

The Effect of Moving to a Territorial Tax System on Profit Repatriations: Evidence from Japan*

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Abstract

The design of international tax policies, regarding whether and how to tax corporate incomes earned in foreign countries, has received a great deal of attention from policymakers and economists. Japan's worldwide tax system taxed foreign source income upon repatriation. To stimulate dividend repatriations from Japanese-owned foreign affiliates, Japan introduced a foreign dividend exemption in 2009 that exempts from home taxation dividends remitted by Japanese-owned foreign affiliates to their parent firms. This paper examines the effect of dividend exemption on profit repatriations by Japanese multinationals. We find no evidence that the dividend exemption system stimulated dividend repatriations of the typical foreign affiliate that had paid no dividends under the worldwide tax system. However, the responses of Japanese multinationals to dividend exemption were heterogeneous. Foreign affiliates with a large stock of retained earnings increased dividend payments more than other affiliates with the enactment of dividend exemption in 2009, but the increase in dividend payments was not associated with foreign tax rates.

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1 Introduction

In an increasingly globalized world, the design of international tax policies, regarding whether and how to tax corporate incomes earned in foreign countries by multinational firms, has received a great deal of attention from policymakers and economists in advanced countries. While taxing foreign source income would raise revenue, international tax rules significantly influence the business activities of multinational corporations, including the location of foreign direct investment, income reallocation (income shifting) through transfer pricing, and profit repatriation. The United States taxes foreign income upon repatriation, allowing foreign tax credits for corporate income taxes and other related taxes paid to foreign governments under the so-called *worldwide income tax system*. In contrast to a worldwide income tax system, a *territorial tax system* exempts foreign income from home taxation; such systems are employed by many advanced countries, including Australia, Belgium, Canada, France, Germany, Italy, and the Netherlands.¹ In the United States, policymakers and economists have long discussed changing the current worldwide tax system to a territorial tax system.

Japan, the focus of this study, had a worldwide income tax system until the end of March 2009. At that time, the Japanese government was concerned that under the worldwide tax system, Japanese multinational corporations retained abroad a large portion of foreign profits earned by their affiliates and did not repatriate them to Japan. Japanese firms arguably had incentive to do so because their foreign incomes were taxed at high rates (as high as 40 percent) upon such repatriation.² To stimulate dividend repatriations from Japanese-owned foreign affiliates, Japan introduced a permanent foreign dividend exemption in April 2009 and exempted from home taxation dividends remitted by foreign affiliates to their Japanese parent firms. Thus, with the introduction of the dividend exemption system, the Japanese corporate tax system moved to a territorial tax system.

This paper examines the effect of dividend exemption on profit repatriations by Japanese multinationals. Using affiliate-level data, we investigate whether the switch to the dividend exemption system increased the amount of dividend payments by foreign affiliates, as the Japanese government expected, and whether the responsiveness of dividend remittances to foreign tax rates (corporate income taxes and withholding income taxes on repatriated dividends) was changed by the adoption of the dividend exemption system. Few studies have empirically tested the effects of a “permanent” dividend exemption and examined the actual outcomes of changing the regime from a worldwide tax system to a territorial tax

¹As of 2008, 21 of the 30 OECD countries employed a territorial tax system (METI, 2008).

²In 2009, the corporate income tax rate of Japan was the highest among the OECD member countries (OECD, 2010).

system.³ Egger et al. (2011) study foreign dividend exemption enacted in the tax reform of the United Kingdom in 2009 and find that foreign affiliates owned by U.K. multinational firms responded to the tax reform by increasing dividend payments to their owners. Tajika et al. (2012) investigate the impact of Japan's dividend exemption on dividends received by Japanese parent firms from their foreign subsidiaries. They find that more parent firms, especially those facing greater demand for cash, increased dividends received from their foreign affiliates in response to the enactment of dividend exemption in 2009.⁴ Unlike Tajika et al. (2012), this paper studies the effect of dividend exemption on dividend payments at the affiliate level and the responsiveness of dividend payments to repatriation tax costs. Each foreign affiliate faced a different tax cost of paying dividends to its parent firm in Japan under the worldwide tax system, depending on the corporate tax payments to the host country and the withholding tax payments on dividends. Thus, the advantage of our study is that we can utilize the variations in the tax costs of dividend repatriations among affiliates to identify the impact of the tax reform on dividend repatriations.

We use the micro database of the annual survey conducted by the Ministry of Economy, Trade and Industry of Japan (METI), *The Survey of Overseas Business Activities*. The survey provides information on the financial and operating characteristics of Japanese firms operating abroad, including dividends paid to Japanese investors. We analyze the data from 2007 to 2009 to focus on the first-year response of Japanese multinationals to the dividend exemption system, noting that the first-year response is likely to be different from that in subsequent years for two reasons. First, as we will explain in detail in the next section, most Japanese multinationals expected the introduction of the dividend exemption system before the end of the 2008 accounting year. Thus, they might have reduced dividend repatriations in 2008 in anticipation of the adoption of the dividend exemption system and increase them in 2009. Second, some firms may have repatriated as a one-time choice in 2009 large amounts of foreign income that they had retained and accumulated over a long period to avoid taxation in Japan.⁵

³The previous literature utilizes cross-country differences in international tax systems to examine the effect of corporate taxes under the two tax regimes on foreign direct investment (Slemrod, 1990; Hines, 1996; Altshuler and Grubert, 2001). Desai and Hines (2004) estimate a tax burden on foreign income of \$50 billion per year under the U.S. worldwide income tax system.

⁴Some studies have investigated the effects of the one-time dividend deductions permitted by the American Jobs Creation Act of 2004 on the profit repatriations, domestic investment and employment, market values, and income shifting behavior of U.S. multinational corporations (Oler et al., 2007; Blouin and Krull, 2009; Redmiles, 2009; Bradley, 2011; Dharmapala et al., 2011).

⁵In addition, the response specific to the first year of the dividend exemption system, if any, would be important in the comparison with the American Job Creation Act of 2004 enacted in the United States, which gave U.S. corporations a one-time deduction of 85 percent of dividends received from their foreign affiliates under some conditions. As we will discuss in the next section, the laws enacted in Japan and the United States are quite different in terms of the conditions and procedures of exempting received dividends.

We find that Japanese corporate taxes had a significant negative effect on dividend repatriations before 2009 under the worldwide income tax system. Despite the dividend exemption system substantially eliminating corporate tax liabilities on repatriated dividends in Japan, our analysis of the survey data provides no evidence that the dividend exemption system stimulated dividend repatriations of the typical foreign affiliate that had paid no dividends under the worldwide tax system. However, the response of Japanese multinationals to dividend exemption was heterogeneous. Foreign affiliates that had retained and accumulated large profits under the worldwide tax system increased dividend payments more than other affiliates with the enactment of dividend exemption in 2009. Therefore, dividend exemption fulfilled the main aim to stimulate dividend repatriations from foreign affiliates with a large stock of retained earnings in line with the expectation of the Japanese government.

Surprisingly, we find no evidence that the responsiveness of dividend repatriations to foreign tax rates changed with the enactment of dividend exemption. More precisely, the increase in dividend payments was not associated with either the grossed-up tax rate difference between Japan and foreign countries, or the withholding tax rates on repatriated dividends. The Japanese government was concerned that adopting a territorial tax system may facilitate tax avoidance by multinational corporations shifting foreign income to low tax countries. Though it might take more time for companies to change their tax strategies in response to the tax reform, our results suggest that Japanese parent firms did not immediately respond to dividend exemptions by reallocating their foreign profits to their foreign affiliates in low tax countries and increasing dividend repatriations by those affiliates in 2009.

The paper proceeds as follows. The next section describes the background and the provisions of dividend exemption enacted in Japan. Section 3 calculates the tax costs of remitting profits from foreign subsidiaries to their parent firms in Japan by dividends, royalties or interest, and shows how Japanese dividend exemption has changed the tax costs of profit repatriations. Section 4 describes the data we use. Section 5 presents empirical results from our preliminary analysis regarding the first-year response of Japanese multinationals to dividend exemption. Section 6 extends the empirical model in Section 5 to analyze the heterogeneity of the responses to dividend exemption depending on the size of the stock of retained earnings of foreign affiliates. Section 7 presents the results of robustness tests and alternative specifications. Section 8 concludes.

2 The Dividend Exemption System Enacted in Japan in 2009

In May 2008, a subcommittee on international taxation at METI began to discuss the introduction of a dividend exemption in the corporate tax reform for 2009; this was publicly known because newspaper articles reported this development at the time.⁶ In August 2008, the subcommittee released an interim report and proposed introducing a dividend exemption (METI, 2008). In the report, METI estimated that the stock of retained earnings of Japanese-owned foreign affiliates was 17 trillion Japanese yen as of 2006.⁷ Their concern was that an excessive amount of profit was retained in foreign countries to avoid home-country taxation in Japan, which distorted the decisions of Japanese corporations on the timing of profit repatriations and reduced domestic R&D investment that could be financed from foreign-source income. In November 2008, the Tax Commission also recommended the introduction of a dividend exemption system. Finally, this regime change was included in the legislation of the 2009 tax reform. The legislation was passed into law on March 27, 2009 and came into effect on April 1, 2009.⁸

The dividend exemption system permits Japanese resident corporations to deduct from taxable income 95 percent of dividends received from foreign affiliates in accounting years commencing on or after April 1, 2009. The rest (five percent) of the dividends are regarded as expenses incurred by parent firms for earning the dividends and are added to the calculation of their taxable incomes in Japan.⁹ In order to qualify for dividend exemption, a parent firm must have held at least 25 percent of the shares of its affiliate for at least six months as of the dividend declaration date. While dividend exemption would reduce corporate tax liabilities on repatriated dividends in Japan, foreign tax credits no longer apply to withholding taxes on repatriated dividends imposed by host countries.

