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OKUBO Toshihiro
Keio University

Alexander F. WAGNER
University of Zurich

YAMADA Kazuo
Nagasaki University

RIETI
Research Institute of Economy, Trade & Industry, IAA

The Research Institute of Economy, Trade and Industry
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Does Foreign Ownership Explain Company Export and Innovation Decisions? Evidence from Japan*

OKUBO Toshihiro†

Alexander F. WAGNER‡

YAMADA Kazuo§

Abstract

We employ a comprehensive database of Japanese manufacturing firms, covering up to 220,000 firm-year observations, to examine the role that ownership structure plays in explaining differences in export and innovation decisions of firms. Firms with higher foreign ownership are more export-oriented and engage more in innovation. This result holds controlling for differences in incentive structures (the use of stock options, which themselves are also associated with more export and innovation activities) and is robust to the use of an instrument exploiting peer effects with regard to foreign ownership. We also show that pre-World War II differences in cognitive skills and non-cognitive characteristics (attitudes) still explain modern-day, cross-prefecture differences in firm choices. Overall, our results suggest that both firm-internal corporate governance and the employee pool from which a company can draw upon can play an important role for the export and innovation activity of firms.

Keywords: Foreign ownership, Export, R&D, Regional heterogeneity, Non-cognitive skill
JEL classification: G38

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† Keio University, Faculty of Economics, 2-15-45 Mita Minato-ku Tokyo, 108-8345, Japan. Email: okubo@econ.keio.ac.jp

‡ Swiss Finance Institute -- University of Zurich, CEPR, and ECGI. Address: University of Zurich, Department of Banking and Finance, Plattenstrasse 14, CH-8032 Zurich, Switzerland. Email: alexander.wagner@bf.uzh.ch.

§ Faculty of Economics Nagasaki University, Address: 4-2-1 Katafuchi, Nagasaki, 850-0022, Japan. Email: k-yamada@nagasaki-u.ac.jp

1 Introduction

Openness towards new opportunities is the lifeblood of successful businesses. Yet, many companies resist taking on new challenges, with potentially negative consequences for themselves and for the broader economy. In this paper, we study the choices of Japanese companies in undertaking new and risky activities such as exporting and investing in innovation. While there are some extremely successful Japanese companies that have engaged in such activities, the overall export orientation of Japanese manufacturing firms remains relatively low when compared with countries such as France and Germany. In this paper, we consider what explains differences in export behavior across Japanese firms. Moreover, we study what explains variation in another component of risky choices relevant to the long-term development of the economy, namely, investments in research and development (R&D).

To explain export decisions, the literature has traditionally pointed to the importance of productivity of companies. We instead focus on the role of internal firm governance. We are particularly interested in the role of foreign ownership. Traditionally, Japanese inward foreign direct investment (FDI) has been much smaller than outward FDI. The recent rise in foreign ownership has been discussed widely, but little is known about the consequences of differences in foreign ownership across firms. Foreign ownership may play a role in risk-taking choices of companies – such as exporting and innovating – for various reasons. It can provide companies with more information about the outside market, especially in the context of small and medium enterprises. Foreign owners may be keen on getting high returns on investment and may tolerate a higher risk level. Firms with foreign ownership may have greater access to funds. Also, firms that do allow foreign ownership may experience a more open corporate culture than firms that do not, and such open culture may facilitate risk-taking. Our central hypothesis is that those companies that break through the traditions of Japanese governance[1] and have some foreign ownership exhibit greater export and innovation activities. We find substantial support for this hypothesis, but with some interesting wrinkles.

To test our hypothesis, we employ a comprehensive database of listed and unlisted Japanese manufacturing companies from 1995 to 2013. Manufacturing covers around a fifth of the overall Japanese economy. In all our regressions we use lagged explanatory variables, so that the first

[1] See Aoki (1990) for a survey of the uniqueness of the Japanese business system.

observation year for the dependent variables is 1996. Our baseline regressions cover around 220,000 firm-year observations.

We begin by documenting some basic facts regarding export and R&D behavior of Japanese companies, as well as regarding foreign ownership. While a third of all firms export, the overall average fraction of sales derived from exports is only 4.2% in the observations used in our analysis. Among exporters, the export share, i.e. export values in total sales, is 14% in the observations used in our analysis. This is to be compared with countries such as Germany and France, where, in 2004, between 69% and 75% of firms exported, and the export share among exporters was between 24% and 30% (ISGEP, 2008). Exports are much more important for listed than unlisted firms, though in both of them the export share has increased by about twice from 1996 to 2013. We also document a substantial cross-prefecture and cross-industry variation in export shares. Listed firms spend about 2.2% of assets on research and development (R&D), about 3 times as much as unlisted firms; these fractions have remained fairly stable over time.

Turning to our key explanatory variable, almost half of the listed firms are partially owned by foreign investors, whereas foreign ownership is still rare among unlisted companies. A strong time trend is noticeable for listed firms: The average foreign ownership in listed firms has increased from 1.9% in 1995 to above 8.4% in 2013. (These are equal-weighted averages. Because foreign investors tend to invest in larger companies, the market-value weighted average is much higher, at around 28%.) In privately-held companies foreign ownership has not increased two-fold since the beginning of the sample period, but is still only 1.9% in 2013. Foreign ownership also varies substantially across prefectures and industries.

We observe a strong time series correlation of foreign ownership and export choices: Both have been rising over time. Our focus, however, is on the cross-section of firms. We estimate regressions explaining export (and innovation) decisions by foreign ownership, controlling for various important other factors, such as size and age of the firm, firm profitability, prefecture-level GDP, as well as time and industry fixed effects. This analysis reveals that foreign ownership is positively associated with the likelihood of exporting and the fraction of sales derived from exports. A one standard deviation increase in foreign ownership is associated with an increase in the probability of exporting by about 2% and an increase in the export share by 1.4 percentage points. Given that the unconditional probability of exporting is 31% and given that the average export share is 4.2%, these effects are sizable. Higher foreign ownership is also associated with higher

R&D investments and more patents, but the economic effects are smaller. An ancillary result is also that Japanese firms co-owned by foreign companies are more profitable and grow faster. By and large, these effects hold for both listed and unlisted firms. Interestingly, for unlisted firms, the main difference is between those companies that have any foreign ownership and those that do not; among firms with some minority foreign ownership, the actual extent of foreign ownership does not matter significantly. For listed firms, by contrast, we find both an effect of having some Foreign Ownership, and an effect of the level of Foreign Ownership.

We probe deeper by considering the potential of omitted variables driving our results. First, it may be that it is not foreign ownership as such but other changes in the corporate governance and in particular in the incentives structure that come with it that induce firms to innovate and export more. Already our baseline results control for wages per employee, which is a proxy for the extent to which performance is remunerated. Higher-paying firms export more and are more innovative. In additional results, we, control for stock option usage. Interestingly, our results regarding foreign ownership remain robust, and stock option usage itself is also associated with greater export and innovation activity (but it is not related to productivity or profitability). Second, we also investigate results when using firm fixed effects, that is, when focusing on within-firm variation. Here, the challenge is that there is little within-firm variation in the percent foreign ownership; the identifying variation is just quite limited. As expected, we do not find such a strong relationship between foreign ownership and export or innovation activities using this approach. In other words, our results mostly speak to the cross-section of firms. Third, we acknowledge that it is difficult to come up with a fully exogenous shock to foreign ownership. To make progress, we hypothesize that there are peer effects in governance. Thus, we posit that even controlling for a rich set of control variables, a company is more likely to adopt certain governance feature, if many other companies in the same industry in the same prefecture adopt that feature.[2] We find very strong support for the idea of peer effects: foreign ownership is highly significantly associated with the average levels of these quantities in a firm's peers. Peer governance choices are a plausible instrument because they are unlikely to directly influence a firm's other corporate choices. Using this instrumental variable, we find that our results remain largely robust. Indeed, the quantitative

[2] Location choice has spillover or peer effect in spatial dimension. Blonigen et al. (2007), using the spatial econometric technique, finds that FDI involves spatial dependency. Turning to regional and city level analysis, the location of FDI involves spatial dependence in the form of spatially lagged city income level and FDI (Madariaga and Poncet, 2007).

impact of foreign ownership when estimated in this 2SLS setting is substantially higher than the effects implied by the OLS regressions.

