5</sup>

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<sup>1 1</sup> While limiting our analysis to affiliate firms established after 1995, we dropped 16,950 observations from the original dataset. We also used the full sample for the Cloglog model and the results remain almost the same as our baseline estimation. The results are available upon request.

<sup>1 2</sup> Similar findings can be found in the literature about firm's survival (Zhang et al., 2018).

<sup>1 3</sup> The exponentiated coefficient of the cloglog model is known as the hazard ratio, which is the ratio of hazard rates between a certain level of the explanatory variable and its one unit change. Therefore, the changes in the probability of divestment are  $1 - e^{-0.254} = 22.4\%$  for profitability and  $1 - e^{-0.166} = 15.2\%$  for labor productivity, according to Column (1).

<sup>1 4</sup> We also use the number of Chinese affiliates of the parent firm as the proxy for firm size and investment experience in China, which still shows a significant positive relationship with the probability of divestment.

<sup>1 5</sup> The change in the probability of divestment is  $1 - e^{-0.294} = 25.5\%$ , according to Column (4).

Column (3) incorporates control variables at the region level. The estimated coefficients of the regional economic and wage growth are positive, whereas the estimated coefficients of regional labor quality and freight turnover are negative. However, none are significant. Column (4) introduces the variables at the industry level where the industry growth rate is not significantly correlated with the probability of divestment. The increase in the minimum effective scale of the industry is significantly negatively associated with the probability of divestment. The higher the degree of industry monopoly (or the lower the degree of industry competition), lower the probability of Japanese MNEs' divestment. All explanatory variables are included in Column (5), with the estimation results being consistent with the previous results. The estimated coefficient of the parent firm size turns out to be significantly positive.

[Insert Table 2 here]

In summary, we find that affiliate firm size, profitability, and productivity are negatively associated with the probability of divestment. The increase in affiliate's export to Japan and business relatedness between parent and affiliate firms are negatively correlated with the probability of divestment as well. Additionally, Japanese MNEs prefer the industrial environment with a high minimum effective scale and low competition.

### **4.3. Robustness checks**

We conduct a series of robustness checks, including the alternative definition of divestment, alternative specifications, and high-dimension fixed effects. The results are presented in Tables A2, A3, and A4, respectively, in the Appendix. Here we summarize the results.

First, we used the alternative definition of divestment following Kim et al. (2010). In the literature, foreign capital withdrawal is defined as the timing of divestment in the last year the affiliate exists in the dataset. Accordingly, if the affiliate exists in the dataset in year  $t$  and no longer appears in year  $t + 1$ , the affiliate is defined as divestment in year  $t$ . Under this new definition, 3,860 cases of divestment of Japanese MNEs existed in China from 1995 to 2016. The results reveal that the

estimated coefficients of most explanatory variables are consistent with the baseline estimation. Second, following Belderbos and Zou (2009), we employed the probit and logit models to adapt to different risk function assumptions and applied the Cox semi-parametric method under the continuous-time assumption to conduct the regression. The estimated coefficients of the explanatory variables are consistent with the cloglog estimation, which indicates that different assumptions on the distribution of the risk function and survival time do not affect the estimation results.<sup>16</sup> Third, considering the long panel data, controlling the time trend at both industry and region level is necessary. Moreover, some Japanese affiliates have a common parent firm, and the decision of divestment is naturally affected by the fixed effect of the parent firm. Thus, we employed the linear probability model for the regression analysis and further incorporated the fixed effects at the affiliate, parent-year, region-year, and industry-year levels.<sup>17</sup> Again, the results show that the estimated coefficients of most explanatory variables are stable.

#### ***4.4. Extended analyses***

##### ***4.4.1. Divestment modes***

This study defines two operation states of affiliates as divestment: dissolution or withdrawal and reduction in control share. Dissolution or withdrawal is a more extreme method of divestment, whereas a reduction in control share is a relatively moderate method of divestment. Therefore, determinants of these two divestment modes might be different. Here, we used the competitive risk model to examine the differences between the two modes of divestment.

Table 3 shows the estimation results. Columns (1) and (3) present estimation results of explanatory variables at the affiliate and parent firm levels. Although affiliate size and profitability are negatively associated with the probability of dissolution, they are not significantly associated with the probability of a reduction in control share. Relative to dissolution, the increase in affiliate's labor productivity is strongly negatively associated with the probability of a decline in control share. The

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<sup>16</sup> Note that affiliate age cannot be estimated in the Cox model.

<sup>17</sup> Parent-, industry-, and region-level variables are excluded here as their effects will be absorbed by the parent-, industry-, and region-year fixed effects.



investment experience of the parent firm in China and the affiliate in the same industry as the parent firm are significantly correlated with the probability of dissolution. In Columns (2) and (4), region-level variables have no significant effects on the probability of these two modes of divestment. Furthermore, the minimum effective scale and degree of industrial competition are significantly negatively associated with the probability of dissolution but have no correlation with the probability of a reduction in control share.

Dissolution is a more extreme method of divestment, strongly correlated with the size of the affiliate, profitability, business relatedness with the parent firm, and the degree of industry competition. However, the reduction in control share is relatively moderate, which is usually taken by the parent firm based on its size. When the parent firm's size is large, the parent firm tends to optimize the investment portfolio, which increases the probability of a reduction in control share.

[Insert Table 3 here]

#### *4.4.2. Adjustment of investment*

International divestment does not only occur due to failure, but divestment and investment adjustment go hand in hand. The parent firm may adjust its spatial distribution of investment in China rather than a complete withdrawal of capital. In our sample, 380 cases of interprovincial adjustment of Japanese affiliates exist, of which 113 are relocation from the eastern to the central and western regions, accounting for 30% of the total relocation. Shanghai, Jiangsu, and Beijing are the top three largest sources of divestment, whereas Sichuan, Hubei, and Anhui are the top three largest destinations in the central and western regions. Meanwhile, during the sample period, great changes have occurred in China's industrial structure. The proportion of service industry in China's GDP increased from 33.7% in 1995 to 52.4% in 2016. The change in industrial structure suggests a change in China's comparative advantage. Moreover, the competitiveness of the manufacturing industry based on cheap labor costs gradually weakened. Japanese firms in China also tend to transfer from manufacturing to services in this environment. Our sample has 142 cases of adjustment from the manufacturing to the service industry. Among them, the adjustment from manufacturing to wholesale and retail accounts for 77%,

showing that Japanese MNEs are shifting from “manufacturing in China” to “selling in China.” Among manufacturing industries, foods and beverages, electronics, and textile have more investment adjustment to services, indicating that Japanese MNEs in labor-intensive industries tend to close their manufacturing affiliates and open new service affiliates in China.