The new system is still quite distant from pure source-based taxation. As the term “dividend” exemption suggests, it only exempts foreign income in the form of paid dividends

⁶The discussion of Japan’s foreign dividend exemption in this section largely draws on Aoyama (2009) and Masui (2010).

⁷Seventeen trillion yen are worth about 15 billion U.S. dollars at the 2006 exchange rate of 1 USD = 116.299 JPY (UNCTAD, 2012).

⁸The subcommittee also examined the possibility of introducing a one-time dividend exemption similar to the American Jobs Creation Act of 2004, limiting the use of dividends exempted from home taxation. However, the subcommittee concluded that a one-time dividend exemption would stimulate dividend repatriations only during the period under the exemption rule and would have an aftereffect that would counteract the effect of dividend exemption. They were also concerned that limiting the use of exempted dividends would distort the managerial decisions and undermine managerial efficiency of Japanese corporations (METI, 2008).

⁹The expenses corresponding to the five percent of the repatriated dividends are assumed to be deducted from the taxable incomes of parent firms when they invest in their subsidiaries, and thus, would not be exempted upon repatriation under the new exemption system.

and does not apply to other types of foreign source income, including royalties, interest payments, income earned by foreign branches, and capital gains. Foreign taxes imposed on those income types continue to be creditable under the direct foreign tax credit system in Japan.

Finally, because this paper focuses on the first-year response to dividend exemption, the difference between Japan’s foreign dividend exemption enacted under the 2009 tax reform and the dividend tax deduction under the American Jobs Creation Act of 2004 (AJCA) is also noteworthy. First, while the AJCA provides U.S. multinational corporations with a special one-time deduction of 85 percent of dividends received from their foreign affiliates, Japan’s dividend exemption is permanent. Second, under the AJCA, the 85 percent exemption applies only to “extraordinary dividends,” which are defined as dividend payments exceeding average repatriations over a five-year period ending before July 1, 2003, excluding the highest and lowest years.¹⁰ Therefore, the exemption is limited to a part of dividends paid (extraordinary dividends), and U.S. multinationals could claim the exemption only if they received foreign dividends more than the average amount. On the other hand, Japan’s dividend exemption applies to 95 percent of *all* dividends as long as the conditions described above are satisfied.¹¹ Thus, we note that the exemption permitted under the new tax system in Japan is quite different from and more generous than the exemption under the AJCA in the United States.

3 How Dividend Exemption Affects Profit Repatriations of Japanese Multinationals

Hartman (1985) demonstrated that under certain conditions, repatriation taxes do not affect the decisions on marginal investment and dividend payments made by “mature” subsidiaries that finance their marginal investment out of their own retained earnings. However, this result depends on the assumption that repatriation tax rates are constant over time. This assumption could fail to hold because repatriation tax rates on dividends change depending on the foreign tax credit positions of parent firms under a worldwide income tax system and the definition of taxable income (tax bases) in host countries.¹²

¹⁰In addition, to be eligible for the dividends-received deduction, dividends must be paid in cash and invested in approved activities in the United States, although this requirement may not be binding for U.S. multinationals (Blouin and Krull, 2009; and Dharmapala et al., 2011).

¹¹The Japanese government estimates that given the requirements described above, more than 95 percent of foreign affiliates would be eligible for dividend exemption.

¹²There is evidence that repatriation taxes discourage dividend payouts of U.S. corporations (Hines and Hubbard, 1990; Grubert, 1998; Desai et al., 2001). In contrast, using Japanese affiliate-level data, Tajika

In addition to those cases, repatriation tax rates also vary because of changes in the international tax regime. As we discussed in the previous section, Japanese firms learned at the latest in May 2008 that the government was discussing the introduction of a dividend exemption. Thus, they could expect the tax regime change before the end of the 2008 accounting year, and some firms may have expected it even earlier. In this situation, as we show in the appendix, even mature foreign affiliates would increase dividend payments to their parent firms in response to a decrease in the repatriation tax rate due to the enactment of dividend exemption.

In what follows, we calculate the tax costs of remitting profits from foreign subsidiaries to their parent firms in Japan by dividends, royalties, or interest, given their decisions on foreign direct investment and show how Japan's dividend exemption has changed the tax costs of profit repatriations. We will then make predictions for our empirical analysis based on the changes in the repatriation tax costs.

To consider tax liabilities on foreign dividends under Japan's worldwide tax system (before April 2009) and the new exemption system (after April 2009), we calculate the tax costs of remitting an additional dollar of foreign income to Japan by dividends, royalties or interest. Let Y_{ijc} denote the pre-tax profit of affiliate i operating in country c owned by parent j and T_{ijc} the foreign corporate income tax paid by subsidiary i . We define the average subsidiary tax rate as $\tau_{ijc} = T_{ijc}/Y_{ijc}$. Denote the statutory corporate tax rate of Japan and country c by τ_H and τ_c , respectively. The withholding tax rates on dividends, royalties, and interest payments are w_c^D , w_c^R , and w_c^I , respectively.

Under the worldwide tax system in Japan before April 2009, the tax liability of parent j to receive one dollar of dividends from its own affiliate i in country c depends on the excess foreign tax credit position of parent j : whether the parent is in a situation of *excess limit* or *excess credit*. A parent firm whose foreign tax payments are less than the foreign tax credit limit, where the foreign tax credit limit is calculated as the total foreign taxable income times the Japanese corporate tax rate, is referred to as being in excess limit. In contrast, if the foreign tax payments are greater than the foreign tax credit limit, the parent is referred to as being in excess credit and can use excess foreign tax credits — the difference between the foreign tax payments and the foreign tax credit limit — to reduce the Japanese tax obligations on foreign source income in the next three years.

Suppose parent firm j is in excess limit. Then it could claim foreign tax credits for the taxes paid to host country c when affiliate i remits one dollar of dividends. The dollar of dividends would be deemed as $1/(1 - \tau_{ijc})$ dollars of taxable income in Japan (gross-up

and Nakamura (2008) find no evidence of a significant effect of corporate taxes on dividend repatriation by Japanese multinationals.

formula), which yields the corporate tax liability of $\tau_H/(1 - \tau_{ijc})$. Parent i also has to pay withholding taxes on the dividend w_c^D to country i . Thus, the total tax payment to receive one dollar of dividends is $[\tau_H/(1 - \tau_{ijc}) + w_c^D]$. Parent i can also claim foreign tax credits for the taxes paid to country c : the corporate tax payment $\tau_{ijc}/(1 - \tau_{ijc})$ and the withholding tax on the dollar of dividends w_c^D . Thus, the net tax payment of parent j to receive one dollar of dividends from its affiliate i in country c can be written as P_{ijc} such that

$$P_{ijc} \equiv \left[\frac{\tau_H}{1 - \tau_{ijc}} + w_c^D \right] - \left[\frac{\tau_{ijc}}{1 - \tau_{ijc}} + w_c^D \right] = \frac{\tau_H - \tau_{ijc}}{1 - \tau_{ijc}},$$

which is the difference between the Japanese statutory tax rate and the subsidiary average tax rate grossed up by the subsidiary average tax rate.

If parent j is in an excess credit position, the parent can use excess foreign tax credits to wipe out the Japanese corporate tax liability.¹³ Then the net tax payment is w_c^D . In sum, the tax costs of remitting one dollar of dividends can be written as

$$\begin{cases} P_{ijc} = (\tau_H - \tau_{ijc})/(1 - \tau_{ijc}) & \text{if parent } j \text{ is in excess limit;} \\ w_c^D & \text{if parent } j \text{ is in excess credit.} \end{cases} \quad (1)$$

After the introduction of the dividend exemption system (after April 2009), parent j can exclude 95 percent of dividends from its taxable income and has to include only five percent of the dividends in taxable income. Thus, the net tax payment to receive the dollar of dividends from affiliate i , or the repatriation tax rate under the new exemption system, is

$$0.05\tau_H + w_c^D. \quad (2)$$

Therefore, if parent j is in an excess limit position, the dividend exemption system eliminates almost the entire corporate tax liability in Japan.¹⁴ The repatriation tax cost of repatriating dividends decreases from $(\tau_H - \tau_{ijc})/(1 - \tau_{ijc})$ to $0.05\tau_H$ when controlling for the withholding tax rate on dividends w_c^D .¹⁵ On the other hand, because the withholding taxes on dividends are no longer creditable under the dividend exemption system, parent i

¹³Even when parent j is in an excess credit position, the foreign tax credit that parent j can claim is limited up to the Japanese tax liability on the dollar of dividends $(\tau_H/(1 - \tau_{ijc}))$.