Throughout our analysis, we control for regional differences by including GDP of the prefecture where the headquarters of a firm are located, in order to proxy for market size. Going beyond this control, we also draw on unique historical data to account for the substantial heterogeneity among prefectures in cognitive skills (language and science) and non-cognitive characteristics (attitudes). We find that companies headquartered in prefectures with higher language scores before World War II are more innovative and open even today (even controlling for various contemporaneous factors). Science scores play no role. Perhaps most interestingly in light of the current literature on the role of non-cognitive characteristics (discussed below), companies located where a large fraction of males in the 1941 scored highly on virtue and attitudes tests tend to innovate *less* and export *less*, suggesting that conformity diminishes innovative potential. These results are important because they suggest that not only skill (cognitive skills), but attitude (non-cognitive skills) matter for corporate decisions.

Overall, our results suggest that both firm-internal corporate governance and the environment and employee pool a company can draw on can play an important role for the export and innovation activity of firms.

The paper proceeds as follows. Section 2 motivates our study on the basis of the existing literature and delineates the contributions. Section 3 introduces the data and descriptive statistics. Section 4 reports the baseline results. Section 5 elaborates on the results. Section 6 presents results on the role of historical cross-prefecture differences in cognitive and non-cognitive characteristics. Section 7 concludes.

2 Background and contributions

Our paper is motivated by and contributes to several strands of the literature, including (1) the literature on export choices, (2) the literature on the role of internal governance for innovation, and (3) the literature on cognitive skills and non-cognitive characteristics.

First, there is a large literature on firms' export choices. The international trade literature focuses on heterogeneity in productivity (e.g. Melitz, 2003; Melitz and Ottaviano 2008). These theories hold that only productive firms can export while unproductive firms are more likely to be local firms (non-exporters), which is known as self-selection mechanism. Adding the financial

condition of firms as an explanatory variable, Greenaway et al. (2007), using UK micro-data, expand that literature on heterogeneous firms, finding linkages between financial health (liquidity and leverage) and exporting; see Foley and Manova (2015) for a survey of additional studies. Chaney (2016) constructs a theoretical model in which only firms with high liquidity are able to export. More productive firms that generate large liquidity from domestic sales and healthier firms that inherit large liquidity are more likely to export. We find only limited evidence that a firm's profitability is associated with its export choice. However, arguably, exporting can be perceived as constituting large risk. Exports to foreign market require firms to pay sunk costs. This may be particularly true for Japanese companies, given the large cultural difference to other countries. It is, therefore, plausible to ask, as we do, whether governance mechanisms that are likely to facilitate openness and access to new opportunities (such as foreign ownership) and risk-taking incentives (such as stock options), also lead firms to export more.[3] We find that they do, thus expanding our knowledge of the role of governance and risk-taking incentives in trade decisions.

Another dimension known in the trade literature is that exporters need sufficient external capital. Some studies investigate the relationship between credit constraint and exporting. Financial market imperfections restrict exporting (Manova, 2008, 2013, Berman and Hericourt, 2010; Minetti and Zhu, 2011; Feenstra et al, 2014, Manova, et al. 2015). Thus, external financing by the banking sector is important to promote exports. During the global financial crisis, the decline of export is larger than that of output. In the crisis, the financial condition of a firm is important to keep the opportunity to engage in trade. Healthy banks help firms sustain exporting (Amiti and Weinstein, 2011, Chor and Manova, 2012). Our results in addition show that firms with co-owned by foreign companies can engage in more foreign activities.

Second, relatively little is known about the role of foreign ownership for innovation. Un and Cuervo-Cazurra (2008), using a representative sample of 1,215 Spanish manufacturing firms from 1991 to 1994, find that subsidiaries of foreign multinational firms invest less in R&D than domestic firms. They argue that the transfer of technology and knowledge from other parts of the owning firm acts as a substitute for the purchase of external R&D while internal R&D acts as a complement to the technology and knowledge transferred from other parts of the owner. By

[3] In addition, personal characteristics of managers (on which we do not have data) may play a role. For example, Todo and Sato (2014) find that Japanese SMEs with a risk-tolerant, forward-looking president are more likely to be internationalized.

contrast, and most closely related to our work, David et al. (2006) study the impact of foreign ownership on R&D investment using 146 Japanese listed manufacturing firms from 1991 to 1997. They find that foreign ownership induces higher R&D and capital intensity in for firms with stronger growth options. Our paper adds to this literature by drawing on the population of all Japanese manufacturing firms, both listed and unlisted, for a long time period (1996 to 2013), by accounting for regional differences with a range of historical control variables, and by examining both foreign ownership and the role of employee incentives.

Many previous studies have investigated the effect of foreign ownership on productivity. In Japan, Ferris and Park (2005), using a cross-section of industrial firms in 1997, find that foreign ownership is positively related to firm value at low levels of ownership but that this effect declines or even reverses at higher values, and Ahmed and Iwasaki (2015) provide evidence, from the 2010-2014 time period, that foreign ownership enhances firm value by addressing agency issues.[4] Our paper modestly contributes to this literature by showing that profitability, measured by return on assets, is higher in firms with more foreign ownership, but this is not our main focus.

These results also add to the broad literature on corporate governance. While much is known about the governance features we study in the context of US and Western companies, relatively little is known about their workings in Japanese companies. Given the large cultural distance of Japan and Western economies, it is of interest whether these features have similar consequences as in existing studies. Specifically, a large literature arrives at the conclusion that equity incentives and in particular stock options can induce risk-taking (e.g., Coles et al., 2006, Knopf et al., 2002, Shue and Townsend 2016). Japanese firms were allowed to use stock options since May 1997. Kato et al. (2005) find enhanced operational performance for the firms adopted stock options, and we confirm this result. Less is known on the risk-taking consequences in Japanese companies of the introduction of stock options. We thus add to the literature by documenting that stock option usage also explains cross-firm differences in export and innovation activities.

[4] There is also a large literature on this topic for other countries. For example, Benfratello and Sembenelli (2006), using Italian data, find that foreign-owned firms have no significant difference in productivity from non-foreign owned firms. Guadalupe et al. (2012) investigate the causal effect of foreign ownership on innovation activity and find that Spanish firms can increase labor productivity by the acquisition of foreign capital.

Third, our paper provides insights into the role of historical differences in cognitive and non-cognitive characteristics of the population. We show that – despite internal migration over the last century – cross-prefecture variation in language scores still explain differences in firms' export and innovation activities today. Moreover, much recent work has focused on the role of non-cognitive abilities (sometimes referred to as soft abilities, personality traits, and character skills). Almlund, Duckworth, Heckman, and Kautz (2011) provide a review of the literature. Much of the literature has focused on individual level outcomes such as labor income (Heckman, et al., 2006; Lindqvist and Vestman, 2011), health-related behavior (Heckman et al., 2017), educational attainment (Cunha, Heckman, and Schennach, 2010), and financial decision-making (Parise and Peijnenburg, 2017; Xu et al., 2015). Another stream of work considers the implications of these characteristics for firm policies. Gow et al. (2016) show that CEOs scoring higher on the Big 5 characteristic "openness" lead firms with higher R&D intensity (see their paper for references to a large literature on psychology supporting this link). They also document a number of other associations, e.g., between conscientiousness and book-to-market ratios. Adams, Licht, and Sagiv (2011) document the role of value preferences of power, achievement, self-direction, and universalism in explaining pro-shareholder attitudes of board members. CEO narcissism has been identified as a particularly important trait, and a large literature looks at associations of political inclinations of CEOs and corporate outcomes in particular in the corporate social responsibility space (see Licht and Adams (2017), who study differences in values and culture among directors around the world, for pointers to the literature). We do not have data on individual CEOs' and directors' non-cognitive attitudes, but we regard it as an interesting finding that even prefecture-level differences in conformism that our historical measures allow us to extract play such an important role for explaining differences in export and innovation choices of firms. We believe that this is one of the first papers to exploit historical proxies for non-cognitive characteristics in the surroundings of a company's location to explain variation in corporate policies today.

3 Data

3.1 Sample and data sources

This paper uses a combination of three sets of micro-data on Japanese firms, which are provided by the Ministry of Economy, Trade and Industry of Japan (METI): the Basic Survey of Japanese

Business Structure and Activities, the Basic Survey on Overseas Business Activities and the Census of Manufacture. These are annual data. We combine three data sets.