Investment adjustment accompanies various costs, including new investment in machines, buildings, human capital, and probably additional communication and marketing costs; hence, only a fraction of firms can afford such costs. Therefore, we further examine the determinants of such investment adjustment. Table 4 presents the estimation results for interprovincial adjustment in Columns (1)–(2), and the results for interindustrial adjustment are presented in Columns (3)–(4). The results of most explanatory variables are consistent with the baseline estimation, but some differences remain. The size and experience of the parent firm are significantly and positively associated with the probability of relocation. Large and experienced MNEs have abundant capital and rich management experience, which can overcome the fixed cost and other costs of interprovincial adjustment. Large-sized parent firms can also optimize the spatial distribution by production relocation. Moreover, from the perspective of spatial distribution, a higher export proportion to Japan may depend on local environmental convenience of export, thus restricting the relocation of affiliates to other regions. Finally, similar to the interprovincial adjustment, the size and experience of the parent firm are positively associated with the interindustrial adjustment, indicating that large-sized and experienced parent firms tend to increase investment in the service industry and reduce their investment in manufacturing in China.

[Insert Table 4 here]

#### ***4.5. Exogenous shocks***

Our survival analysis in the previous sections provides interesting correlations between firm characteristics and the probability of divestment. To investigate the impact of exogenous shocks on Japanese divestment, we use two empirical strategies as follows: (i) the escalation of the Senkaku/Diaoyu Islands conflict in 2012, and (ii) a minimum wage increase in China. These methods

allow us to identify the relationships between firm heterogeneity and divestment decisions. As will be discussed below, we argue that the boycott and protest led by the island dispute is largely a negative demand- and supply- shock (a decrease in both consumption and production of Japanese goods) to Japanese affiliates. Meanwhile, an increase in the minimum wage is mainly a negative supply shock (an increase in production cost associated with labor). We conduct two exercises to see how these different exogenous shocks affect the probability of divestment by Japanese firms. We expect that the Japanese affiliates will respond to these shocks differently. Specifically, given the well-known fact that only the most productive firms conduct FDI and these firms tend to be larger and more profitable (Helpman et al., 2004; Antràs and Yeaple, 2014), we test the hypothesis that among MNEs, the effects of boycott and a minimum wage increase on the probability of divestment are larger for firms with lower productivity, lower profitability, and smaller size.

#### *4.5.1. Senkaku/Diaoyu Islands conflict*

China and Japan have been debating over the sovereignty of the Senkaku/Diaoyu Islands for years. Although the islands dispute worsens the Sino–Japanese relations from time to time, the most severe conflict over the islands only escalated after the Japanese government announced to purchase the disputed islands from a private Japanese owner in August–September 2012. This led to the largest wave of anti-Japanese demonstrations since the normalization of relations between the two countries in 1972. Between August 15 and September 9, nearly 60 demonstrations occurred in Chinese cities to protest against Japan’s proposed “nationalization.” On September 18, the 81st anniversary of the Mukden Incident, which was seen as the start of the Japanese invasion of Manchuria in Northeast China, anti-Japanese protests occurred in at least 128 cities across China.<sup>18</sup> Japanese businesses in China were attacked, with the protests calling for a boycott of Japanese goods. The severity of this territorial dispute was unprecedented, which Japanese firms did not expect. The anti-Japanese movements between August and September 2012 had significantly impacted Sino–Japanese economic relations. According to a survey conducted in October 2012 on 10,534 Japanese firms, one-third of the

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<sup>18</sup> See Wallace and Weiss (2014) for the details of cities and the 2012 anti-Japanese protests.

Japanese firms answered that the anti-Japanese demonstrations negatively affected their sales in China. Importantly, one-sixth of them planned to withdraw or reduce their investment in China (Teikoku Data Bank, 2012).

Previous studies have shown that the Senkaku/Diaoyu Islands conflict had large negative impacts on the stock market value of Japanese firms (Fisman et al., 2014), imports from Japan (Heilmann, 2016; Du et al., 2017), and the sales of Japanese brand autos in China (Yang and Tang, 2014; Chen et al., 2020). In particular, using microdata on Japanese MNEs similarly as this study, Chen et al. (2022) found that the island conflict in 2012 had substantial impact on the local sales, capital investment, and expectations of Japanese affiliates in China. The island conflict could have affected both demand- and supply- side among the Japanese affiliates in China. On the demand side, Chinese consumers boycotted Japanese products, especially consumer goods, such as highly branded Japanese cars. Even consumers who like Japanese products were afraid of being seen as unpatriotic or having their possessions being destroyed. On the supply side, the protesters ransacked some Japanese stores and plants. Therefore, the estimated impact of the island conflict on the probability of divestment could come from both the Japanese affiliates' demand and supply conditions. Because of data constraint, we cannot distinguish between demand and supply shock. However, the negative demand shock was larger than the supply shock according to surveys on Japanese firms (e.g., Teikoku Data Bank, 2012) among many others.<sup>19</sup>

As shown in Fig. 2, after 2012, both the number and proportion of Japanese divestment increased significantly. In this subsection, we conduct a DID analysis to examine the impact of the island conflict on the probability of divestment. Specifically, we compare divestment probability in our treatment group (i.e., cities with anti-Japanese protests) with our control groups (i.e., cities without anti-Japanese protests) before and after the island conflict in 2012. In our sample, we have 115 cities in the treatment group and 23 cities in the control group. Specifically, we use the city-level information on anti-Japanese protests collected by Wallace and Weiss (2014). Given the large

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<sup>19</sup> According to Teikoku Data Bank (2012), 9.1% of Japanese firms answered that Chinese firms boycotted their products, whereas only 3.8% of Japanese firms answered that they temporarily closed their plants and stores due to the anti-Japanese protests.

variations in size, productivity, and profitability across Japanese affiliates, we also examine the heterogeneous effects of the political conflict on the divestment decisions of Japanese MNEs. We conduct the following form of DID estimation:

$$\begin{aligned} divest_{it} = & \beta_0 + \beta_1 Treatment_c \times Post2012_t + \beta_2 Treatment_c \times Post2012_t \times X_{it-1} \\ & + \beta_3 X_{it-1} + \beta_4 Z_{ct-1} + \gamma_i + \gamma_{rt} + \gamma_{st} + \gamma_{pt} + \varepsilon_{it} \end{aligned} \quad (9)$$

where  $i$  denotes an affiliate,  $c$  denotes the location city,  $p$  denotes a parent firm, and  $t$  denotes year.  $Treatment_c$  indicates whether city  $c$  belongs to the treatment group.  $Post2012_t = 1$  if  $t \geq 2012$ , and 0 if  $t < 2012$ .  $X_{it-1}$  is a vector of affiliate-level characteristics, such as productivity, profitability, and firm size. We expect that the effects of protest and boycott on the probability of divestment are larger for firms with lower productivity, lower profitability, and smaller size. The vector  $Z_{ct-1}$  includes city-level control variables, such as log GDP per capita and log population.  $\gamma_i$ ,  $\gamma_{rt}$ ,  $\gamma_{st}$ , and  $\gamma_{pt}$  are the affiliate, province-year, industry-year, and parent-year-fixed effects, respectively. The affiliate and parent fixed effects account for unobserved time-invariant differences across Japanese MNEs that may affect a firm's decision to divest. Furthermore, we use the industry-year-fixed effects to capture time-varying industrial characteristics. The standard errors are clustered at the city level to account for serial correlations. Our sample period is from 2006 to 2014 as we only have city information on the location of firms during this period.