¹⁴We note that most Japanese corporations are expected to be in excess limit positions because of the relatively high corporate tax rate of Japan. In the data from 2007 to 2009, only 6.9 percent of foreign affiliates faced average tax rates higher than the Japanese corporate tax rate. Thus, it is reasonable to assume that most parent firms are in excess limit situations or that even if they are in excess credit, they do not have substantial excess foreign tax credits.

¹⁵In this section, we assume $P_{ijc} = (\tau_H - \tau_{ijc})/(1 - \tau_{ijc}) > 0.05\tau_H$. In the data from 2007 to 2009, 91.8 percent of foreign affiliates satisfy this condition.

has to pay w_c^D , which would have been creditable under the worldwide tax system before 2009.

When the repatriation tax costs decrease to $0.05\tau_H$ (controlling for w_c^D), which is the same for all firms, foreign affiliates will increase dividend payments under the new exemption system as long as repatriation taxes are a binding constraint on their dividend payout decisions. In addition, Japanese multinationals face different repatriation tax costs depending on their foreign tax credit positions and the corporate tax policies of the host countries. Because dividend exemption eliminates Japanese corporate tax liability on repatriated dividends (P_{ijc}), dividend payments should become less sensitive to the difference between the Japanese statutory tax rate and the subsidiary average tax rate grossed up by the subsidiary average tax rate (P_{ijc}) after 2009. In other words, when we measure dividend payments as a fraction of affiliate sales to control for the firm size, foreign affiliates in lower-tax countries (higher P_{ijc}) should pay more dividends scaled by sales than other affiliates under the exemption system. Therefore, we expect the following effects of dividend exemption on profit repatriations by Japanese multinationals:

H1: Dividend repatriations from foreign affiliates increase when controlling for the withholding tax rate on dividends.

H2: Foreign affiliates in lower-tax countries (higher P_{ijc}) should pay more dividends scaled by sales than other affiliates.¹⁶

H3: Dividend payments become more sensitive to the withholding tax rates on dividends.

While the dividend exemption system substantially changes the tax costs of repatriating foreign dividends, it does not change the tax treatments of repatriated royalties and interest payments at all. Consider the tax costs of remitting one dollar of a royalty or interest from affiliate i to its parent j . Because they are deductible payments, remitting an additional dollar as a royalty or interest will reduce the corporate tax payment in country c by τ_c . The corporate tax liability on the dollar of deductible payments is τ_H . Parent j also has to remit to the government of country c the withholding tax on one dollar of a royalty w_c^R or on the dollar of interest w_c^I .

¹⁶Under the Japanese worldwide tax system, foreign tax credits apply to dividends paid by foreign subsidiaries directly owned by Japanese parent firms and their second-tier subsidiaries (sub-subsidiaries). Our data has information on dividend paid by foreign subsidiaries owned by Japanese parents but does not have information on dividend indirectly paid by the second-tier subsidiaries through the first-tier subsidiaries. Therefore, the tax differential P_{ijct} could misrepresent the tax costs for dividends paid by first-tier foreign subsidiaries if a large portion of those dividends originally come from second-tier subsidiaries and if the second tier-subsidiaries face substantially different corporate tax rates in their host countries from those faced by the first-tier subsidiaries.

Then, if parent j is in excess limit, it would claim a foreign tax credit for the withholding tax on the dollar of royalty or interest (w_c^R or w_c^I). The net tax payment of remitting one dollar of deductible payments is $(\tau_H - \tau_c)$. If parent j is in an excess credit position, excess foreign tax credits would reduce the tax liability in Japan by up to τ_H , and the net tax costs would be $(w_c^R - \tau_c)$ for the royalty payment and $(w_c^I - \tau_c)$ for the interest payment.

In summary, regardless of the introduction of the dividend exemption system, the net tax costs of remitting one dollar of a royalty can be written as

$$\begin{cases} \tau_H - \tau_c & \text{if parent } j \text{ is in excess limit;} \\ w_c^R - \tau_c & \text{if parent } j \text{ is in excess credit.} \end{cases} \quad (3)$$

The net tax costs of remitting one dollar of interest payments can be written as

$$\begin{cases} \tau_H - \tau_c & \text{if parent } j \text{ is in excess limit;} \\ w_c^I - \tau_c & \text{if parent } j \text{ is in excess credit.} \end{cases} \quad (4)$$

As Grubert (1998) shows, those tax costs could affect dividend repatriations to the extent that royalties and interest payments substitute or complement dividends as an alternative means of profit repatriations. In the following sections, we empirically examine how the response of dividend payments by Japanese-owned foreign affiliates to the repatriation tax costs changed due to the introduction of the dividend exemption regime and test hypotheses H1-H3.

4 Data

We use the micro database of the annual survey conducted by METI, *The Survey of Overseas Business Activities*. The main purpose of this survey is to obtain basic information on the business activities of foreign subsidiaries of Japanese firms. The survey covers all Japanese firms that owned affiliates abroad as of the end of the fiscal year (March 31). A foreign affiliate of a Japanese firm is defined as a firm that is located in a foreign country in which the Japanese firm had at least a 10 percent equity share. The survey provides data on the financial and operating characteristics of Japanese firms operating abroad, including dividends and royalties paid to Japanese investors. Industrial classification is available at the two-digit level.

To control for parent-firm characteristics, we use another METI survey, *The Basic Survey of Japanese Business Structure and Activities*. This survey covers all firms with 50 or more employees and capital or an investment fund of at least 30 million yen, for both manufacturing

and non-manufacturing industries. The survey provides data on the financial and operating characteristics of Japanese parent firms.

We merge these two annual cross-section surveys to develop a longitudinal (panel) data set of foreign subsidiaries from 2007 to 2009. Each subsidiary is traced throughout the period using information such as parent and affiliate IDs as a key.¹⁷ After dropping observations with missing dividend values, our panel from the METI surveys contains 27,713 observations of foreign affiliates from 2007 to 2009 with information on dividend payments available.¹⁸

Table 1 provides summary statistics of dividend payments by foreign affiliates for each year from 2007 to 2009. Notably, both the sum and mean of dividend payments in 2009 are larger than those in 2007 and 2008. The total amount of dividend payments decreased from 2007 to 2008 by 22.5 percent and increased from 2008 to 2009 by 70 percent. There is a similar trend in the mean of dividend payments. However, it is worth noting that those changes are caused by a small number of foreign affiliates. Although the sum and means of dividends are larger in 2009 than in 2007 and 2008, dividend payments in the seventy-fifth and ninety-fifth percentiles in 2009 are smaller than in 2007 and 2008. This implies that dividend payments above the ninety-ninth percentile in 2009 were larger by far than those in 2007 and 2008.¹⁹ We also note that the distribution of dividend payments is heavily skewed to the left. Most foreign affiliates paid no dividends (as detailed in Table 3).

=== Table 1 ===

Table 2 provides summary statistics of dividend payments by foreign affiliates scaled by their sales to control for the size of the affiliates and changes in foreign exchange rates.²⁰ While the mean in 2009 is lower than in 2007, the dividend payments as a fraction of sales are larger in 2009 than those in 2007 and 2008 in the ninety-fifth percentile and above. Table 3 shows the numbers of foreign affiliates that paid no dividends and that paid dividends to Japanese investors in each year from 2007 to 2009. Strikingly, the proportion of foreign affiliates paying dividends is lowest in 2009 (25.8 percent) among the three years.

=== Tables 2 and 3 ===

¹⁷The parent ID is obtained from *The Basic Survey of Japanese Business Structure and Activities*. We also used the information on location and establishment year to trace each subsidiary.

¹⁸Before 2007, the first METI survey collected dividend payments to Japanese investors every four years.

¹⁹We cannot indicate the maximum and minimum values for the sake of maintaining the confidentiality of the data.

²⁰The Japanese yen consistently appreciated over the period as follows: 1 USD = 118 JPY in 2007, 103 JPY in 2008, and 94 JPY in 2009 (UNCTAD, 2012). Thus, the increase in dividend repatriations could be undervalued as measured by Japanese yen without scaling.

In summary, while dividend payments at higher percentiles increased, the proportion of foreign affiliates paying dividends did not increase in 2009. This is suggestive of the heterogeneous response of Japanese multinationals to dividend exemption. Although the dividend exemption system may not stimulate profit repatriations from most foreign affiliates that had not paid dividends under the worldwide tax system, a small portion of firms that had paid large amounts of dividends under the worldwide tax system may increase dividends paid further as a result of dividend exemption. Those observations motivate our regression analysis in the following sections by taking into account the possibility that the response of foreign affiliates to dividend exemption varies depending on the stock of retained earnings right before 2009.