Our main data come from the Basic Survey of Japanese Business Structure and Activities. The data contain a wide variety of variables for listed as well as unlisted firms such as not only accounting information but also some information related to corporate governance. The Survey covers all manufacturing firms with more than 50 employees and with more than 30 million yen of capital asset. The reply rate is approximately 85%. Our sample period in general is between 1995 and 2013, and for our main variable of interest, foreign ownership, we can study manufacturing firms over this whole period.[5]

We merge the Basic Survey of Japanese Business Structure and Activities with two more data sets.[6] One is Japanese oversea affiliates, which is called the Basic Survey on Overseas Business Activities. The annual survey covers Japanese parent firms as well as their oversea affiliates. The other is the Census of Manufacture, which covers all manufacturing plants over four regular employees. Our main interest is to measure the impact of foreign ownership and foreign corporate governance on export and innovation decisions (as well as firm performance).

Regarding exporting decisions, we use three variables. Exporter is a binary indicator which is equal to one if a firm exports, and zero otherwise. This variable indicates the extensive margin of the export decision. Similarly, FDI is a binary indicator that shows whether a firm engages in foreign direct investment. For the intensive margin, we use Export Share, which is the percentage of foreign sales in total sales.

To proxy for innovation, we use two variables. R&D Intensity is research and development expenditures divided by total assets, expressed in percent. ln(Patents) captures innovation behavior outcomes, measured by the natural logarithm of the number of patents plus one. In constructing this variable, we follow previous literature, such as Acharya and Xu (2017) and Chemmanur et al. (2014).[7]

We also consider some production and operational performance measures. We compute the natural logarithm of the number of Products. A rise of the number of products can diversify

[5] The Survey data are in principle available from 1994 onward. A review of the data suggests that in this year there are some transcription errors. Our results hold similarly if we include 1994.

[6] These data sets are combined by concordances provided by the Research Institute of Economy, Trade and Industry (RIETI).

[7] We do not have access to patent citation data.

firm's operating risk, though internationalization may lead to firms to reduce the number of products in order to specialize. CapEx is capital expenditures in percent of total assets. Firm productivity is measured by Total Factor Productivity (TFP). Return on Assets (ROA) is net income in percent of total assets. (We obtain very similar results with Return on Equity.) We also compute sales growth in percent.

Our key explanatory variable is Foreign Ownership in percent. Moreover, we collect data on the usage of a stock option system, defining a binary indicator equal to one if a firm uses stock options in a given year and zero otherwise.

We use a number of additional variables as controls: firm size (the (log of) the number of regular Employees), Firm Age, Wage per worker, and a binary indicator Listed Firm which is equal to one if a firm is listed on a stock exchange in a given year and zero otherwise. Moreover, to control for differences in firm productivity and profitability, we include return on assets. (All our results for Foreign Ownership hold also when including TFP as a regressor.) Finally, all regressions control for (the log of) Prefecture GDP. We lag all control variables by one year to mitigate reverse causality concerns.

The definitions of all variables are provided in Table 1.

TABLE 1 ABOUT HERE

3.2 Descriptive statistics

Summary statistics of all variables are in Table 2.

TABLE 2 ABOUT HERE

3.2.1 Dependent variables

Table 2 shows that 31% of Japanese manufacturing firms export their products. The average Export Share in all firms together is 4.2%. In the subsample of the exporters, the Export Share is 14% on average. Only 7.2% of our sample firms conduct foreign direct investments.

Japanese manufacturing firms spend approximately 0.82% of total assets on R&D expenditures each year, and the number of patents is about 1.61 (=exp(0.96) - 1). However, the

medians of both R&D Intensity and Number of Patents are zero. The Number of Products produced is 3 on average. Total capital expenditure is 3.6% of their asset size. ROA is on average 1.7% and Sales Growth is 1.2% per year.

There is wide variation in all of these dependent variables. First, there is a big difference between listed and unlisted firms. Panels B and C of Table 2 report the summary statistics of listed and unlisted firms, respectively. Both frequency and degree of exporting and foreign direct decision of listed firms are higher than those of unlisted firms. About 70% of listed firm exports whereas 26% of unlisted firms do. Further, Export Share of listed firm is 12% which is about 4 times higher than that of unlisted firms. This is, however, partially driven by the fact that listed firms are more likely to export. Among Exporters, the average Export Share is 17% for listed firms, and 12% for unlisted firms. About 26% of listed firms engage in foreign direct investment, while only 5% of unlisted firms do.

Listed firms engage in more innovation behavior. The R&D Intensity of listed firms is 2.2%, which is three times higher than that of unlisted firms, 0.66%. Also, listed firms on average have 23.5 patents, while unlisted firms have 0.97. Listed firms invest more and produce more products than unlisted firms.

Second, there are also large cross-industry differences, as shown in Panel A of Table 3. (This table presents data only for 2013 to highlight the cross-sectional differences.) Printing industries, the chemical industry, electronic parts and devices, and industrial electric apparatus have both high R&D Intensity and Export Shares. The metal working machinery industry has the second-highest Export Share, but does not lead in R&D Intensity. At the other end of the spectrum, not surprisingly, the food industry and manufacture of furniture and fixtures is mostly domestically oriented, and they invest little in R&D. Continuing on the topic of cross-sectional differences, Panel B of Table 3 highlights important differences across prefectures. On average, firms in Kanagawa, Kyoto, Osaka, and Tokyo export the most. Firms in these prefectures also have far higher R&D Intensity than average. We control for industry fixed effects and prefecture GDP in all of our regressions (and we also add further regional heterogeneity in terms of cognitive and non-cognitive characteristics of prefectures in Section 6).

Figure 1 shows the time-series development of the Export Share. The Export Share exhibits a strong time trend, increasing from 9.8% in 1996 to 16.1% in 2013 for listed firms, and from 2.5% in 1996 to 4.4% in 2013 for unlisted firms.

FIGURE 1 ABOUT HERE

We briefly comment on the other dependent variables. The average ROA is 1.7%. The average number of products is about 3. The sample size for the number of products is reduced from other variables because it requires to match the Census of Manufacture, and due to the difference in sample, most of firms are not matched. The performance of listed firms is higher than those of unlisted firms when measuring by TFP and ROA. But sales growth rate is higher for unlisted firms.

3.2.2 Explanatory variables

Most Japanese firms are pure domestic firms without any foreign owners, though there is substantial variation that we can exploit in our analysis. Average foreign ownership is only 1.9%, and even the 75th percentile is zero. 55.6% of listed firms have some foreign owners; among unlisted firms, 2.5% have partial foreign ownership. We control for Listed Firm status in our estimations in the following sections. Stock options are used in 4.1% of all firms, and are much more common in listed than in unlisted firms.[8]

Table 3 presents, for the year 2013, Foreign Ownership by industry and by prefecture, sorted into various categories. Several findings are noteworthy. First, Foreign Ownership firms are mainly located in specific sectors such as chemical, and machineries. The oil refinement industry also has a high share of firms with foreign ownership, but the total number of firms in this industry is small. Second, there are distinct geographical patterns. Firms with some Foreign Ownership concentrate in Tokyo and Osaka, followed by prefectures close to Tokyo and Osaka. Firms with Foreign Ownership are rare in the periphery.

TABLE 3 ABOUT HERE

Next, Figure 1 describes the time-series properties in Foreign Ownership, categorized by listed and non-listed firms. There is a clear increasing trend in foreign ownership in both types of

[8] Indeed, using stock options in unlisted firms is relatively complex, as it requires, in the absence of an observable share price, some internal valuation of the firm to determine when the option can and should be exercised.

firms. Average Foreign Ownership has increased from 1.9% in 1996 to 8.4% in 2013 for listed firms, and from 0.8% in 1996 to 1.8% in 2013 for unlisted firms.

Table 2 also shows the summary statistics of other control variables. The average firm age is 49 years, and the average number of regular employees is 735, though both characteristics exhibit substantial variation.

Table 4 reports correlations. The dependent variables are correlated, but far from perfectly so, suggesting that it is useful to consider them separately.

TABLE 4 ABOUT HERE

4 Baseline Results

In this section, we present basic results. Section 4.1 begins with a simple correlation analysis and tests of differences in export and innovation activities between firms with and without Foreign Ownership. In Section 4.2, we then more formally test for the role of Foreign Ownership by controlling for other variables as well. As is clear from Figure 1, there is a time series correlation of Foreign Ownership and Export Shares; our focus, instead, is on the differences across firms in these quantities.