Table 5 presents the estimation results of Equation (9). In Column (1), besides the control variables, we include only  $Treatment_c * Post2012_t$ . The estimated coefficient is 0.05 and statistically significant at 5% level. This is a large effect considering that the probability of divestment is 0.03 in our full sample. We further examine the heterogeneous effects of the island conflict by various affiliate-level characteristics. Specifically, we include one by one the interaction terms between  $Treatment_c * Post2012_t$  and affiliate-level characteristics. The results are presented in Columns (2)–(6). The coefficients of  $Treatment_c * Post2012_t$  and its interaction terms are statistically significant in most columns. For example, the coefficient of the interaction term between  $Treatment_c * Post2012_t$  and productivity is  $-0.007$  and statistically significant at 1% level.

Therefore, the effect of the island conflict on divestment probability decreases with firm productivity, that is, less productive firms are more likely to divest after the island conflict in 2012. Finally, we include all the triple interaction terms in Column (7) and repeat the analysis. The results are not substantively different from those in Columns (2)–(6).

[Insert Table 5 here]

Further, Fig. A1 in the Appendix shows the differences in divestment probability between the treatment and control groups over time by plotting a set of estimated coefficients from the regression on  $Treatment_c \times year_t$  along with all the controls in Column (1) in Table 5. The treatment and control groups were largely balanced in divestment probability in pre-2012 period, indicating a good comparability between our treatment and control groups. However, in a post-2012 period, the treatment group experienced a large increase in divestment probability compared with the control group, indicating that the island conflict had a positive effect on the probability of divestment in the treatment group.

#### 4.5.2. Minimum wage increase

Over the past years, China's labor costs have increased significantly, and there is an ongoing debate on how these higher costs affect foreign firms and business in China. According to the National Bureau of Statistics of China, average urban wages in China increased by about 500% from 1998 to 2016. In 1993, China issued its first national minimum wage regulations, and these regulations were written into the new version of China's Labor Law in 1994. In 2004, the Chinese Ministry of Labor and Social Security passed the Minimum Wage Regulations. The revised regulation significantly increases the penalties of violations, which significantly strengthened the enforcement of the regulation (Gan et al., 2016). Moreover, the regulation requires the local government to adjust the minimum wage standard frequently according to local factors, such as the cost of living and local employment. Therefore, a large variation exists in local minimum wage standards over time and across cities, even across cities within a province. The average minimum wage increases from a monthly

average of 267 RMB in 2000 to an average of 1153 RMB in 2013. This dramatic increase in the minimum wage in China has serious implications for the firm's overall costs and profitability. Indeed, Long and Yang (2016) find a negative effect of minimum wages on the profitability of Chinese firms.

Does the increase in minimum wage lead to more foreign divestment from China? According to the concentration-proximity hypothesis (Helpman et al., 2004), the trade-off in firm's decision to conduct FDI depends on the relative variable costs of producing abroad and the fixed cost of setting up an additional plant. In the context of foreign divestment, an increase in operating costs associated with the employment of labor in the host country (China) implies a decrease in the *relative* variable costs at home (Japan) and other host countries (e.g., ASEAN countries), leading to larger cost savings and stronger incentive to conduct divestment (from China), especially for those firms with lower profitability and productivity. Previous studies have shown that the increase in minimum wage significantly affect firms' exporting behavior (Gan et al., 2016), outward FDI decisions (Fan et al., 2018), and exit of foreign enterprises (Li et al., 2019). We exploit the significant variation in local minimum wages across different cities in China to examine the relationship between divestment decisions by Japanese MNEs and labor costs, with a focus on affiliate characteristics. The local government sets the minimum wage level according to city-level socioeconomic development rather than the performance of foreign investment from a particular country. Therefore, we believe that the changes in the minimum wage are more exogenous to Japanese MNEs.

We adopt the following estimation equation:

$$\begin{aligned} divest_{it} = & \delta_0 + \delta_1 \ln(mini wage_{ct-1}) + \delta_2 \ln(mini wage_{ct-1}) \times X_{it-1} + \delta_3 X_{it-1} \\ & + \beta_4 Z_{ct-1} + \gamma_i + \gamma_{rt} + \gamma_{st} + \gamma_{pt} + \varepsilon_{it} \end{aligned} \quad (10)$$

where  $mini wage_{ct-1}$  is the minimum wage in city  $c$  in year  $t-1$ .<sup>20</sup>  $X_{it-1}$  is a vector of affiliate-level characteristics similar as Equation (9). As discussed earlier, we expect that the effect of the minimum wage on the probability of divestment is larger for firms with lower productivity, lower profitability, and smaller size. Following Fan et al. (2018), we estimate Equation (10) using the linear probability model and control for various city-level variables, especially log GDP per capita and log

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<sup>20</sup> We thank Haichao Fan for graciously sharing the data.

population, to address the potential concerns of omitted variables. We report standard errors clustered at the city level to account for serial correlation. The sample period is from 2006 to 2014. The average minimum wage is 1157 RMB, and the standard deviation is 339 RMB.

Table 6 presents the estimation results of Equation (10). In Column (1), we include log minimum wage only, besides the control variables. The estimated coefficient on log minimum wage is not statistically significant. It suggests that on average, an increase in minimum wage does not raise the probability of divestment by Japanese MNEs. Foreign firms tend to be larger and more productive than domestic firms; hence, the local minimum wage might not affect the probability of divestment by Japanese MNEs. However, as Kaplan–Meier statistics show, smaller, less productive, and low-profitability affiliates as well as those with lower export intensity to Japan tend to have lower survival rates. Therefore, we examine the heterogeneous effects of minimum wage increase by firm characteristics. In Columns (2)–(6), we include an interaction term between log minimum wage and affiliates’ size, age, profitability, productivity, and export share to Japan, respectively. All coefficients on the interaction terms are statistically significant (except age and export share to Japan). For example, the coefficient on the interaction term between log minimum wage and productivity is  $-0.015$  and is statistically significant at 1%, suggesting that the probability of divestment by less productive firms is 0.015 higher. The probability of divestment in our sample is only 0.03; thus, this is a large effect. Therefore, the effect of minimum wage on divestment probability decreases with firm size, profitability, and productivity. In other words, an increase in the minimum wage has larger effects on the divestment probability of smaller, less productive, and low-profitability firms. In Column (7), we include all the interaction terms, and the results are quantitatively similar.

[Insert Table 6 here]

In summary, we find that the anti-Japanese protests and increase in the minimum wage of a city are associated with higher divestment probability by Japanese MNEs, especially for smaller, less productive, and low-profitability firms. The results are robust to controlling for many firm- and city-level variables, including affiliate, parent-year, region-year, and industry-year-fixed effects.