5 Preliminary Analysis

To test our hypotheses H1-H3, we examine how the dividend exemption system affected the repatriation behavior of Japanese multinational corporations and changed the responsiveness of repatriated dividends to repatriation taxes (corporate taxes and withholding taxes) in 2009. One limitation in our data set is that it does not include information on the foreign tax credit positions of parent firms (*excess limit* or *excess credit*). Thus, we cannot identify the tax costs of remitting dividends for each affiliate based on its parent's credit position. However, as Grubert (1998) and Desai et al. (2001) point out, because companies are uncertain about their long-run credit positions and foreign tax credit positions are endogenous to repatriation behavior, adjusting the repatriation tax costs depending on parent foreign tax credit positions would also be problematic.

As a preliminary analysis of dividend repatriation patterns before and after the tax reform, our identification strategy in this section employs a before-and-after comparison using a post-reform dummy variable.²¹ We attempt to control for confounding factors that potentially affect dividend payments (measured in Japanese yen), such as macroeconomic conditions, foreign exchange rates, tax policies of host countries, and parent firm characteristics, as follows. First, we scale dividend payments by affiliate sales. Second, in our regression analysis described below, country-industry fixed effects are included to control for systematic differences in dividend payments across different industries and countries, which are possibly due to country-specific macroeconomic conditions over the entire data period. We also control for foreign exchange rates between Japanese yen and local currencies. To take into

²¹Several studies have employed a before-and-after comparison approach to examine policy effects. See, for example, Kim and Kross (1998), Blouin et al. (2004), Chetty and Saez (2005), and Kiyota and Okazaki (2005).

account demand for internal cash by parent firms, we will control for the profitability and the total debt of parent firms.²²

We estimate the following equation in the spirit of Grubert (1998):

$$\begin{aligned} \text{Dividend}_{ijct} = & \alpha_0 + \alpha_1 P_{ijct} + \alpha_2 w_{ct}^D + \alpha_3 w_{ct}^R + \alpha_4 w_{ct}^I + \alpha_5 \tau_{ct} \\ & + \beta_0 DE_t + \beta_1 (DE_t * P_{ijct}) + \beta_2 (DE_t * w_{ct}^D) + \beta_3 (DE_t * w_{ct}^R) \\ & + \beta_4 (DE_t * w_{ct}^I) + \beta_5 (DE_t * \tau_{ct}) + \gamma X_{ijct} + u_{ijct}, \end{aligned} \quad (5)$$

where Dividend_{ijct} is the dividend payments of affiliate i located in country c to its Japanese parent j divided by affiliate sales, in year t . The dummy variable DE_t is equal to one if $t = 2009$ and equal to zero otherwise. This dummy variable and its interaction terms with the tax variables are intended to capture the changes in dividends paid and responsiveness of dividends to the tax variables. As defined in the previous section, P_{ijct} is the grossed-up tax rate differential between Japan and foreign country c .²³ The withholding tax rates of country c in year t on dividends, royalties, and interest payments are w_{ct}^D , w_{ct}^R , and w_{ct}^I , respectively.²⁴ The statutory tax rate of country c in year t is τ_{ct} .²⁵ The vector of other control variables are denoted as X_{ijct} , including the exchange rate between Japanese yen

²²One may argue that we can create control and treatment groups using the information on fiscal year end months of parent companies and employ a difference-in-differences estimation, noting that dividend exemption applies to dividends received by parent companies in the accounting years starting on or after April 1, 2009. This requirement implies that parent firms whose accounting years end in March can apply for dividend exemption in the accounting years from 2009, while other firms can do so in the accounting years from 2010. However, we cannot tell from the data exactly when foreign subsidiaries pay dividends to their parents in a year. In addition, if fiscal year end months of parent companies are not March, their foreign subsidiaries should have an incentive to delay dividend payments so that the parents receive them in the accounting year of 2010 (but in the data period for 2009) and can claim exemption for those dividends. Therefore, it is difficult to identify dividends that did not qualify for dividend exemption in the data for 2009.

²³To apply the gross-up calculation to $P_{ijc} = (\tau_H - \tau_{ijc}) / (1 - \tau_{ijc})$ appropriately, we dropped observations with negative corporate tax payments ($T_{ijct} < 0$). The average subsidiary tax rate ($\tau_{ijc} = T_{ijct} / Y_{ijct}$) is set to 0 if $T_{ijct} = 0$ and $Y_{ijct} = 0$, where Y_{ijct} is the pre-tax profit of affiliate j , and is also set to 0.5 because foreign tax credits would apply up to 50% of foreign taxable income.

²⁴We collect information on withholding tax rates on dividends, royalties, and interest from the database of the Japan External Trade Organization (JETRO), J-FILE (<http://www.jetro.go.jp/world/search/cost/>). These data provide up-to-date information on the withholding tax rates of 75 countries for 2011. We also collect information on the withholding tax rates of 46-51 countries for 2007-2010 from the reports published by JETRO (<http://www.jetro.go.jp/world/reports/>). To supplement the information on the withholding tax rates for the countries that JETRO's data do not cover, in cases where Japan has tax treaties with these countries, we use the withholding tax rates determined in the tax treaties. We also obtain the information on the withholding tax rates from the *Worldwide Corporate Tax Guide*, which is published by Ernst & Young, and the *Worldwide Tax Summaries*, which is published by PricewaterhouseCoopers. Finally, our data contains information on the withholding tax rates of 96 countries from 2007 to 2009, which is used in our current analysis.

²⁵Data on statutory corporate income tax rates are obtained from the KPMG Corporate and Indirect Tax Survey 2011. The statutory tax rates include sub-central (statutory) corporate income tax rates.

and the local currency in country c normalized to one at the level in 2005, lagged parent net profit scaled by total assets, lagged parent total debt scaled by total assets, country dummies, and industry dummies. To mitigate the influence of outliers, we winsorize all the scaled variables used in the analysis at the top and bottom one percent. Table 5 provides summary statistics for all of these variables before the winsorization.

=== Table 5 ===

From the hypotheses proposed in the previous section, we expect the signs of the key parameters to be as follows. If the dividend exemption system uniformly stimulated dividend repatriations by foreign affiliates of Japanese multinational firms, the coefficient on DE_t would be estimated to be positive, as hypothesized in H1 ($\beta_0 > 0$). The coefficient on P_{ijct} is expected to be negative ($\alpha_1 < 0$) because higher repatriation tax costs would discourage dividend payments under the worldwide tax system. If dividend payments became less sensitive to the tax rate differential between Japan and foreign countries under the new exemption system as hypothesized in H2, the coefficient on $(DE_t * P_{ijct})$ would be estimated to be positive ($\beta_1 > 0$). Another interpretation of H2 is that if dividend repatriations from lower-tax countries (high P_{ijct}) were discouraged under the worldwide tax system, foreign affiliates in these countries should pay more dividends scaled by sales than other affiliates when dividend exemption substantially eliminates the repatriation tax burden.

The coefficient on w_{ct}^D is expected to be negative ($\alpha_2 < 0$) because the tax price of dividends equals the withholding tax rate on dividends (w_{ct}^D) if a parent firm is in excess credit. If dividend repatriation becomes more sensitive to the withholding tax rates on dividends under the new exemption system, as hypothesized in H3, the coefficient on $(DE_t * w_{ct}^D)$ would be estimated to be negative ($\beta_2 < 0$). The signs of the coefficients on the withholding tax rates and the statutory tax rates would depend on how strongly dividends substitute for royalties or interest as an alternative means of profit repatriations.

We employ a Tobit procedure because most affiliates (72 percent of all affiliates in the sample) pay zero dividends, and thus, the dependent variable in equation (5) could be considered as a right-censored variable. We estimate the equation including country and industry fixed effects to control for systematic difference in dividend payments across different industries and countries, and thus use across-affiliate variations to identify the parameters.²⁶

Table 5 presents the estimation results. The point estimates are marginal effects on the latent dependent variable, which can be interpreted as a “desired” amount of dividend

²⁶We do not include affiliate fixed effects in the Tobit models because of the incidental parameters problem, which renders estimators in non-linear panel data models with fixed effects inconsistent and biased and would be especially serious in a short panel like ours (Greene, 2007).

payments.²⁷ Notably, the estimated coefficient on DE_t is not positive and significantly different from zero in any specifications. This suggests that the dividend exemption system did not increase dividend payments of the “typical” (or median) affiliate that did not pay dividends under the worldwide tax system. This result is inconsistent with hypothesis H1. The coefficient on DE_t , of course, could falsely attribute the change in dividend payments in 2009 due to unobserved macroeconomic factors or the relevant structural shift in the Japanese economy during the data period.²⁸ However, this result is still surprising because we had expected that multinational firms demonstrate the largest response in the first year of the new exemption system by repatriating accumulated profits in foreign countries.

=== Table 6 ===

The estimated coefficient on the tax price of dividends (P_{ijct}) is negative and statistically different from zero at the one-percent level in all specifications. This suggests that the Japanese worldwide tax system significantly discouraged dividend repatriations from foreign affiliates in low tax countries because dividend repatriations triggered an additional tax liability proportional to the difference between Japanese and foreign tax rates under the worldwide tax system. However, the estimated coefficient on $(DE_t * P_{ijct})$ is also negative in all specifications, which is inconsistent with hypothesis H2. This suggests that dividend payments did not become less sensitive to the tax rate differential between Japan and foreign countries in the first year of the dividend exemption system. In other words, foreign affiliates in lower tax countries did not significantly increase dividend payments to their parents more than other affiliates. The coefficient on $(DE_t * w_{ct}^D)$ is estimated to be negative, which is consistent with hypothesis H3 but not significant in either of specifications (3) and (4).