4.1 Correlations and differences in means

Table 4 shows that Foreign Ownership exhibits a positive correlation with all dependent variables, though the overall correlation is not very high, e.g., 0.17 with Export Share and 0.136 with R&D Intensity. To illustrate, Figure 2, which presents binned scatter plots. Here, we categorize all firm-years in 20 equal-sized bins of Foreign Ownership. (We do so for the firms with more than 0% and up to and including 50% of Foreign Ownership to avoid distorting the graph with the few outliers of majority Foreign Ownership.) Within each bin we plot the average Export Share, controlling for all explanatory variables and fixed effects used in the subsequent analysis. The left-most graph shows the results for the overall sample. Clearly, there is a positive relationship overall. The middle and right-most plots also suggest that there are fundamental differences in the role of Foreign Ownership between listed and unlisted firms. We will return to this topic below.

FIGURE 2 ABOUT HERE

Table 5 conducts simple *t*-tests for differences in means, using the year 2013. For all five of our key outcome variables (Exporter, Export Share, FDI, R&D Intensity, and ln(Patents)) we find that firms with some foreign ownership have higher export/innovation activities than firms without foreign ownership. This is true for both listed and unlisted firms. Additionally, we see that firms with foreign ownership produce more products and show stronger operational performance.

TABLE 5 ABOUT HERE

Of course, such correlations and simple means comparisons may be spurious, because they do not consider other factors that may drive both Foreign Ownership and export and innovation decisions. Therefore, we now turn to running regressions that control for such other factors.

4.2 Regression analysis

To test whether foreign ownership and foreign corporate governance is associated with firm choices and performance, we begin by estimating a straightforward panel regression:

$$Y_{it} = \beta_1 Foreign\ \ Ownership_{it-1} + \beta_2 X_{it-1} + \gamma_i + year_t + \varepsilon_{isrt} \quad (1)$$

where $Foreign\ \ Ownership$ is foreign ownership in percent, X is firm's characteristics such as firm size, firm age and listed firm dummy. We lag all explanatory variables to mitigate reverse causality concerns. γ_i is an industry fixed effect and $year_t$ is a year fixed effect. Y indicates our dependent variables of interest, $Y_{it} \in (\ Export,\ Innovation,\ Production,\ Operational\ \ Performance)$. Our man interest is in the coefficient on $Forign\ \ Ownership$.

Table 6 reports our baseline estimation results regarding the role of Foreign Ownership in explaining variation in export and innovation decisions. The key result to observe is that Foreign Ownership is significantly positively related to four of five outcome variables.

Specifically, Foreign Ownership positively affects the probability of being an Exporter as well as the Export Share. Foreign Ownership is not significantly associated with foreign direct

investment. Regressions (1) and (2) imply that a one standard deviation increase of Foreign Ownership is associated with an increase of the probability of exporting by 0.002*10.62 = 0.021 = 2.1 percentage points, and with an increase of the Export Share by 0.128*10.62 = 1.36 percentage points. Given that the unconditional probability of being an exporter is 31%, and given that the average Export Share is 4.19%, these are sizable effects. The results imply that a one standard deviation increase in Foreign Ownership is associated with a 10.9% (=1.36/12.4) of a standard deviation increase in the Export Share.

Columns (4) and (5) show that foreign ownership positively affects innovation behavior. However, the effects are fairly small. A one standard deviation increase of foreign ownership leads to an increase of R&D Intensity of only 2.5% of a standard deviation, and ln(Patents) of 1.2% of a standard deviation.

Table 7 reports the results regarding production and operational performance. Firms with higher Foreign Ownership produce a smaller number of different products. Further, they invest less. Finally, Table 7 shows that higher Foreign Ownership is positively associated with operational performance measures TFP, ROA and Sales Growth. (The same holds for ROE, as results available on request show.)

Once again, the economic effects are rather tiny. A one standard deviation increase of Foreign Ownership leads to an increase of TFP of 1.9% of a standard deviation, an increase of ROA of 3.6% of a standard deviation, and an increase of Sales Growth of 2.2% of a standard deviation.

TABLES 6 and 7 ABOUT HERE

5 Drilling deeper

Having established that firms with more Foreign Ownership engage more in innovation activities and are more export-oriented, though with limited economic significance, we now color these results more. Section 5.1 considers overall differences between listed and unlisted firms. Section 5.2 differentiates between firms in the core and in the periphery of Japan. Section 5.3 considers only the firms with some, but no majority Foreign Ownership. Section 5.4 deals with various aspects of endogeneity.

5.1 Listed and unlisted firms

Table 8 reports the analysis for listed firms in Panel A and unlisted firms in Panel B. In this overall analysis, the sensitivity of Export Share to Foreign Ownership is higher for unlisted firms. In listed firms, an increase by one standard deviation of Foreign Ownership leads to an increase of the probability of exporting by 1.7%, while in unlisted firms, the effect is 2.4%.[9] The influence of foreign ownership on the R&D activity is pronounced for unlisted firms. A one standard deviation increase of Foreign Ownerships leads to an increase of R&D Intensity by 2.2% of a standard deviation in unlisted firms, and just 1.0% of a standard deviation in listed firms.

The influence of the Foreign Ownership on the product diversification is relatively higher for listed firms. The negative relationship between the Foreign Ownership on the CapEx is pronounced for listed firms. A one standard deviation increase of foreign ownership leads to decrease of -3.0% of a one standard deviation of CapEx in listed firms, where that leads to decrease of 1.5% of a one standard deviation of CapEx in unlisted firms. Sensitivity of foreign ownership on operational performance differs by the measurement. For listed (unlisted) companies, a one standard deviation increase of Foreign Ownership leads to an increase of TFP by 0.93% (2.4%) of a standard deviation.. For listed (unlisted) companies, a one standard deviation increase of Foreign Ownership leads to an increase of ROA by 4.6% (3.5%) of a standard deviation. For listed (unlisted) companies, a one standard deviation increase of Foreign Ownership leads to an increase of Sales Growth by 1.8% (2.3%) of a standard deviation.

TABLE 8 ABOUT HERE

While the average effect of Foreign Ownership is weaker in unlisted firms, this does not mean that Foreign Ownership is irrelevant for these companies. Recall that Table 4 shows substantial differences between firms with and without Foreign Ownership for both classes of companies. This

[9] That the effects are stronger for unlisted firms may at first appear surprising in the light of Figure 2, which shows a steeper slope for listed firms; however, Figure 2 concerns only firms with minority Foreign Ownership. We will return to this issue in Section 5.3. Recall from Table 5 that whether there is any, or zero, Foreign Ownership, plays a more important role for unlisted firms. This effect drives a strong effect of Foreign Ownership on export and innovation choices when considering all unlisted firms, including those with no Foreign Ownership.

is confirmed in column (1) of all panels in Table 8: The probability of being an exporter is much higher in firms with higher Foreign Ownership.

5.2 Core versus Periphery

Panel B of Table 3 emphasized the diversity of the Foreign Ownership across prefectures. Does Foreign Ownership have different effects in different regions? Panel A of Table 9 reports the results for the core areas composed by Greater Tokyo (Tokyo, Kanagawa, Chiba, and Saitama), Greater Osaka (Osaka, Hyogo, and Kyoto), and Aichi, and Panel B reports the results for the periphery prefectures.

We find a positive impact of Foreign Ownership on the exporting decision in both subsamples, and no relationship for FDI in either. Interestingly, the impact on the innovation is only observed in periphery prefectures. Regarding production and operational performance, the impact on the number of production is observed only in the core prefectures, that on CapEx is observed both regions. Further, the positive impact of foreign ownership on operational performance is observed in both regions, except for TFP in the periphery region.

TABLE 9 ABOUT HERE

5.3 The role of Foreign Ownership when foreign owners have a minority stake

What happens in firms where there is some Foreign Ownership (that is, Foreign Ownership is strictly greater than 0%) but less than a majority is owned by non-Japanese shareholders (that is, Foreign Ownership is less than or equal to 50%)? Table 10 shows the results.

Panel A of Table 10 considers the overall sample. We continue to find that higher Foreign Ownership is associated with a greater Export Share and more Patents, but Foreign Ownership does not significantly explain variation in the R&D Intensity in the overall sample. In the sample of listed firms, Foreign Ownership positively relates to the Export Share, R&D Intensity, and ln(Patents) (Panel B). In unlisted firms (Panel C), by stark contrast, marginal increases in Foreign Ownership have zero effect for four out of the five variables (and a slightly negative one for FDI). For the Export Share, these differences between listed and unlisted firms were already visible in Figure 2.

Both listed and unlisted firms with smaller amount of products and higher Foreign Ownership have higher profitability and sales growth (and in unlisted firms, higher minority stakes of foreign owners are associated with higher TFP as well).