## 5. Conclusion

Based on the comprehensive microdata of Japanese affiliates in China from 1995 to 2016, this study investigates the influencing factors of foreign divestment in China. The survival analysis shows that the affiliate's size, profitability, and labor productivity are negatively associated with the probability of Japanese MNEs' divestment. The business relatedness between affiliate and parent firms and trade linkage with the home country are also negatively associated with the probability of divestment of MNEs. Additionally, Japanese MNEs prefer the industry environment with a large minimum effective scale or low level of competition. To explore the dynamic changes of Japanese MNEs' divestment in China, we conducted extended analyses, including different divestment modes, industrial and spatial investment adjustment, and time period. Our findings suggest that foreign divestment depends on various factors and firm heterogeneity matters. Finally, we examine the impact of the anti-Japanese protests in 2012 and a minimum wage increase in China on the probability of foreign divestment. We find that these exogenous shocks significantly raise the probability of Japanese divestment, especially for small, less productive, and low-profitability firms. Negative demand and supply shocks induced by political conflict and policy change have strong and heterogeneous effects on multinational firms.

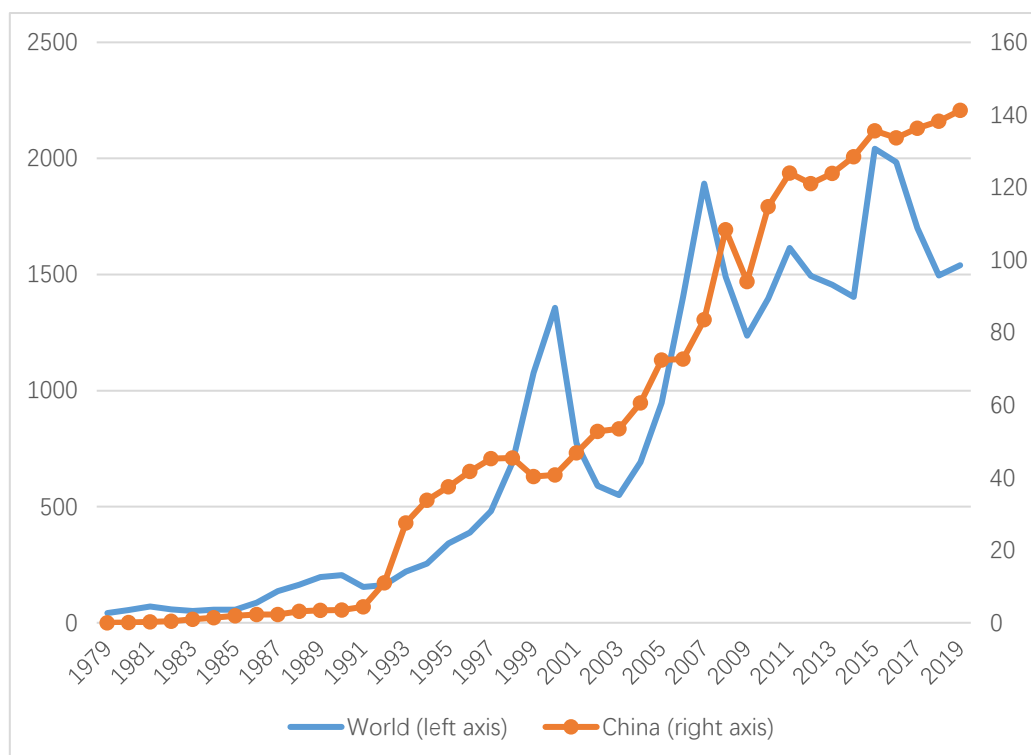
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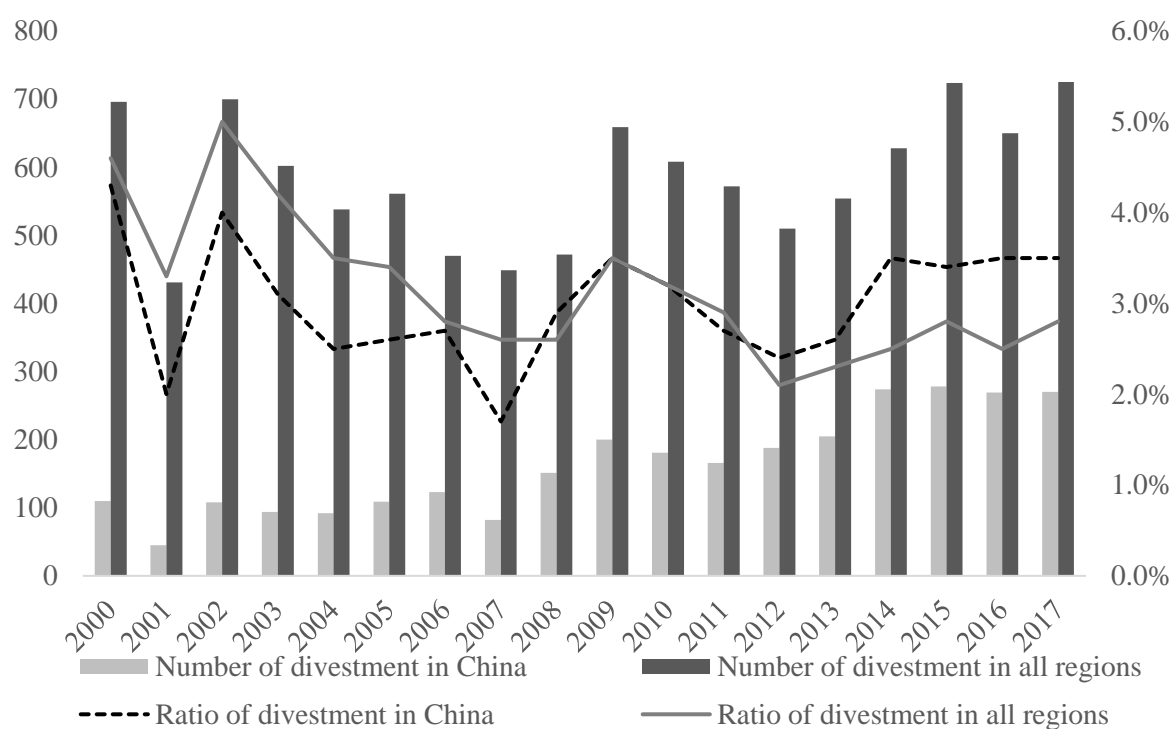
Evidence from Chinese High-tech Firms, *Economic Modelling*, 75, 458–468.

## Figures and Tables



Source: *World Investment Report*, UNCTAD.