In summary, we find no evidence that the dividend exemption system stimulated dividend repatriations of “typical” foreign affiliates as hypothesized in H1 and H2. There are caveats for interpreting the estimation results. First, one limitation of relying on the DE_t dummy variable to measure the average change in the level of dividend payments of foreign affiliates is that the estimated coefficient on DE_t might falsely capture possible effects of cyclical and secular macroeconomic trends on profit repatriations in spite of our attempt to control for those confounding factors by the various control variables described above. Second, as Tables

²⁷In our analysis, the key parameters of interest are the interaction terms of DE_t and other tax variables. As Ai and Norton (2003) shows, the interaction effect in nonlinear models is different from the marginal effect of the interaction term. Therefore, in the estimation of our empirical models using a Tobit procedure, the marginal effect of the interaction terms on the observed dividend payments (conditional on positive dividend payments) cannot be calculated in a normal manner. Thus, we focus on the marginal effects on the latent variable for dividend payments, which is a linear function of independent variables.

²⁸Most notably, the financial crisis triggered by the bankruptcy of Lehman Brothers severely hit the Japanese economy in 2008.

1 and 2 may imply, the response of foreign affiliates to dividend exemption is heterogeneous. Foreign affiliates that have larger payout capacity of dividends than other affiliates, for example those with a large stock of retained earnings, may have responded more flexibly to dividend exemption by increasing dividend payments to their parent firms.

6 Heterogeneous Response to Dividend Exemption: By Stock of Retained Earnings

As we described in Section 2, one of the main goals of dividend exemption is to stimulate dividend repatriations from foreign affiliates that had retained and accumulated large amounts of foreign profit to avoid home taxation in Japan. Foreign affiliates with a large stock of retained earnings are also expected to show a stronger response to dividend exemption because dividends are distributed from after-tax profits and the stock of retained earnings. In this section, we study a heterogeneous response to dividend exemption depending on the size of retained earnings of foreign affiliates and examine whether foreign affiliates with a large stock of retained earnings in 2008 increased dividend payments in a manner consistent with our hypotheses H1 and H2.

We use information on the stock of retained earnings at the end of years 2007 and 2008 and construct a dummy variable equal to one if the stock of retained earnings scaled by sales is greater than the median value in the sample in the previous year, which is denoted as R_{ijct} , where i is the index for the affiliate owned by parent firm j . Table 7 summarizes dividend payments by foreign affiliates with the stock of retained earnings is larger than the median value in 2008 ($R_{ijc2009} = 1$) and dividend payments by foreign affiliates with $R_{ijc2009} = 0$. While the mean of dividend payments increased by 28.4 percent from 34 million yen in 2008 to 43 million yen in 2009 for foreign affiliates with $R_{ijc2009} = 0$, the mean of dividend payments by those with $R_{ijc2009} = 1$ increased much more sharply by 76.9 percent from 180 million yen in 2008 to 319 million yen in 2009. The mean of dividend payments as a fraction of affiliate sales for affiliates with $R_{ijc2009} = 1$ increased from 4.7 percent in 2008 to 5.5 percent in 2009 while the mean for affiliates with $R_{ijc2009} = 0$ remained almost at the same level between the two years (0.4 percent of affiliate sales). This suggests that foreign affiliates that retained large amounts of foreign profits at the end of 2008 paid larger amount of dividends in 2008 than other affiliates and, in addition, increased sharply dividend payments more sharply in 2009 than other affiliates.

=== Table 7 ===

To take into account the heterogeneity of the response to dividend exemption in the regression equation, we estimate equation (5) including the dummy variable R_{ijct} and the interaction terms of the dummy variable with each of DE_t , P_{ijct} , w_{ct}^D , $(DE_t * P_{ijct})$, and $(DE_t * w_{ct}^D)$ as independent variables. Table 8 presents the estimation results. The coefficient on DE_t is still estimated to be negative as in Table 6. The coefficient on R_{ijct} is significantly positive, implying that foreign affiliates that had a large stock of retained earnings in the previous year paid more dividends in the next year. In addition, the coefficient on $(R_{ijct} * DE_t)$ is also significantly positive. This suggests that a foreign affiliate with a larger stock of retained earnings in 2008 paid more dividends than other affiliates in 2009, which is consistent with hypothesis H1.²⁹ The estimated coefficient on $(T_{ij} * DE_t)$ in column (4) implies that foreign affiliates with a large stock of retained earnings desired more dividend payments than other affiliates by 1.8 percent of affiliate sales in 2009.³⁰

=== Table 8 ===

The coefficients on $(DE_t * P_{ijct})$ and $(R_{ijct} * DE_t * P_{ijct})$ are not precisely estimated in specifications (3) and (4), although we expected that foreign affiliates with a large stock of retained earnings should pay more dividends than other affiliates in 2009 as the grossed-up tax differential between Japan and the host country becomes larger. The coefficient on $(R_{ijct} * DE_t * w_{ct}^D)$ is negative, which is consistent with our hypothesis H3, but is not significantly different from zero. These results suggest that the changes in dividend payments in 2009 were not associated with foreign tax rates (corporate income tax rates and withholding tax rates on dividends), while the negative and significant coefficients on P_{ijct} and w_{ct}^D imply that the tax costs on dividends discouraged dividend payments under the worldwide tax system. This may suggest that Japanese multinationals did not aggressively pursue the opportunity to reduce the repatriation tax cost by repatriating more incomes through foreign affiliates in low tax countries in 2009, or that they just did not enough time to change their tax strategies in the first year after the tax regime change.³¹

In summary, the response of Japanese-owned affiliates to dividend exemption is heterogeneous depending on the size of the stock of retained earnings. Even though we could

²⁹To investigate whether foreign affiliates with a large stock of retained earnings increased desired dividend payments, we also tested whether the sum of the coefficients on DE_t and $(R_{ijct} * DE_t)$ is positive and statistically different from zero. However, we cannot reject the null hypothesis that the sum of these coefficient is less than or equal to zero, possibly because the coefficient on DE_t is not precisely estimated.

³⁰For the reason described in footnote 27, we focus on the marginal effect on the latent dependent variable (desired amount of dividend payments).

³¹Similar results are obtained when we define the dummy variable R_{ijct} equal to one if the stock of retained earnings scaled by sale is greater than the 75 percentile value in the previous year's sample, and when we define R_{ijct} as a continuous variable equal to the stock of retained earnings scaled by affiliate sales in the previous year.

not find an significant effect of dividend exemption on the typical affiliates, foreign affiliates that had retained large amounts of foreign profits increased dividend payments more than other affiliates with the enactment of dividend exemption. In this sense, dividend exemption helped to fulfill the main aim to stimulate dividend repatriations from foreign affiliates with a large stock of retained earnings in line with the expectation of the Japanese government.

On the other hand, we find no evidence that the responsiveness of dividend repatriations to foreign tax rates significantly changed with the enactment of dividend exemption. The change in dividend payments was not associated with either the grossed-up tax rate difference between Japan and foreign countries, or the withholding tax rates on dividends, which is inconsistent with our hypotheses H2 and H3. The Japanese government was concerned that adopting a territorial tax system may facilitate tax avoidance by multinational corporations shifting foreign income to low tax countries. Though it might take more time for companies to change their tax strategies in response to the tax reform, our results suggest that Japanese parent firms did not immediately respond to dividend exemption by reallocating their foreign profits to their foreign affiliates in low tax countries and increasing dividend repatriations by those affiliates in 2009, and thus may alleviate the concern of the Japanese government.

7 Robustness Tests and Alternative Specifications

7.1 Robustness Tests

In this section, we describe the results from various robustness tests to see how sensitive the above results are to different specifications. First, one possible concern about the results obtained in the previous sections is that, because the dividend payout capacity increases as the profits of foreign subsidiaries increase, the significant positive coefficient on $(R_{ijct} * DE_t)$ may be caused by an increase in the profitability of foreign subsidiaries with a large stock of retained earnings in 2009 and may not be due to the enactment of dividend exemption. To investigate this issue, we estimate the same regression equations as those in Tables 6 and 8 replacing the dependent variable by pre-tax profit scaled by affiliate sales.³² While the coefficient on DE_t is not significant and the coefficient on R_{ijct} is significantly positive, the coefficient on $(R_{ijct} * DE_t)$ is then estimated to be no longer significantly positive. This implies that the positive effect of dividend exemption on dividend payments by foreign affiliates with a large stock of retained earnings is not passed through the improvement of the profitability of foreign subsidiaries with large retained earnings. We also estimate

³²Unlike the estimation equation for dividend payments, there is no issue on the right-censoring for the pre-tax profits of foreign subsidiaries. Thus, we employ ordinary least squares to estimate the pre-tax profit equation.

the regression equations using dividend payments scaled by pre-tax profit as a dependent variable and then find similar results to those in Tables 6 and 8. This implies that foreign affiliates that had accumulated large foreign profits increased dividend payments relative to its pre-tax profit in 2009 than other affiliates.