The economic effects of higher Foreign Ownership in this subsample are somewhat weaker than when considering the entire sample. In firms with a minority Foreign Ownership, a one standard deviation increase of Foreign Ownership is associated with an increase of the probability of exporting by 1.2 percentage points (and1.1 percentage points in listed firms and 0.5 percentage points in unlisted firms, respectively). For listed firms the probability of FDI increase 1.2%. The influence of foreign ownership on the R&D activity is also pronounced only for listed firms. A one standard deviation increase of Foreign Ownerships leads to an increase of R&D Intensity by 4.3% of a standard deviation in listed firms, not statistically significant for unlisted firms.

TABLE 10 ABOUT HERE

Overall, we interpret these results – together with those from Table 5, which highlighted the unconditional effect of having any Foreign Ownership – as suggesting that the role of Foreign Ownership in Japanese companies is, for unlisted firms, a "corporate culture" factor; it does not matter strongly how much Foreign Ownership there is, but there is a big difference if there is *some* Foreign Ownership. By contrast, for listed firms, there is both a "categorical" ("yes/no") and a "marginal" ("how much") effect in the sense that each marginal increase of Foreign Ownership also has effects.

5.4 Omitted variables: Incentives, firm culture, and other factors

A natural concern regarding a study of the role of Foreign Ownership for export and innovation activities is that the associations presented so far may be affected by endogeneity. Reverse causality is likely to be less of a concern (we lag the explanatory variables), but omitted variables can play an important role. In this section, we explore this issue in three directions. First, we include additional control variables to proxy for incentives. Second, we use firm fixed effects to focus on the time series. Third, we use an instrumental variables approach.

First, we consider the role of incentives. Traditionally, Japanese companies are based on very long-term and stable (indeed lifelong) employment and low pay-performance sensitivity. To the extent that wages can convey incentives, the average pay in a company is already one aspect of incentives that we control for. As seen in the regressions so far, higher average wages occur in exporting and innovating firms. In recent years, Japan has also allowed the usage of stock options. Existing literature (mostly for the US) emphasizes that stock options can induce greater risk-taking behavior. We find in Table 11 that firms that use stock option indeed export more, engage in more FDI, and are more innovative. This is as expected as these are risky activities, and stock options induce risk-taking. However, no relationship exists between stock option usage and physical production or operational performance. Importantly, the effect of Foreign Ownership remains robust even controlling for incentives in the form of stock options.[10]

TABLE 11 ABOUT HERE

Second, an alternative approach for overcoming the endogeneity concern is to use additional fixed effects that capture further unobserved heterogeneity. Our main results are robust not only for industry and year fixed effects, but also for industry-year fixed effects. These results are available on request. Moreover, we have also conducted the analysis with firm fixed effects, so that the analysis focuses on the effect of changes in foreign ownership on changes in the dependent variables. Here, the challenge is that for many companies, there is little variation in the percent foreign ownership in many years, but, naturally, some variation in the dependent variables; the identifying variation coming from foreign ownership is, therefore, expected to be quite limited.

Table 12 reports the results. Increases in foreign ownership are positively related to the export ratio, implying that when Foreign Ownership increases in a firm that company tends to export more. Surprisingly, such increases negatively relate to the export decision (yes/no). One might have thought that foreign investors drive currently purely domestically oriented companies

[10] Balsmeier, Fleming and Manso (2017) show that while firms with more independent directors claim more patents, these are incremental, rather than much-cited patents. A prior version of this paper also examined the role of outside director presence in Japan. Here, the sample period is much shorter (between 2009 and 2013). We find that the results of Foreign Ownership remain robust, and that the presence of more independent directors does not explain export and FDI decisions, but is associated with fewer patents. Furthermore, firms with more independent directors have higher ROA and sales growth.. We have also considered the ratio of female employees as an explanatory variable. Again, the sample period is shortened (to 1994 to 1999), and the results for Foreign Ownership remain robust.

to begin exporting, but in fact the opposite tends to occur for some firms. Conceivably, this reflects that such companies begin to focus more on delivering to other companies that are also owned by these investors. We do not, however, have a compelling explanation for this finding. The results further suggest that increases in foreign ownership are associated with increases in the number of patents. Finally, an increase in foreign ownership is associated with an increase of ROA, but there is no statistically significant relationship with changes in sales growth. In results available on request, we find that firms that introduce stock options exhibit increases in the number of patents and a greater export orientation, both on the extensive and on the intensive margins, but no change in ROA.

Overall, the previously documented relations between ownership structure and employee incentives on the one hand, and firm innovation activities and export choices on the other hand, tend to hold also in the firm fixed-effects setting, with the most notable exception being the tendency of increasing foreign ownership leading to a decreased probability of becoming an exporter. However, because foreign ownership and stock option usage do not vary much across firms, but a lot across firms, their relation with firm outcomes is mostly a cross-sectional phenomenon.

TABLE 12 ABOUT HERE

Finally, we consider an instrumental variables approach. Arguably, Foreign Ownership is not allocated randomly to companies. To at least partially address this challenge, we hypothesize that there are peer effects in governance. Thus, we posit that even controlling for a rich set of control variables, a company is more likely to adopt Foreign Ownership if many other companies in the same industry in the same prefecture adopt that feature. Other firms' properties are unlikely to affect an individual firm's export and innovation decisions directly. Therefore, we can use other firms' governance characteristics as instrumental variables.

Table 13 shows the results when using this approach. The very first column presents one of the first stages (the others are very similar). The instrument variable, Average Peer Foreign Ownership positively relates to the Foreign Ownership. Also we find that Foreign Ownership increase as ln(Employees) increase, Wage increase, ln(Firm Age) decreases, for listed firms, and ROA increases. The remaining ten columns show the second-stage findings. Even in the 2SLS

setting export and innovation decisions still positively relate to Foreign Ownership. In fact, the quantitative effects implied by the 2SLS estimates are substantially larger than those implied by the OLS estimates. A one standard deviation increase of Foreign Ownership driven by peer effects is associated with an increase of the probability of exporting by 16 percentage points and an increase in the export share by 55% of a standard deviation. This suggests that the OLS estimates were, in fact, downward biased by omitted variables. Further, a one standard deviation increase of foreign ownership leads to an increase of R&D Intensity of 36% of a standard deviation, and of 26% of a standard deviation of ln(Patents). Further, foreign ownership driven by peer effects is positively related to the operational performance when measured by TFP, ROA and Sales Growth. A one standard deviation increase of Foreign Ownerships leads to an increase of CapEx, TFP, ROA, and Sales Growth by 10.3%, 20.8%, 9.9%, and 15% of a standard deviation, respectively.

TABLE 13 ABOUT HERE

6 Cognitive and non-cognitive factors: The role of history

So far, our focus has been on firm-internal governance. But important aspects of a firm's choices can also be influenced by the characteristics of its workforce and management. Does variation in skills and values of employees (or the general surroundings of a firm) explain firms' abilities and tendencies to engage in export and innovation activities?

One reaction to this question may be that in Japan, education is actually fairly homogenous and of a high quality throughout. In the extreme, when all workers have essentially similar basic education, this factor would not explain anything regarding the variation in firm choices. However, we consider the possibility that historical legacy factors may still be at work. To understand this, two facts are important to understand. First, it is true that after World War II, the Japanese government (through the Ministry of Education) developed common guidelines in each basic subject. However, compulsory education such as elementary and junior high schools is largely governed by each city-town level educational committee. These educational committees have autonomy and decide to some extent the details in education such as how to teach disciplines (e.g. moral and sincerity). In other words, the regional education can still induce heterogeneity in

cognitive abilities and non-cognitive characteristics across regions.[11] This spatial heterogeneity may differentially attract foreign ownership, and may also affect corporate decisions. It appears plausible that these come, to some extent, from regional tradition, culture and climates.

Second, this spatial heterogeneity may have historical roots, going back to the Edo period. In that period, education and economy were highly decentralized. Since human capital accumulation was considered a resource of economic growth and development, many "han"s (regional units in Edo period) were eager to provide high levels of education. Some hans built colleges and engineering schools ("hankou"). Some private schools were also built ("shijuku"). Schools, mainly using temples, abounded, providing primary education (reading, writing and arithmetic) for ordinary people. This educational system contributed to high literacy rates in Japan. (After the Meiji Restoration, Japan established a modern educational system in each region (school districts). Each district built universities/colleges, some junior high and primary schools. The government sometimes used existing schools built in Edo period.)