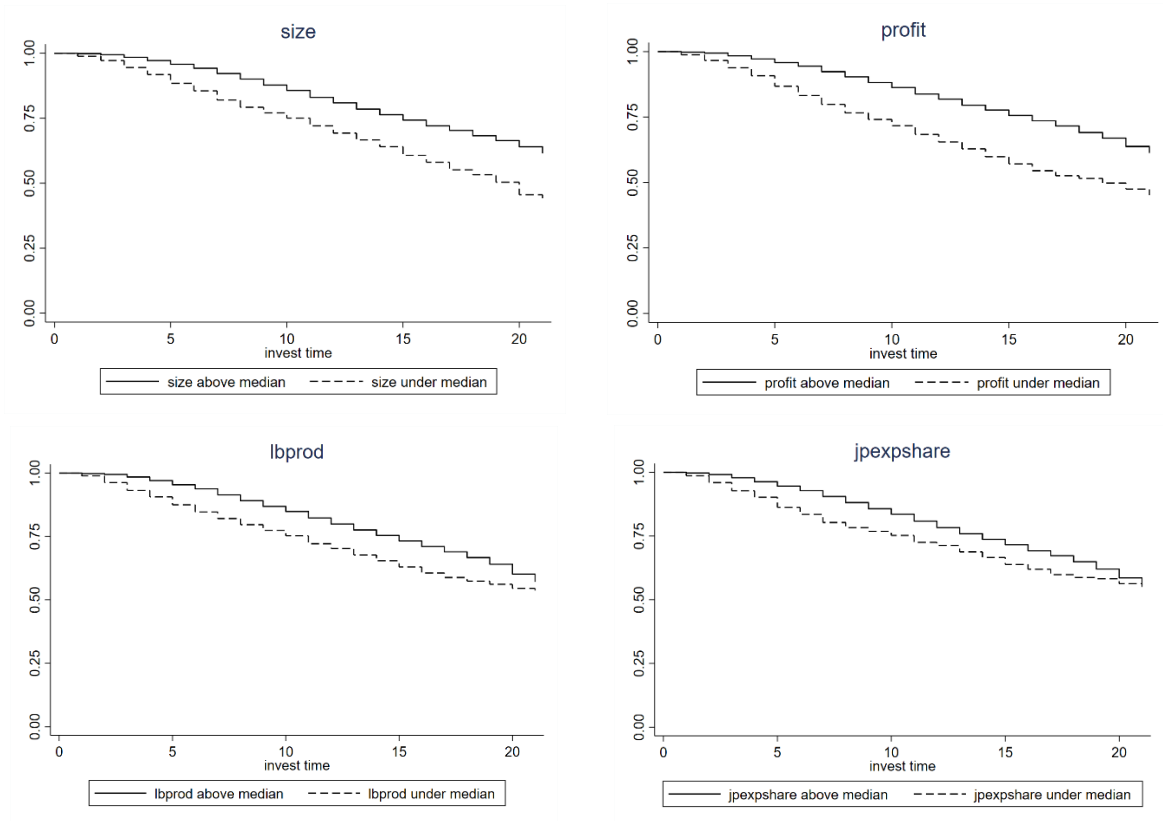
**Fig. 1. FDI inflows to China and the world (in billion USD)**



Note: Ratio of divestment = Number of foreign divestment / (Total number of foreign affiliates with valid responses + Number of overseas divestment) × 100.

Source: BSOBA, METI, Japan.

**Fig. 2. Japanese divestment in China and the world**



Source: Authors' calculation based on BSOBA, METI.

**Fig. 3. Kaplan–Meier survival function**

Variables	Definition	Mean	Median	S.D.	Obs.
<i>divest</i>	Dummy variable for divestment (1 = Yes)	0.030	0	0.172	64706
<i>spa_adj</i>	Dummy variable for interprovincial investment adjustment (1 = Yes)	0.014	0	0.116	64706
<i>ind_adj</i>	Dummy variable for investment adjustment from manufacturing to services (1 = Yes)	0.011	0	0.103	38281
<b><i>Affiliate-level</i></b>					
<i>size</i>	Log of number of employees	4.082	4.143	1.679	56392
<i>age</i>	Log of years of operation	1.910	2.079	0.710	64706
<i>profit</i>	Ratio of after-tax profit to sales	-0.099	0.020	0.586	51559
<i>labprod</i>	Log of sales per employee	2.361	2.269	1.451	52795
<i>jpexpshare</i>	Proportion of sales to Japan in total sales	0.223	0	0.353	53970
<b><i>Parent-level</i></b>					
<i>par_size</i>	Log of number of employees in parent firm	6.605	6.551	1.852	61430
<i>par_exper</i>	Log of years of parent investing in China	1.833	1.946	0.879	64706
<i>par_affind</i>	Dummy variable for parent and affiliate in the same industry (1 = Yes)	0.634	1	0.482	64706
<b><i>Region/Industry level</i></b>					
<i>pro_growth</i>	Provincial GDP growth rate	0.120	0.112	0.057	64444
<i>pro_waggrowth</i>	Provincial wage growth rate	0.118	0.116	0.037	64241
<i>pro_edu</i>	Provincial average education years of the labor force	2.352	2.359	0.132	63439
<i>pro_transport</i>	Provincial growth rate of freight turnover	0.189	0.074	1.509	64444
<i>ind_growth</i>	Growth rate of the number of employees of industries	0.038	0.009	0.104	60736
<i>ind_mes</i>	Log of median asset size of industries	21.221	21.140	0.753	60948
<i>ind_HHI</i>	Herfindahl index of industries	0.078	0.052	0.076	60948

Source: Authors' calculation based on BSOBA, METI, and various statistical yearbooks.

**Table 1. Descriptive statistics**



Divestment dummy	(1)	(2)	(3)	(4)	(5)
<i>size</i>	−0.318*** (0.025)	−0.384*** (0.033)	−0.392*** (0.034)	−0.382*** (0.035)	−0.392*** (0.036)
<i>age</i>	1.446*** (0.264)	1.562*** (0.275)	1.592*** (0.278)	1.568*** (0.295)	1.610*** (0.300)
<i>age</i> <sup>2</sup>	−0.280*** (0.072)	−0.299*** (0.074)	−0.302*** (0.075)	−0.300*** (0.080)	−0.305*** (0.081)
<i>profit</i>	−0.254*** (0.039)	−0.235*** (0.042)	−0.236*** (0.043)	−0.208*** (0.046)	−0.210*** (0.047)
<i>labprod</i>	−0.166*** (0.029)	−0.214*** (0.033)	−0.216*** (0.033)	−0.237*** (0.035)	−0.240*** (0.036)
<i>jpexpshare</i>	−0.378*** (0.095)	−0.351*** (0.102)	−0.350*** (0.103)	−0.347*** (0.111)	−0.346*** (0.112)
<i>par_size</i>		0.039 (0.025)	0.042 (0.026)	0.060** (0.027)	0.065** (0.028)
<i>par_expe</i>		0.201*** (0.058)	0.202*** (0.058)	0.215*** (0.062)	0.217*** (0.063)
<i>par_affind</i>		−0.294*** (0.073)	−0.300*** (0.074)	−0.306*** (0.078)	−0.314*** (0.079)
<i>pro_growth</i>			1.533 (1.450)		0.930 (1.544)
<i>pro_waggrowth</i>			0.519 (1.287)		1.017 (1.392)
<i>pro_edu</i>			−0.025 (1.232)		−0.237 (1.301)
<i>pro_transport</i>			−0.004 (0.027)		−0.001 (0.027)
<i>ind_growth</i>				−0.967 (0.670)	−1.025 (0.676)
<i>ind_mes</i>				−0.307* (0.165)	−0.356** (0.169)
<i>ind_HHI</i>				−3.000*** (1.135)	−3.110*** (1.157)
<i>Year FE</i>	Yes	Yes	Yes	Yes	Yes
<i>Region FE</i>	Yes	Yes	Yes	Yes	Yes
<i>Industry FE</i>	Yes	Yes	Yes	Yes	Yes
<i>N</i>	42207	42048	41472	37340	36820

Note: Estimation method is cloglog model. The values in the brackets are standard errors. \*\*\*, \*\*, and \* denote significance levels of 1%, 5%, and 10%, respectively.