Second, there may be a concern about division bias when we used dividend payments scaled by affiliate sales. Though the scaling variable is used to control for the subsidiary size, the dependent variable could be overly affected by the year-to-year fluctuation of subsidiary sales, which may bias the estimated coefficients. To explore this issue, we try scaling dividend payments by affiliate capital and estimating the same regression equations in Tables 6 and 8 by replacing the dependent variable by dividend payments scaled by capital. We then obtain similar results to those in Tables 6 and 8. Therefore, noting that we also obtained the similar results when scaling dividends by pre-tax profit, we conclude that our results do not depend on whether to scale dividend payments by affiliate sales, pre-tax profit, or capital, which alleviates the concern about division bias.

7.2 Alternative Specifications with One Summary Tax Price

The estimation equations in Section 5 and 6 focus on capturing the change in the dividend repatriation behavior of Japanese-owned foreign subsidiaries by the dummy variable DE_t and its interaction terms with foreign tax rates including the tax rate differential between Japan and foreign countries (P_{ijct}), the withholding tax rates, and the statutory tax rates of host countries. We employed that specification because our three hypotheses feature the changes in the sensitiveness of dividend repatriations to each of those foreign tax rates separately. However, as an alternative specification, we could use one tax price summarizing the tax costs of dividend repatriations over 2007-2009 and see the responsiveness of dividend payments by foreign affiliates to the summary tax variable.

Assuming parent firm j is in excess limit position, dividend exemption changed the tax cost of paying a dollar of dividends by foreign affiliate i in country c in 2009 from P_{ijc} to $(0.05\tau_H + w_c^D)$, where P_{ijc} is the grossed-up difference between Japan's statutory tax rate and the average subsidiary tax rate, τ_H is the Japanese statutory corporate tax rate, and w_c^D is the withholding tax rate on dividends in country c . Thus the tax price on dividends over the data period can be summarized by

$$\text{Tax Price}_{ijct} \begin{cases} P_{ijc} = (\tau_H - \tau_{ijc}) / (1 - \tau_{ijc}) & \text{if } t = 2007, 2008 \\ 0.05\tau_H + w_c^D & \text{if } t = 2009. \end{cases}$$

We estimate a version of the regression equations in Tables 6 and 8 including Tax Price_{ijct}

as an independent variables instead of using P_{ijct} , w_c^D , and the interaction terms of DE_t with other tax variables as independent variables. Tables 9 and 10 present the estimation results. Specifications (1) and (2) in Table 9 and the specification (1) in Table 10 do not include DE_t or its interaction terms with Tax Price $_{ijct}$ and R_{ijct} . In these specification, the significantly negative coefficient on Tax Price $_{ijct}$ suggests that the tax price on dividends discouraged dividend payments by Japanese multinationals over the entire data period.

==== Tables 9 and 10 ====

Specifications (3) and (4) in Table 9 and specifications (2)-(4) include DE_t or its interaction terms with Tax Price $_{ijct}$ and R_{ijct} as independent variables. The coefficients on $(DE_t * \text{Tax Price}_{ijct})$ and $(R_{ijct} * DE_t * \text{Tax Price}_{ijct})$ are intended to capture the possible change in the responsiveness of dividend payments to the tax price in 2009. The coefficients on DE_t and $(R_{ijct} * DE_t)$ are intended to capture the change in the level of dividend payments that is not related to the tax price in 2009. In specification (4) in Table 9 and specifications (3) and (4) in Table 10, the estimated coefficient on DE_t is negative. The coefficient on $(R_{ijct} * DE_t)$ is estimated to be significantly positive in both specifications (3) and (4) in Table 10. This suggests that while the typical affiliate decreased dividend payments in 2009, foreign affiliates that had a large retained earnings in 2008 increased dividend payments more than other affiliates with the enactment of dividend exemption and supports the robustness of the result in the previous section.

On the other hand, the estimated coefficients on $(DE_t * \text{Tax Price}_{ijct})$ and $(R_{ijct} * DE_t * \text{Tax Price}_{ijct})$ is more difficult to interpret because as the signs of these coefficients change depending on whether to include DE_t and $(R_{ijct} * DE_t)$ as in specification (4) in Tables 9 and 10. While the coefficient on Tax Price $_{ijct}$ is significantly negative in all specifications, the sum of the coefficient on Tax Price $_{ijct}$ and that on $(DE_t * \text{Tax Price}_{ijct})$ is 0.002 in specification (4) in Table 9 and the sum of the coefficients on Tax Price $_{ijct}$ and its interaction terms with DE_t and R_{ijct} is also close to zero in specifications (2) and (4) in Table 10. This may suggest that dividend payments became less sensitive to the tax price on dividends in 2009.

8 Conclusion

Japan introduced a permanent dividend exemption and moved to a territorial tax system in April 2009. We provide the first evidence about the behavioral response of foreign affiliates to the transition from a worldwide income tax system to a territorial tax system by studying Japan's dividend exemption. We find no evidence that the dividend exemption system stimulated dividend repatriations of the typical foreign affiliate that had paid no dividends under

the worldwide tax system. However, the response of Japanese multinationals to dividend exemption was heterogeneous. Foreign affiliates that had retained large amounts of profits were more responsive to the tax system change and started to pay more dividends than other affiliates in 2009. Therefore, dividend exemption helped to fulfill the main aim to stimulate dividend repatriations from foreign affiliates with a large stock of retained earnings in line with the expectation of the Japanese government. On the other hand, we find no evidence that the responsiveness of dividend repatriations to foreign tax rates significantly changed with the enactment of dividend exemption. The change in dividend payments was not associated with either the grossed-up tax rate difference between Japan and foreign countries, or the withholding tax rates on dividends in 2009.

Our results may be informative for international corporate tax policy design in the United States. The Japanese worldwide tax system was similar to that of the United States, and the two countries have the highest corporate tax rates among OECD countries. However, the response of U.S. multinationals to dividend exemption could be somewhat different than that of Japanese multinationals for two reasons.

First, the impact of a dividend exemption on profit repatriations should crucially depend on the proportion of parent firms in excess credit positions. Because foreign affiliates owned by parent firms in excess credit would not face repatriation taxes (P_{ijct}) in home countries under the worldwide tax system, their repatriation behavior would not change substantially with the introduction of dividend exemption. Thus, if the proportion of Japanese multinationals in excess credit positions under the worldwide tax system was larger than that of U.S.-owned affiliates, the impact of dividend exemption in Japan would be smaller than in the United States. In addition, unlike that of the United States, the Japanese worldwide tax system did not require multinational firms to calculate their foreign tax credits for foreign taxes on passive and active incomes separately. Thus, it might have been easier for Japanese multinationals to avoid the repatriation taxes by using excess foreign tax credits (cross-crediting) under the worldwide tax system than for U.S. multinationals.

Second, unlike the United States, Japan has tax-sparing agreements with several countries (Bangladesh, Brazil, China, Philippines, Sri Lanka, Thailand, and Zambia as of June 2012) in its tax treaties. Foreign affiliates in those countries may be less responsive to dividend exemption because the tax sparing provisions could substantially decrease their repatriation tax costs under the worldwide tax system for some of those foreign affiliates. Therefore, the response of U.S. multinationals to dividend exemption could be different (possibly larger) than that of Japanese multinationals. However, even given those considerations, our findings about the heterogeneous response depending on the stock of retained earnings are worth noting.

In conclusion, there are several research issues for the future that are worth mentioning. First, from the policy point of view, it is important to analyze a general equilibrium effect of dividend exemption, focusing on the potential trade-off between the decline in tax revenues and the increases in dividend payments; however this issue is beyond the scope of this paper.³³ Second, a focus on foreign direct investment would be an important extension. Under the new exemption system, because foreign dividends are exempt from home taxation and Japanese multinationals must pay corporate income taxes only to host country governments, they should be likely to have more incentive to invest in low-tax countries than they did before April 2009. Because foreign direct investment is conducted from mid- to long-term perspectives, to address these issues, it is imperative that the quality and coverage of firm-affiliate-level panel data be improved and expanded.

³³See Caves (2007, Chapter 8) for a survey on the welfare effects of taxation.

Appendix

In this appendix, we theoretically examine how the Hartman result changes when firms expect a decrease in repatriation tax rates on dividends using a simple three-period model based on Grubert (1998) and Altshuler and Grubert (2003). The model consists of three periods, 0, 1, and 2. Periods 0 and 1 are the periods before the introduction of the dividend exemption system, and period 2 is the period under the new exemption system. Denote the repatriation tax rates on dividends in period t by τ_t^D for $t = 0, 1, 2$. As we will show in the next subsection, dividend exemption decreases the repatriation tax rates on dividends. Thus we assume that $\tau_0^D = \tau_1^D > \tau_2^D$. Consider a parent firm in Japan and its “mature” foreign affiliate located in country c that has enough retained earnings (\bar{R}) to finance its investment. The foreign affiliate produces output using capital with the production function $f(K)$, where K is capital input. The production function is strictly concave, strictly increasing, continuous, and continuously differentiable, and satisfies the Inada condition: $\lim_{K \downarrow 0} f'(K) = \infty$. For simplicity, we assume that capital does not depreciate over time.