While we do not have data on teaching outcomes all the way back to the Edo period, fortunately, we have access to data on the outcomes of teaching at the prefecture-level from before World War II. The borders of the 47 prefectures have not changed over the last 130 years, allowing matching of these data with the location of headquarters of companies. Specifically, we collect data from the Educational Survey on Soldiers in the Conscription System (Soutei Kyouiku Chosa Gaikyo) by the Ministry of Education in 1941. Before World War II, Japan had a conscription system. In the system all male people were required to take educational exams at age twenty. The data records average score in each question of each subject at prefectural level. The subjects of interest are language (literacy, reading and writing skill of Japanese language), science (basic knowledge of natural sciences), and social studies (geography, history, Japanese politics, and moral).[12] Interestingly, the social studies part includes some non-cognitive question. We use a question from the 1941 survey which is the closest to our aim of study: "*Which is the civic virtue("Koutoku" in Japanese)?"* The multiple choices are "*1) giving your seat to elderly person in a train 2) working hard 3) saving your money and making your profit and 4) punctuality."* The correct answers are #1 and #4. We argue that answering this non-cognitive question correctly

[11] See Ito, Kubota and Ohtake (2015) for evidence that actual curriculum at Japanese public elementary schools varies widely from area to area and is associated with preference formation.

[12] There is also an arithmetic section, but this involves extremely simple calculation tasks only.

indicates high conformity. Our idea is that the correct answer is highly salient in principle to survey respondents, and not giving this answer provides an indication of an individual willing to be "out of line". Thus, we posit that prefectures with higher average scores on the non-cognitive questions have a regional culture that is characterized by higher conformity.[13]

Figure 3 shows that there is substantial geographic heterogeneity in the three educational scores. Darker colors indicate higher scores. Panel A is for the non-cognitive score, Panel B is for the language score, and Panel C is for the science score.

Mie, which lies between Kyoto and Aichi, has the highest scores on average in the three subjects; 4th in non-cognitive, 3rd in language and 1nd in science. Interestingly, one would expect that the size of the prefecture may positively relate to educational outcomes. However, Tokyo is 45th in non-cognitive, but 2nd in language and 1st in science, suggesting that citizens of Tokyo had strong cognitive skills, but did not all adopt the same uniformly accepted values and attitudes. Furthermore, the educational score of Osaka, which was the second largest prefecture, is much lower than other urban areas, such as Tokyo or Aichi. Osaka is 10th in language and 16th in science. But Osaka also has a low non-cognitive score (38th place), suggesting low conformism.

There is a positive relationship between the non-cognitive score and other two education scores, but the correlation is far from perfect. This indicates that the non-cognitive score is not merely a reflection of the ability of survey respondents to answer the question. For example, the Akita prefecture was the top on non-cognitive score, indicating that they are most conformist; however, it is 38th in language and 11th in science. Similarly, Kagawa prefecture was 3rd in non-cognitive score, indicating independent attitudes, but 32nd in language and 39th in science.

Of course, there is mobility inside Japan. Thus, to the extent that we find that historical education features matter today, this suggests a surprisingly persistent importance of these features.[14]

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[13] We have separate scores for individuals with less than middle-level school education, and for individuals with higher than middle-level school. We compute a weighted average based on the number of participants in each category. Of course, one possibility for an incorrect answer is that the person responding to the survey does not understand the question or simply does not know the answer. We control for this to some extent by including the (orthogonalized) cognitive scores in language and science in all regressions.

[14] Davis and Weinstein (2002) find highly stable urban hierarchy system in Japan. They first show that prefectural level population densities have positively high correlation between 1600s and 1990s in spite of 10 times of population growth. Then they document that even after the severe bombing of World War II, most Japanese cities returned to their relative position in the distribution of city sizes within about 15 years. These findings indicate that Japanese regions (prefectures and cities) do not see any drastic changes over several hundred years. No big new cities/regions have

Table 14 includes these historical educational scores in the regressions. We find that historical language scores positively predict export and FDI choices of today's firms. Firms in prefectures with higher language skill are more likely to be internationalized. On the other hand, somewhat surprisingly, firms in prefectures with high score in science do not export more, nor do they innovate more. (In fact, they tend to have lower ROA.) Further, non-cognitive scores negatively relate to export and innovation decisions. We interpret this evidence as suggesting that conformity diminishes innovative potential.

TABLE 14 ABOUT HERE

7 Conclusion

Foreign ownership and export orientation of Japanese manufacturing companies are still low by international standards, but have both risen substantially in the last 2 decades. This paper provides evidence, focusing on the cross-section of firms, for the potentially important role that ownership structure and employee incentives can play for explaining differences in export behavior and innovation investments of Japanese manufacturing corporations. Firms with higher foreign ownership and those that use stock options engage in more export and R&D activities. But it is not only ownership structure and incentives that matter. We also show that pre-World War II differences in cognitive skills and non-cognitive characteristics (attitudes) still explain modern-day cross-prefecture differences in firm choices. Overall, our results suggest that both firm-internal corporate governance and the employee pool a company can draw on can play an important role for the export and innovation activity of firms.

emerged and no cities/regions were completely collapsed. Thus we can conclude that a large-scale interregional migration has never occurred in Japan.

References

Acharya, Viral V., and Zhaoxia Xu, 2017, Financial dependence and innovation: The case of public versus private firms, *Journal of Financial Economics* 124, 223–243.

Adams, Renee B., Amir N. Licht, and Lilach Sagiv, 2011, Shareholders and Stakeholders: How do Directors Decide?, *Strategic Management Journal* 32, 116–132.

Ahmed, Anwer S., and Takuya Iwasaki, 2015, Foreign ownership, manager monitoring, and firm value: Evidence from Japanese firms, Working Paper.

Almlund, Mathilde, Angela Lee Duckworth, James Heckman, and Tim Kautz, 2011, Personality psychology and economics, *Handbook of the Economics of Education* (Elsevier).

Amiti, Mary, and David E. Weinstein, 2011, Export and financial shocks, *Quarterly Journal of Economics* 126, 1841–1877.

Aoki, Masahiko, 1990, Toward an economic model of the Japanese firm, *Journal of Economic Literature* 28, 1–27.

Balsmeier, Benjamin, Lee Fleming, and Gustavo Manso, 2017, Independent boards and innovation, *Journal of Financial Economics* 123, 536–557.

Benfratello, Luigi, and Alessandro Sembenelli, 2006, Foreign ownership and productivity: Is the direction of causality so obvious?, *International Journal of Industrial Organization* 24, 733–751.

Berman, Nicolas, and Jérôme Héricourt, 2010, Financial factors and the margins of trade: Evidence from cross-country firm-level data, *Journal of Development Economics* 93, 206–217.

Blonigen, Bruce A., Ronald B. Davies, Glen R. Waddell, and Helen T. Naughton, 2007, FDI in space: Spatial autoregressive relationships in foreign direct investment, *European Economic Review* 51, 1303–1325.

Chaney, Thomas, 2016, Liquidity constrained exporters, *Journal of Economic Dynamics and Control* 72, 141–154.

Chemmanur, Thomas J., Elena Loutskina, and Xuan Tian, 2014, Corporate venture capital, value creation, and innovation, *Review of Financial Studies* 27, 2434–2473.

Chor, Davin, and Kalina Manova, 2012, Off the cliff and back? Credit conditions and international trade during the global financial crisis, *Journal of International Economics* 87, 117–133.

Coles, Jeffrey L., Naveen D. Daniel, and Lalitha Naveen, 2006, Managerial incentives and risk-taking, *Journal of Financial Economics* 79, 431–468.

Cunha, Flavio, James J. Heckman, and Susanne M. Schennach, 2010, Estimating the Technology of Cognitive and Noncognitive Skill Formation, *Econometrica* 78, 883–931.

David, Parthiban, Toru Yoshikawa, Murali D. R. Chari, and Abdul A. Rasheed, 2006, Strategic investments in Japanese corporations: Do foreign portfolio owners foster underinvestment or appropriate investment?, *Strategic Management Journal* 27, 591–600.

Feenstra, Robert C., Zhiyuan Li, and Miaojie Yu, 2014, Exports and credit constraints under incomplete information: Theory and evidence from China, *Review of Economics and Statistics* 96, 729–744.