**Table 2. Baseline results**

	Dissolution		Reduction in control share	
	(1)	(2)	(3)	(4)
<i>size</i>	−0.381*** (0.028)	−0.383*** (0.031)	−0.046 (0.107)	−0.090 (0.113)
<i>age</i>	1.463*** (0.277)	1.527*** (0.304)	2.504** (1.212)	2.189* (1.197)
<i>age</i> <sup>2</sup>	−0.287*** (0.075)	−0.299*** (0.082)	−0.683** (0.329)	−0.599* (0.326)
<i>profit</i>	−0.269*** (0.042)	−0.249*** (0.047)	0.408 (0.312)	0.419 (0.326)
<i>labprod</i>	−0.191*** (0.032)	−0.210*** (0.034)	−0.444*** (0.120)	−0.493*** (0.126)
<i>jpexshare</i>	−0.288*** (0.100)	−0.286*** (0.110)	−1.063*** (0.407)	−0.875** (0.416)
<i>par_size</i>	0.029 (0.025)	0.050* (0.027)	0.128 (0.093)	0.201** (0.100)
<i>par_exper</i>	0.155*** (0.053)	0.162*** (0.058)	0.277 (0.209)	0.294 (0.223)
<i>par_affind</i>	−0.277*** (0.071)	−0.281*** (0.077)	−0.370 (0.253)	−0.504* (0.265)
<i>pro_growth</i>		0.443 (1.614)		5.627 (5.827)
<i>pro_waggrowth</i>		1.206 (1.452)		1.199 (5.593)
<i>pro_edu</i>		−0.433 (1.341)		2.336 (4.725)
<i>pro_transport</i>		−0.004 (0.028)		0.512 (0.415)
<i>ind_growth</i>		−1.040 (0.709)		0.481 (2.449)
<i>ind_mes</i>		−0.323* (0.173)		−0.497 (0.664)
<i>ind_HHI</i>		−3.263*** (1.179)		1.804 (4.663)
<i>Year FE</i>	Yes	Yes	Yes	Yes
<i>Region FE</i>	Yes	Yes	Yes	Yes
<i>Industry FE</i>	Yes	Yes	Yes	Yes
<i>N</i>	42208	36971	42208	36971

Note: Estimation method is competitive risk mode. The values in the brackets are standard errors. \*\*\*, \*\*, and \* denote significance levels of 1%, 5%, and 10%, respectively.

**Table 3. Divestment modes**

Investment adjustment	Interprovincial		Interindustrial	
	(1)	(2)	(3)	(4)
<i>size</i>	−0.431*** (0.053)	−0.456*** (0.058)	−0.455*** (0.091)	−0.500*** (0.100)
<i>age</i>	2.084*** (0.603)	2.918*** (0.725)	1.654* (0.989)	3.271** (1.341)
<i>age</i> <sup>2</sup>	−0.504*** (0.170)	−0.717*** (0.201)	−0.388 (0.278)	−0.761** (0.361)
<i>profit</i>	−0.187** (0.080)	−0.190** (0.086)	−0.080 (0.148)	−0.092 (0.158)
<i>labprod</i>	−0.191*** (0.058)	−0.224*** (0.062)	−0.243** (0.103)	−0.259** (0.110)
<i>jpexshare</i>	−0.959*** (0.248)	−0.955*** (0.271)	−0.650* (0.338)	−0.740** (0.372)
<i>par_size</i>	0.378*** (0.055)	0.433*** (0.060)	0.379*** (0.089)	0.400*** (0.095)
<i>par_exper</i>	1.196*** (0.189)	1.327*** (0.222)	1.546*** (0.361)	1.595*** (0.409)
<i>par_affind</i>	−0.520*** (0.144)	−0.464*** (0.153)	−0.871*** (0.239)	−0.855*** (0.251)
<i>pro_growth</i>		−0.345 (2.868)		−1.357 (4.698)
<i>pro_waggrowth</i>		−2.231 (2.688)		−10.063** (4.774)
<i>pro_edu</i>		2.150 (2.477)		−0.563 (4.576)
<i>pro_transport</i>		0.027 (0.032)		0.162*** (0.056)
<i>ind_growth</i>		0.445 (1.418)		5.065 (3.530)
<i>ind_mes</i>		−0.260 (0.267)		0.370 (0.497)
<i>ind_HHI</i>		−4.895** (2.055)		−2.671 (4.065)
<i>Year FE</i>	Yes	Yes	Yes	Yes
<i>Region FE</i>	Yes	Yes	Yes	Yes
<i>Industry FE</i>	Yes	Yes	Yes	Yes
<i>N</i>	40482	35281	23311	20589

Note: Estimation method is cloglog model. The values in the brackets are standard errors. \*\*\*, \*\*, and \* denote significance levels of 1%, 5%, and 10%, respectively.

**Table 4. Investment adjustment**

Divestment dummy	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Treatment</i> × <i>Post2012</i>	0.050** (0.024)	0.094** (0.040)	0.109* (0.062)	0.045** (0.022)	0.067*** (0.024)	0.050** (0.024)	0.121* (0.066)
<i>Treatment</i> × <i>Post2012</i> × <i>size</i>		−0.008 (0.005)					−0.009* (0.005)
<i>Treatment</i> × <i>Post2012</i> × <i>age</i>			−0.046 (0.055)				−0.014 (0.057)
<i>Treatment</i> × <i>Post2012</i> × <i>age</i> <sup>2</sup>			0.009 (0.013)				0.004 (0.014)
<i>Treatment</i> × <i>Post2012</i> × <i>profit</i>				−0.032** (0.015)			−0.023 (0.016)
<i>Treatment</i> × <i>Post2012</i> × <i>labprod</i>					−0.007** (0.003)		−0.007** (0.003)
<i>Treatment</i> × <i>Post2012</i> × <i>jpexshare</i>						0.000 (0.011)	−0.002 (0.012)
<i>Affiliate-level variables</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>City-level controls</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Province-year FE</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Industry-year FE</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Parent-year FE</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Affiliate FE</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	18206	18206	18206	18206	18206	18206	18206
<i>R-square</i>	0.548	0.548	0.548	0.548	0.548	0.548	0.549

Note: The values in the brackets are standard errors clustered at the city level. \*\*\*, \*\*, and \* denote significance levels of 1%, 5%, and 10%, respectively. Sample period is 2006 to 2014.