At the end of period 0, the affiliate determines the amount of retained earnings out of the stock of retained earnings \bar{R} for reinvestment in period 1, denoted by E . The rest of earnings ($\bar{R} - E$) is repatriated to the parent by dividends. At the beginning of period 1, investment takes place using capital input E and the profit from the investment comes at the end of period 1. At the end of period 1, the affiliate repatriates D_1 of the after-tax affiliate income, retaining R to reinvest in period 2. Denote the statutory tax rate of country c by τ_c . Then D_1 can be written as $D_1 = ((1 - \tau_c)f(E) - R)$. In period 2, the affiliate produces using $(E + R)$ of capital and repatriates the entire net wealth to the parent firm in Japan at the end of the period by dividends. Thus $D_2 = (1 - \tau_c)f(E + R) + E + R$. The parent firm determines E and R so as to maximize the present value of the net cash flows:

$$\begin{aligned} \max_{E, R} \quad & (1 - \tau_1^D) (\bar{R} - E) + \frac{1}{1+r} (1 - \tau_1^D) ((1 - \tau_c)f(E) - R) \\ & + \frac{1}{(1+r)^2} [(1 - \tau_2^D) (1 - \tau_c)f(E + R) + (1 - \tau_2^D) (E + R)], \end{aligned}$$

where r is the real interest rate.

The first order conditions for the maximization problem with respect to E and R are

$$\begin{aligned} - (1 - \tau_1^D) + \frac{1}{1+r} (1 - \tau_1^D) (1 - \tau_c) f'(E) + \frac{1}{(1+r)^2} [(1 - \tau_2^D) (1 - \tau_c) f'(E + R) + 1 - \tau_2^D] &= 0, \\ -\frac{1}{1+r} (1 - \tau_1^D) + \frac{1}{(1+r)^2} [(1 - \tau_2^D) (1 - \tau_c) f'(E + R) + 1 - \tau_2^D] &= 0. \end{aligned}$$

These two conditions can be rewritten as

$$(1 - \tau_c)f'(E) = r, \quad (\text{A-1})$$

$$(1 - \tau_c)f'(E + R) = \frac{(1 + r)(1 - \tau_1^D) - (1 - \tau_2^D)}{1 - \tau_2^D}. \quad (\text{A-2})$$

Equation (A-1) implies that the initial investment E does not depend on the repatriation tax rates. If the repatriation tax rate is constant over all the periods ($\tau_1^D = \tau_2^D$), R also does not depend on the repatriation tax rate because equation (A-2) then yields $(1 - \tau_c)f'(E + R) = r$. Therefore, as Hartman (1985) shows, if $\tau_1^D = \tau_2^D$, the repatriation tax rate affects neither foreign investment nor dividend payments by the subsidiary.

However, if $\tau_1^D \neq \tau_2^D$, Hartman's result fails to hold. The total differentiation of equations (A-1) and (A-2) with respect to τ_1^D and τ_2^D yields

$$\frac{\partial R}{\partial \tau_1^D} = -\frac{1 + r}{(1 - \tau_2^D)(1 - \tau_c)f''(E + R)} > 0, \quad (\text{A-3})$$

$$\frac{\partial R}{\partial \tau_2^D} = \frac{(1 - \tau_c)f'(E + R) + 1}{(1 - \tau_2^D)(1 - \tau_c)f''(E + R)} < 0. \quad (\text{A-4})$$

Equation (A-3) says that when the repatriation tax rate in period 1 is higher given the repatriation tax rate in the next period, the affiliate increases dividend payments in period 2. Equation (A-4) says that when the repatriation tax rate decreases in period 2, the affiliate will retain more profits in period 1 by decreasing dividend payments in that period and will increase them in period 2.

These results imply that Japan's foreign dividend exemption will stimulate dividend repatriations in two ways. Dividend exemption decreases the repatriation tax rate, and as a result, Japanese multinationals face the same lowered repatriation tax rate after the introduction of the dividend exemption system ($\tau_1^D > \tau_2^D$). Thus, as equation (A-4) shows, the lower repatriation tax rate (τ_2^D) will stimulate the dividend repatriations of Japanese multinationals given τ_1^D . As we will see in the next subsection, Japanese multinational firms had faced different repatriation tax rates under the worldwide tax system (τ_1^D) depending on their foreign tax credit positions and the corporate tax policies of host countries (e.g., corporate tax rates and bases). Therefore, as equation (A-3) implies, foreign affiliates that had faced higher repatriation tax rates will pay out more dividends under the new exemption system.

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Table 1: Dividend Payments by Foreign Affiliates (in million yen)

year	sum	mean	sd	p50	p75	p95	p99	N
2007	1109637	131.29	1552.53	0	11	338	2116	8452
2008	859563	92.10	811.13	0	5	287	1575	9333
2009	1458072	146.86	2296.52	0	2	253	1651	9928
Total	3427272	123.67	1687.13	0	5	293	1731	27713

Table 2: Dividend Payments by Foreign Affiliates as a Proportion of Sales

year	mean	sd	p50	p75	p95	p99	N
2007	.0473	1.2753	0	.0055	.0623	.2185	8076
2008	.0264	.7823	0	.0037	.0627	.2004	8871
2009	.0404	1.3320	0	.0025	.0762	.2954	9399
Total	.0378	1.1565	0	.0039	.0667	.2451	26346

Table 3: Proportion of Foreign Affiliates Paying Dividends

Year	Dividend > 0	Dividend = 0	Total Number of Affiliates	Proportion
2007	2530	5922	8452	30.0 %
2008	2587	6746	9333	27.7 %
2009	2564	7364	9928	25.8 %
Total	7681	20032	27713	27.7 %

Table 4: Definitions of Variables

Variable	Definition
Sales	Subsidiary operating revenues without including non-operating income
Dividend/Sales	Subsidiary dividend payments scaled by sales
P_{ijct}	Grossed-up difference between Japanese statutory tax rate and the subsidiary average tax rate
w_{ct}^D	Withholding tax rate on dividends
w_{ct}^R	Withholding tax rate on royalties
w_{ct}^I	Withholding tax rate on interest
τ_{ijct}	Average subsidiary tax rate, which is defined as the corporate tax payment divided by the pretax profit of subsidiary i
τ_{ct}	Statutory corporate tax rate
Exchange $_{ct}$	Exchange rate between Japanese yen and local currency, which is normalized to one in 2005
Parent Net Profit/Assets	Parent net profit scaled by total assets
Parent Total Debt/Assets	Parent total debt (total current and fixed liabilities) scaled by total assets
Retained Earning/Sales	Subsidiary retained earnings at the end of the account year scaled by sales
Pre-tax Profit/Sales	Subsidiary pretax profit scaled by sales

The subscripts i , j , c , and t intend to indicate the subsidiary, its parent firm, the country where the subsidiary is located, and the year, respectively.

Table 5: Descriptive Statistics

variable	mean	sd	p25	p50	p75	N
Dividend/Sales	.0378	1.1565	0	0	.0039	26346
P_{ijct}	.2648	.1673	.1660	.3188	.4069	29009
w_{ct}^D	.0672	.0627	0	.1	.1	39034
w_{ct}^R	.0887	.0598	.0525	.1	.1	39011
w_{ct}^I	.1035	.0448	.1	.1	.1	39011
τ_{ijct}	.1574	.1613	0	.1293	.2889	29009
τ_{ct}	.2883	.0702	.25	.2944	.33	39048
Exchange $_{ct}$.9921	.1392	.8832	.9505	1.0664	39105
Parent Net Profit/Assets	.0074	.0668	-.0003	.0149	.0337	39031
Parent Total Debt/Assets	.5699	.2265	.3995	.5908	.7550	39181
Retained Earning/Sales	-.1360	36.8798	-.0098	.0839	.2733	28226
Pre-tax Profit/Sales	.0199	5.8587	.0005	.0336	.0914	31981

Table 6: Regressions of the Dividend Equation

	Affiliate Dividend Payment/Sales			
	(1)	(2)	(3)	(4)
DE_t	-0.001 (0.002)		-0.001 (0.008)	-0.012 (0.011)
P_{ijct}	-0.117*** (0.005)	-0.113*** (0.005)	-0.109*** (0.006)	-0.126*** (0.008)
$DE_t * P_{ijct}$		-0.014*** (0.005)	-0.024*** (0.008)	-0.005 (0.010)
w_{ct}^D	-0.066 (0.059)	-0.067 (0.059)	-0.071 (0.061)	-0.063 (0.083)
$DE * w_{ct}^D$			-0.002 (0.029)	-0.023 (0.036)
w_{ct}^R	-0.077 (0.047)	-0.079* (0.047)	-0.062 (0.048)	-0.030 (0.100)
$DE_t * w_{ct}^R$			0.050 (0.048)	0.078 (0.060)
w_{ct}^I	-0.055 (0.115)	-0.038 (0.115)	-0.023 (0.117)	-0.124 (0.178)
$DE_t * w_{ct}^I$			-0.077 (0.052)	-0.064 (0.064)
τ_{ct}	0.027 (0.027)	0.015 (0.027)	0.020 (0.027)	-0.030 (0.244)
$DE_t * \tau_{ct}$			0.036 (0.028)	0.063* (0.035)
Foreign Exchange Rate	0.005 (0.008)	0.013* (0.007)	0.002 (0.008)	-0.009 (0.035)
Lagged Parent Net Profit/Assets				0.044** (0.022)
Lagged Parent Total Debt/Assets				-0.018*** (0.006)
Constant	-0.052* (0.027)	-0.058** (0.027)	-0.051* (0.028)	0.027 (0.130)
Country and Industry Dummies	Yes	Yes	Yes	Yes
Observations	24,084	24,084	24,084	12,696