Ferris, Stephen P., and Kwangwoo Park, 2005, Foreign ownership and firm value: Evidence from Japan, in Mark Hirschey, Kose John, Anil K. Makhija (ed.) *Corporate Governance, Advances in Financial Economics, Volume 11* (Emerald)

Foley, C. Fritz, and Kalina Manova, 2015, International trade, multinational activity, and corporate finance, *Annual Review of Economics* 7, 119–146.

Francis, Neville, Michael T. Owyang, Jennifer E. Roush, and Riccardo DiCecio, 2014, A flexible finite-horizon alternative to long-run restrictions with an application to technology shocks, *Review of Economics and Statistics* 96, 638–647.

Gow, Ian D, Steven N Kaplan, and David F Larcker, 2016, CEO personality and firm policies, *NBER Working Paper Series No. 22435*.

Greenaway, David, Alessandra Guariglia, and Richard Kneller, 2007, Financial factors and exporting decisions, *Journal of International Economics* 73, 377–395.

Guadalupe, Maria, Olga Kuzmina, and Catherine Thomas, 2012, Innovation and foreign ownership, *American Economic Review* 102, 3594–3627.

Heckman, James., Jora Stixrud, and Sergio Urzua, 2006, The effects of cognitive and noncognitive abilities on labor market outcomes and social behavior, *Journal of Labor Economics* 24, 411–482.

Heckman, James J, John Eric Humphries, and Gregory Veramendi, 2017, Returns to education: The causal effects of education on earnings, health and smoking, *Journal of Political Economy* Forthcoming.

International Study Group on Exports and Productivity (2008) "Understanding cross-country differences in exporter premia: Comparable evidence for 14 countries," *Review of World Economics* 144(4), 596-635.

Ito, Takahiro, Kohei Kubota and Fumio Ohtake (2015) “The hidden curriculum and social preferences”, Discussion Paper No.954, The Institute of Social and Economic Research, Osaka University.

Kato, Hideaki Kiyoshi, Michael Lemmon, Mi Luo, and James Schallheim, 2005, An empirical examination of the costs and benefits of executive stock options: Evidence from Japan, *Journal of Financial Economics* 78, 435–461.

Knopf, John D., Jouahn Nam, and John H. Thornton, 2002, The volatility and price sensitivities of managerial stock option portfolios and corporate hedging, *Journal of Finance* 57, 801–813.

Licht, Amir N., and Renée B Adams, Shareholders and Stakeholders around the World : The Role of Values and Culture in Directors’ Decisions, .

Lindqvist, Erik, and Roine Vestman, 2011, The labor market returns to cognitive and noncognitive ability: Evidence from the Swedish enlistment, *American Economic Journal: Applied Economics* 3, 101–128.

Madariaga, Nicole, and Sandra Poncet, 2007, FDI in Chinese cities: Spillovers and impact on growth, *World Economy* 30, 837–862.

Manova, Kalina, 2008, Credit constraints, equity market liberalizations and international trade, *Journal of International Economics* 76, 33–47.

Manova, Kalina, 2013, Credit constraints, heterogeneous firms, and international trade, *Review of Economic Studies* 80, 711–744.

Manova, Kalina, Shang-Jin Wei, and Zhiwei Zhang, 2015, Firm exports and multinational activity under credit constraints, *Review of Economics and Statistics* 97, 574–588.

Melitz, Marc J., 2003, The impact of trade on intra-industry reallocations and aggregate industry productivity, *Econometrica* 71, 1695–1725.

Melitz, Marc J., and Gianmarco I. P. Ottaviano, 2008, Market size, trade, and productivity, *Review of Economic Studies* 75, 295–316.

Minetti, Raoul, and Susan Chun Zhu, 2011, Credit constraints and firm export: Microeconomic evidence from Italy, *Journal of International Economics* 83, 109–125.

Parise, Gianpaolo, and Kim Peijnenburg, 2017, Understanding the determinants of financial outcomes and choices: The role of noncognitive abilities, *Working Paper*.

Shue, Kelly, and Richard R. Townsend, 2016, How do quasi-random option grants affect CEO risk-taking?, *Journal of Finance, forthcoming*.

Todo, Yasuyuki and Hitoshi Sato, 2014, Effects of presidents' characteristics on internationalization of small and medium firms in Japan, *Journal of the Japanese and International Economies* 34, 236–255.

Un, C. Annique and Alvaro Cuervo-Cazurra, 2008, Do subsidiaries of foreign MNEs invest more in R&D than domestic firms?, *Research Policy* 37, 1812–1828.

Xu, Yilan, Andrea H. Beller, Brent W. Roberts, and Jeffrey R. Brown, 2015, Personality and young adult financial distress, *Journal of Economic Psychology* 51, 90–100.

Figure 1: Export Shares and Foreign Ownership Over Time

This figure shows average values of Export Share and Foreign Ownership (both in percent), separately for listed and unlisted Japanese manufacturing firms. The sample includes all Japanese manufacturing firms from 1996 to 2013.

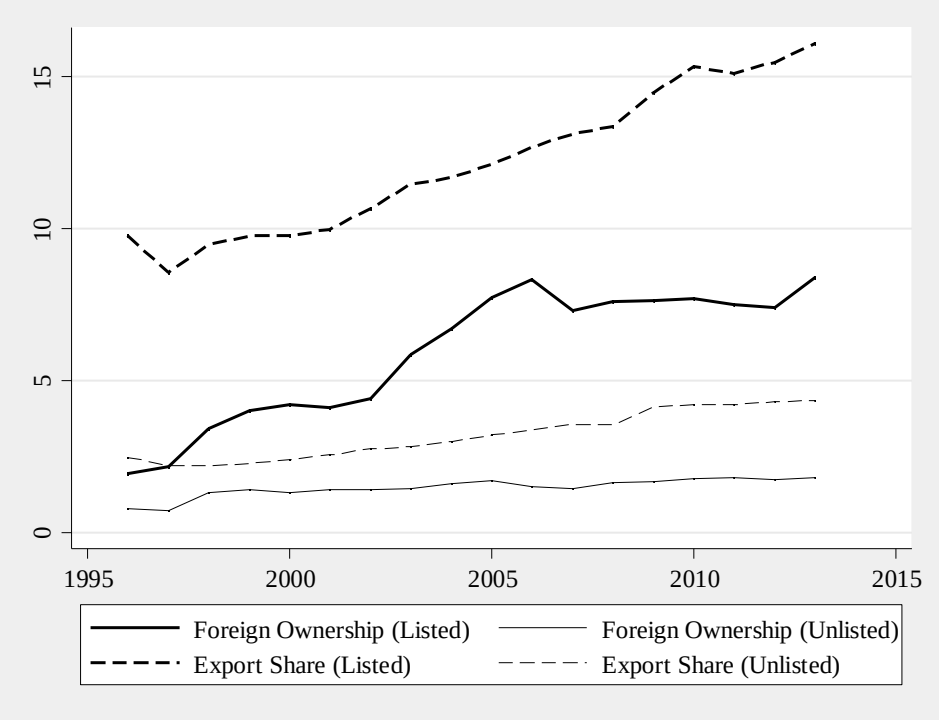


Figure 2: The Association of Export Shares and Foreign Ownership

This figure shows binned scatter plots of Export Share against Foreign Ownership (both in percent). All plots control for all control variables and fixed effects used in the regression analysis. For each dependent variable, a plot for the full sample is shown, as well as plots for listed and unlisted firms separately. The sample includes all Japanese manufacturing firms from 1996 to 2013 where Foreign Ownership is above 0% and less than or equal to 50%.