**Table 5. Islands conflict and divestment decisions**

Divestment dummy	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>miniwage</i>	−0.046 (0.046)	0.121 (0.074)	−0.018 (0.082)	−0.048 (0.046)	−0.014 (0.050)	−0.043 (0.046)	0.097 (0.087)
<i>miniwage</i> × <i>size</i>		−0.032*** (0.009)					−0.035*** (0.009)
<i>miniwage</i> × <i>age</i>			−0.013 (0.058)				0.068 (0.058)
<i>miniwage</i> × <i>age</i> <sup>2</sup>			−0.000 (0.012)				−0.012 (0.013)
<i>miniwage</i> × <i>profit</i>				−0.067** (0.026)			−0.048** (0.024)
<i>miniwage</i> × <i>labprod</i>					−0.015*** (0.005)		−0.021*** (0.005)
<i>miniwage</i> × <i>jpexshare</i>						−0.028 (0.025)	−0.029 (0.027)
<i>Affiliate-level variables</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>City-level controls</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Province-year FE</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Industry-year FE</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Parent-year FE</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Affiliate FE</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	18206	18206	18206	18206	18206	18206	18206
<i>R-square</i>	0.548	0.550	0.548	0.549	0.548	0.548	0.552

Note: The values in the brackets are standard errors clustered at the city level. \*\*\*, \*\*, and \* denote significance levels of 1%, 5%, and 10%, respectively. Sample period is 2006 to 2014.

**Table 6. Minimum wage and divestment decisions**

## Appendix

Industry	1995–2007	2008–2011	2012–2016	Total
<b>Panel A: Manufacturing</b>				
Food product and beverages	50	48	61	159
Textile products	120	73	115	308
Pulp, paper, and paper products	7	4	16	27
Chemicals	48	37	52	137
Petroleum and coal products	2	1	3	6
Ceramic, stone, and clay products	15	11	18	44
Iron and steel	20	12	21	53
Nonferrous metals	11	9	29	49
Fabricated metal products	15	13	38	66
General-purpose machinery	16	9	14	39
Production machinery	20	20	48	88
Business oriented machinery	10	16	20	46
Electrical machinery, equipment, and supplies	28	39	54	121
Information and communication electronics equipment	50	52	83	185
Transportation equipment	33	29	40	102
Miscellaneous manufacturing	44	48	111	203
<b>Panel B: Nonmanufacturing</b>				
Information and communications	20	57	93	170
Transport services	18	29	45	92
Wholesale and retail trade	91	94	217	402
Finance and insurance	3	0	0	3
Real estate	9	6	4	19
Goods rental and leasing	5	1	6	12
Accommodation and food service activities	17	8	14	39
Education	3	0	5	8
Other service activities	40	51	83	174
Agriculture, forestry, and fisheries	9	3	5	17
Mining	2	1	1	4
Construction	11	7	13	31
Electricity, gas, and water supply	3	0	3	6

Source: Authors' calculation based on BSOBA, METI.

**Table A1. Distribution of divestment by industry**

Divestment dummy	(1)	(2)	(3)	(4)
<i>size</i>	−0.140*** (0.025)	−0.143*** (0.025)	−0.149*** (0.027)	−0.154*** (0.028)
<i>age</i>	0.682*** (0.192)	0.712*** (0.195)	0.811*** (0.213)	0.823*** (0.217)
<i>age</i> <sup>2</sup>	−0.113** (0.053)	−0.119** (0.054)	−0.128** (0.058)	−0.128** (0.059)
<i>profit</i>	−0.123*** (0.037)	−0.124*** (0.037)	−0.132*** (0.041)	−0.133*** (0.041)
<i>labprod</i>	−0.108*** (0.026)	−0.110*** (0.026)	−0.116*** (0.028)	−0.117*** (0.028)
<i>jpexshare</i>	−0.370*** (0.080)	−0.378*** (0.081)	−0.374*** (0.093)	−0.385*** (0.094)
<i>par_size</i>	0.015 (0.020)	0.017 (0.020)	0.043* (0.023)	0.046** (0.023)
<i>par_exper</i>	0.103** (0.044)	0.106** (0.044)	0.115** (0.047)	0.117** (0.047)
<i>par_affind</i>	−0.255*** (0.056)	−0.261*** (0.057)	−0.303*** (0.062)	−0.307*** (0.063)
<i>pro_growth</i>		1.738 (1.158)		1.294 (1.244)
<i>pro_waggrowth</i>		1.010 (0.922)		1.282 (0.989)
<i>pro_edu</i>		−1.324 (0.923)		−1.638* (0.984)
<i>pro_transport</i>		−0.003 (0.017)		−0.003 (0.018)
<i>ind_growth</i>			−0.702 (0.459)	−0.794* (0.465)
<i>ind_mes</i>			−0.420*** (0.121)	−0.483*** (0.123)
<i>ind_HHI</i>			−2.547*** (0.913)	−2.550*** (0.932)
<i>Year FE</i>	Yes	Yes	Yes	Yes
<i>Region FE</i>	Yes	Yes	Yes	Yes
<i>Industry FE</i>	Yes	Yes	Yes	Yes
<i>N</i>	37902	37326	33740	33220

Note: Estimation method is cloglog model. The values in the brackets are standard errors. \*\*\*, \*\*, and \* denote significance levels of 1%, 5%, and 10%, respectively.

**Table A2. Alternative definition of divestment**

Divestment dummy	Probit		Logit		Cox	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>size</i>	−0.173*** (0.021)	−0.177*** (0.022)	−0.396*** (0.040)	−0.405*** (0.043)	−0.341*** (0.030)	−0.346*** (0.031)
<i>age</i>	0.692*** (0.134)	0.697*** (0.148)	1.614*** (0.295)	1.657*** (0.326)		
<i>age</i> <sup>2</sup>	−0.131*** (0.034)	−0.129*** (0.037)	−0.308*** (0.077)	−0.313*** (0.085)		
<i>profit</i>	−0.124*** (0.021)	−0.111*** (0.023)	−0.252*** (0.043)	−0.226*** (0.048)	−0.199*** (0.038)	−0.200*** (0.039)
<i>labprod</i>	−0.102*** (0.017)	−0.113*** (0.018)	−0.224*** (0.036)	−0.250*** (0.040)	−0.220*** (0.033)	−0.221*** (0.033)
<i>jpexshare</i>	−0.171*** (0.049)	−0.166*** (0.054)	−0.369*** (0.109)	−0.363*** (0.121)	−0.308*** (0.104)	−0.303*** (0.105)
<i>par_size</i>	0.018 (0.012)	0.029** (0.013)	0.040 (0.027)	0.066** (0.030)	0.054** (0.027)	0.057** (0.027)
<i>par_exper</i>	0.095*** (0.027)	0.102*** (0.030)	0.210*** (0.058)	0.226*** (0.065)	0.173*** (0.054)	0.169*** (0.055)
<i>par_affind</i>	−0.135*** (0.034)	−0.145*** (0.037)	−0.303*** (0.076)	−0.324*** (0.082)	−0.281*** (0.071)	−0.285*** (0.071)
<i>pro_growth</i>		0.519 (0.708)		1.034 (1.552)	−0.921 (0.648)	−0.963 (0.657)
<i>pro_waggrowth</i>		0.536 (0.629)		1.102 (1.419)	−0.288* (0.157)	−0.332** (0.159)
<i>pro_edu</i>		−0.061 (0.569)		−0.231 (1.263)	−2.829*** (1.080)	−2.922*** (1.104)
<i>pro_transport</i>		0.000 (0.013)		−0.000 (0.030)		0.810 (1.439)
<i>ind_growth</i>		−0.471 (0.314)		−1.051 (0.701)		1.133 (1.325)
<i>ind_mes</i>		−0.159** (0.078)		−0.365** (0.175)		−0.296 (1.154)
<i>ind_HHI</i>		−1.453*** (0.537)		−3.235*** (1.211)		−0.001 (0.028)
<i>Year FE</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>Region FE</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>Industry FE</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	42048	36820	42048	36820	37463	36915