DE_t : dummy variable equal to one if $t = 2009$ and equal to zero otherwise. P_{ijct} : grossed-up difference between Japanese statutory corporate tax rate and the subsidiary average tax rate. $w_{ct}^D, w_{ct}^R, w_{ct}^I$: withholding tax rates on dividends, royalties, and interest, respectively. τ_{ct} : statutory tax rate of country c . Robust standard errors clustered by affiliate in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 7: Dividend Payments of Foreign Affiliates and the Size of the Stock of Retained Earnings

	Affiliates with $R_{ijc2009} = 0$		Affiliates with $R_{ijc2009} = 1$	
Year	Dividend (million yen)	Dividend/Sales	Dividend (million yen)	Dividend/Sales
2008	33.58	0.00413	180.26	0.0468
2009	43.11	0.00405	318.91	0.0597

This table shows the mean of dividend payments in 2008 and 2009 by foreign affiliates in each of the two groups ($R_{ijc2009} = 0$ and $R_{ijc2009} = 1$). Foreign affiliates with $R_{ijc2009} = 0$ are those with a stock of retained earnings scaled by sales less than or equal to the median value in the 2008 sample. Foreign affiliates with $R_{ijc2009} = 1$ are those with a stock of retained earnings scaled by sales greater than the median value in the 2008 sample.

Table 8: Regressions of the Dividend Equation including the Stock of Retained Earnings

	Affiliate Dividend Payments/Sales			
	(1)	(2)	(3)	(4)
DE_t	-0.004 (0.004)		-0.016 (0.011)	-0.017 (0.011)
R_{ijct}	0.062*** (0.003)	0.042*** (0.004)	0.031*** (0.005)	0.031*** (0.005)
$R_{ijct} * DE_t$	0.011*** (0.003)		0.016** (0.007)	0.018*** (0.007)
P_{ijct}	-0.085*** (0.007)	-0.136*** (0.009)	-0.146*** (0.011)	-0.146*** (0.011)
$DE_t * P_{ijct}$		-0.019** (0.009)	-0.001 (0.013)	0.001 (0.013)
$R_{ijct} * P_{ijct}$		0.095*** (0.013)	0.115*** (0.015)	0.114*** (0.015)
$R_{ijct} * DE_t * P_{ijct}$		0.020* (0.011)	-0.016 (0.019)	-0.019 (0.019)
w_{ct}^D	-0.113 (0.078)	-0.086 (0.075)	-0.160* (0.084)	-0.157* (0.085)
$DE_t * w_{ct}^D$			0.022 (0.051)	0.020 (0.051)
$R_{ijct} * w_{ct}^D$			0.056 (0.044)	0.055 (0.044)
$R_{ijct} * DE_t * w_{ct}^D$			-0.047 (0.052)	-0.045 (0.053)
w_{ct}^R	-0.027 (0.097)	-0.067 (0.092)	0.017 (0.099)	0.008 (0.101)
$DE_t * w_{ct}^R$			0.068 (0.059)	0.061 (0.059)
w_{ct}^I	-0.047 (0.184)	-0.046 (0.182)	-0.001 (0.186)	-0.004 (0.188)
$DE_t * w_{ct}^I$			-0.070 (0.063)	-0.065 (0.064)
τ_{ct}	-0.047 (0.236)	0.112 (0.203)	-0.153 (0.239)	-0.097 (0.243)
$DE_t * \tau_{ct}$			0.046 (0.035)	0.048 (0.035)
Foreign Exchange Rate $_{ct}$	-0.014 (0.033)	0.016 (0.019)	-0.031 (0.034)	-0.022 (0.034)
Constant	-0.012 (0.125)	-0.092 (0.098)	0.069 (0.126)	0.034 (0.128)
Parent Controls	Yes	Yes	No	Yes
Country and Industry Dummies	Yes	Yes	Yes	Yes
Observations	11,731	11,731	11,881	11,731

R_{ijct} : dummy variable equal to one if the stock of retained earnings scaled by sales is greater than the median value in the previous year's sample. Parent controls include the lagged net profit and the lagged total debt scaled by parent assets. Robust standard errors clustered by affiliate in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 9: Dividend Regression Equation with the Single Tax Price

	Affiliate Dividend Payment/Sales			
	(1)	(2)	(3)	(4)
DE_t				-0.033*** (0.005)
Tax Price $_{ijct}$	-0.084*** (0.005)	-0.097*** (0.007)	-0.084*** (0.005)	-0.115*** (0.008)
DE_t *Tax Price $_{ijct}$			-0.030** (0.012)	0.117*** (0.023)
w_{ct}^R	-0.064 (0.042)	0.025 (0.078)	-0.069 (0.043)	-0.120 (0.081)
w_{ct}^I	-0.165 (0.108)	-0.187 (0.149)	-0.167 (0.108)	-0.114 (0.148)
τ_{ct}	0.071*** (0.027)	-0.242 (0.178)	0.058** (0.027)	0.343* (0.206)
Foreign Exchange Rate	-0.050*** (0.006)	-0.103*** (0.014)	-0.042*** (0.006)	0.045 (0.030)
Lagged Parent Net Profit/Assets		0.047** (0.022)		0.040* (0.022)
Lagged Parent Total Debt/Assets		-0.017*** (0.006)		-0.018*** (0.006)
Constant	-0.020 (0.027)	0.199** (0.087)	-0.022 (0.027)	-0.190* (0.113)
Country and Industry Dummies	Yes	Yes	Yes	Yes
Observations	24,998	13,386	24,998	13,386

DE_t : dummy variable equal to one if $t = 2009$ and equal to zero otherwise. Tax Price $_{ijct}$ is the tax cost on dividends. w_{ct}^R , w_{ct}^I : withholding tax rates on royalties and interest, respectively. τ_{ct} : statutory tax rate of country c . Robust standard errors clustered by affiliate in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 10: Dividend Regression Equation with the Single Tax Price and the Stock of Retained Earnings

	Affiliate Dividend Payment/Sales			
	(1)	(2)	(3)	(4)
DE_t			-0.019*** (0.004)	-0.043*** (0.006)
R_{ijct}	0.071*** (0.003)	0.055*** (0.004)	0.064*** (0.003)	0.035*** (0.004)
$R_{ijct} * DE_t$			0.013*** (0.003)	0.039*** (0.006)
Tax Price $_{ijct}$	-0.057*** (0.007)	-0.096*** (0.009)	-0.066*** (0.007)	-0.140*** (0.011)
$DE_t * \text{Tax Price}_{ijct}$		-0.086*** (0.027)		0.110*** (0.040)
$R_{ijct} * \text{Tax Price}_{ijct}$		0.064*** (0.012)		0.118*** (0.015)
$R_{ijct} * DE_t * \text{Tax Price}_{ijct}$		0.125*** (0.030)		-0.082* (0.047)
w_{ct}^R	-0.031 (0.079)	-0.019 (0.080)	-0.104 (0.082)	-0.094 (0.082)
w_{ct}^I	-0.081 (0.169)	-0.070 (0.171)	-0.029 (0.168)	0.005 (0.173)
τ_{ct}	-0.074 (0.179)	-0.094 (0.188)	0.235 (0.206)	0.237 (0.207)
Foreign Exchange Rate	-0.056*** (0.015)	-0.058*** (0.019)	0.008 (0.029)	0.020 (0.030)
Lagged Parent Net Profit/Assets	0.038* (0.021)	0.038* (0.021)	0.036* (0.021)	0.035 (0.021)
Lagged Parent Total Debt/Assets	0.009* (0.006)	0.009 (0.006)	0.009 (0.006)	0.008 (0.006)
Constant	0.029 (0.087)	0.051 (0.095)	-0.160 (0.111)	-0.154 (0.112)
Country and Industry Dummies	Yes	Yes	Yes	Yes
Observations	12,243	12,243	12,243	12,243

DE_t : dummy variable equal to one if $t = 2009$ and equal to zero otherwise. R_{ijct} : dummy variable equal to one if the stock of retained earnings scaled by sales is greater than the median value in the previous year's sample. Tax Price $_{ijct}$ is the tax cost on dividends. w_{ct}^R , w_{ct}^I : withholding tax rates on royalties and interest, respectively. τ_{ct} : statutory tax rate of country c . Robust standard errors clustered by affiliate in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$