Note: The values in the brackets are standard errors. \*\*\*, \*\*, and \* denote significance levels of 1%, 5%, and 10%, respectively.

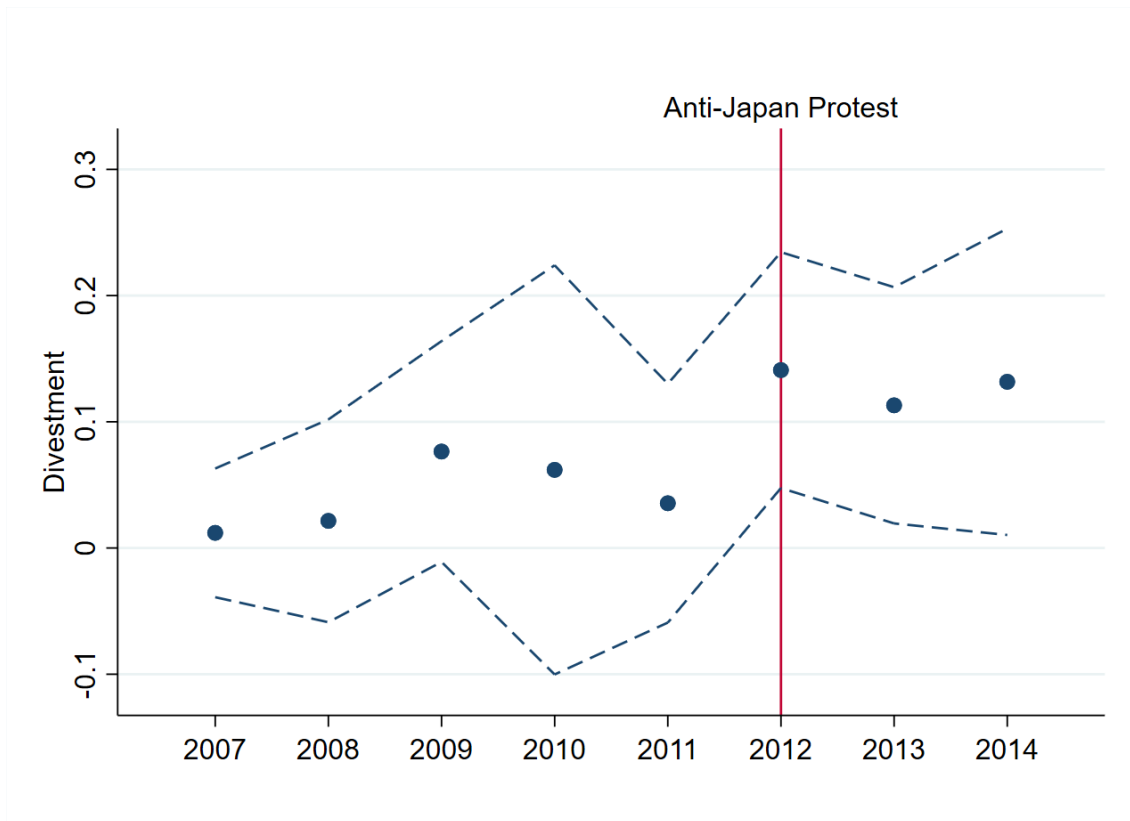
**Table A3. Alternative specifications**



Divestment dummy	(1)	(2)	(3)	(4)
<i>size</i>	−0.009*** (0.001)	−0.008*** (0.001)	−0.013*** (0.001)	−0.037*** (0.004)
<i>age</i>	0.033*** (0.005)	0.035*** (0.005)	0.043*** (0.007)	0.074*** (0.016)
<i>age</i> <sup>2</sup>	−0.006*** (0.001)	−0.007*** (0.001)	−0.010*** (0.002)	−0.000 (0.010)
<i>profit</i>	−0.011*** (0.002)	−0.013*** (0.002)	−0.012*** (0.003)	−0.008** (0.004)
<i>labprod</i>	−0.005*** (0.001)	−0.004*** (0.001)	−0.006*** (0.002)	−0.005* (0.003)
<i>jpexshare</i>	−0.008*** (0.003)	−0.008*** (0.002)	−0.016*** (0.005)	−0.001 (0.010)
<i>par_size</i>	0.002** (0.001)	0.001 (0.001)		
<i>par_exper</i>	0.004*** (0.001)	0.004*** (0.001)		
<i>par_affind</i>	−0.007*** (0.002)	−0.007*** (0.002)		
<i>pro_growth</i>	0.027 (0.041)			
<i>pro_waggrowth</i>	0.024 (0.031)			
<i>pro_edu</i>	−0.005 (0.030)			
<i>pro_transport</i>	−0.000 (0.001)			
<i>ind_growth</i>	−0.025 (0.016)			
<i>ind_mes</i>	−0.007 (0.004)			
<i>ind_HHI</i>	−0.071*** (0.026)			
<i>Year FE</i>	Yes			
<i>Region FE</i>	Yes			
<i>Industry FE</i>	Yes			
<i>Affiliate FE</i>				Yes
<i>Region-year FE</i>		Yes	Yes	Yes
<i>Industry-year FE</i>		Yes	Yes	Yes
<i>Parent-year FE</i>			Yes	Yes
<i>N</i>	36971	42103	25525	24737
<i>R-square</i>	0.015	0.039	0.381	0.549

Note: Estimation method is linear probability model. The values in the brackets are standard errors. \*\*\*, \*\*, and \* denote significance levels of 1%, 5%, and 10%, respectively.

**Table A4. High-dimension fixed effects**



Note: The dots capture the time course of the divestment probability difference between cities that had anti-Japanese protests in 2012 (treatment group) and those that did not (control group). The dashed lines represent the 95% confidence interval of the estimated effect.

**Fig. A1. Islands conflict and divestment decisions**