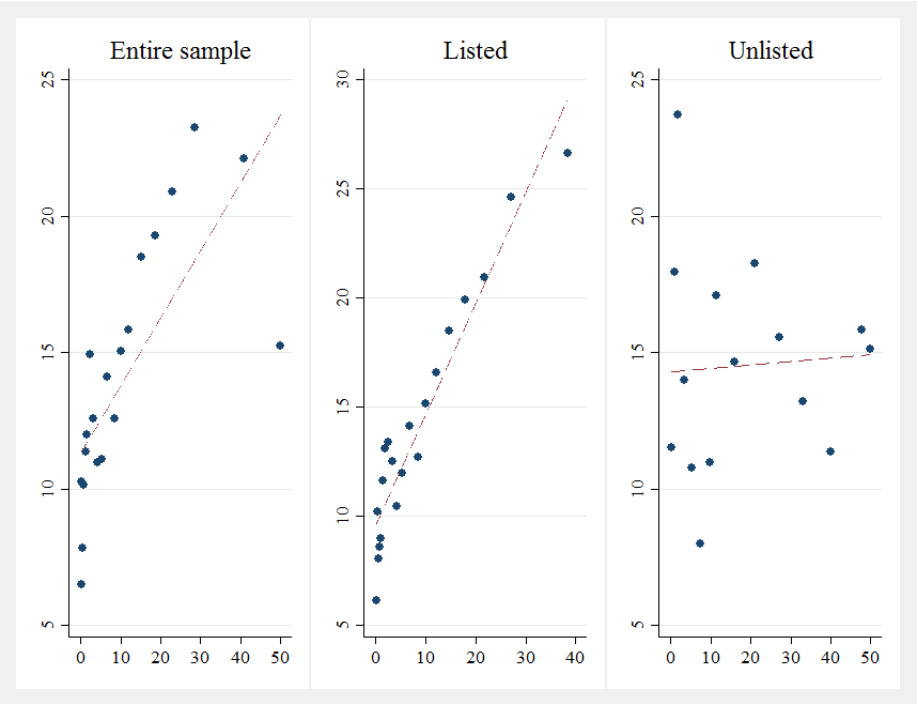
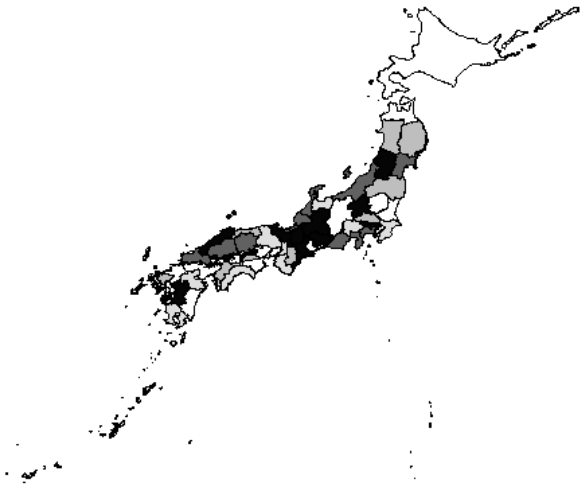


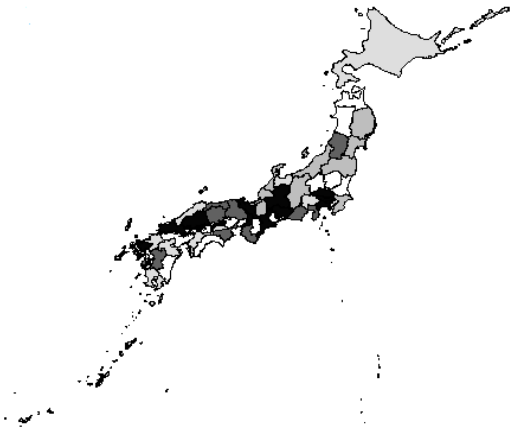
Figure 3: Education Scores by Prefecture

This figure shows the average value of the three types of education scores extracted from the 1941 Educational Survey on Soldiers in the Conscription System (*Soutei Kyouiku Chosa Gaikyo*) by the Ministry of Education. See Section 3.1 for details. Darker areas indicate higher scores.

Panel A: Non-Cognitive Score



Panel B: Language Score



Panel C: Science Score

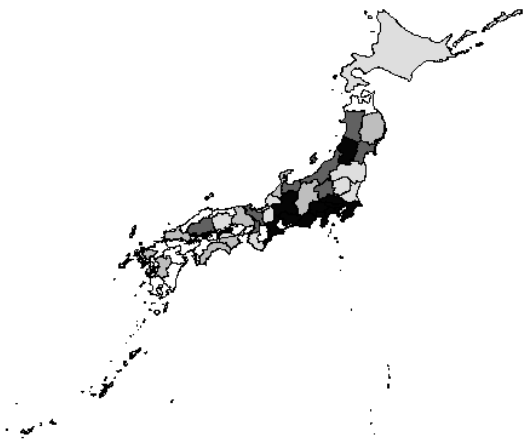


Table 1: Variable Definitions

A, B, C, and **D** in the column Data Source represent the Basic Survey of Japanese Business Structure and Activities, the Basic Survey on Overseas Business Activities, the Census of Manufacture and the Educational Survey on Soldiers in the Conscription System, respectively. CO represents Cabinet Office, Japan. RIETI is the Research Institute of Economy, Trade and Industry.

Variable Name	Data Source	Definition of the variable
Dependent variables		
Exporter	A	One for exporters, and zero otherwise.
Export Share	A	Percentage of foreign sales in total sales
FDI	A, B	One if a firm owns foreign affiliates and zero otherwise.
R&D Intensity	A	R&D expenditures divided by total assets and multiplied by 100.
ln(Patents)	A	Natural logarithm of the number of patents.
ln(Products)	C	Natural logarithm of the number of products
CapEx	A	Total capital expenditure divided by total assets and multiplied by 100
TFP	A	Total factor productivity, measured following Olley and Pakes (1996)
ROA	A	Net income divided by total assets and multiplied by 100.
Sales Growth	A	Sales growth in percent
Governance variables		
Foreign Ownership	A	Percentage of foreign ownership
Stock Option	A	One for firms using stock options and zero otherwise
Firm specific variables		
ln(Employees)	A	Natural logarithm of the total number of full-time employees.
Wage	A	Average wage payment per worker, i.e. total wage expenses divided by the number of employees.
ln(Firm Age)	A	Natural logarithm of firm age.
Listed Firm	A, RIETI	One for listed firms and zero otherwise.
Prefecture-level variables		
ln(Prefecture GDP)	CO	Natural logarithm of Prefectural GDP.
Non-Cognitive Score	D	Average score on non-cognitive questions in 1938. See main text for more detail.
Language Score	D	Average score on language test (Japanese) in 1938. See main text for more detail.
Science Score	D	Average score on natural science test in 1938. See main text for more detail.

Table 2: Descriptive Statistics

This table shows descriptive statistics for the main variables used in the analysis. In Panel A, the sample includes all Japanese manufacturing firms from 1996 to 2013. Panel B shows statistics for the listed firms. Panel C shows statistics for the unlisted firms.

Panel A: Entire Sample

Variable Name	N	Mean	St. Dev.	Min	P25	Median	P75	Max
Exporter	220796	0.31	0.46	0	0	0	1	1
Export Share	220796	4.19	12.04	0	0	0	0.82	100
Export Share for Exporters	68415	13.53	18.49	0.0001	1.31	5.73	18.29	100
FDI	220796	0.07	0.26	0	0	0	0	1
R&D Intensity	220771	0.82	1.66	0	0	0	0.81	8.04
ln(Patents)	220796	0.96	1.71	0	0	0	1.39	11.87
ln(Products)	67027	1.08	0.76	0	0.69	1.1	1.61	5
CapEx	220719	3.62	5.1	0	0.45	1.82	4.6	29.19
TFP	220771	7.08	6.98	0.75	2.36	4.51	9.36	37.5
ROA	220041	1.7	4.32	-15.04	0.22	1.41	3.49	16.64
Sales Growth	220796	1.23	18.03	-44.8	-7.45	0.13	8	81.55
Foreign Ownership	220796	1.85	10.62	0	0	0	0	100
Stock Option Usage	195067	0.04	0.2	0	0	0	0	1
ln(Employees)	220796	5.2	0.98	3.91	4.48	4.98	5.68	11.3
Wage	220796	4.79	1.65	1.07	3.69	4.66	5.75	10.02
ln(Firm Age)	220796	3.6	0.58	0	3.43	3.78	3.97	5.33
Listed Firm	220796	0.11	0.31	0	0	0	0	1
ln(Prefecture GDP)	220796	16.71	1.1	14.16	15.78	16.69	17.41	18.34
Non-Cognitive Score	220796	0	1	-3.78	-0.53	-0.06	0.62	3.5
Language Score	220796	0	1	-4.66	-0.78	0.11	1.14	1.17
Science Score	220796	0	1	-1.92	-0.77	-0.21	1.04	5.15

Panel B: Listed Firms

Variable Name	N	Mean	St. Dev.	Min	P25	Median	P75	Max
Exporter	24592	0.7	0.46	0	0	1	1	1
Export Share	24592	12	18.39	0	0	3	16.77	100
Export Share for Exporters	17227	17.13	19.87	0.0001	2.31	9.52	24.76	100
FDI	24592	0.26	0.44	0	0	0	1	1
R&D Intensity	24586	2.16	2.21	0	0.45	1.41	3.2	8.04
ln(Patents)	24592	3.21	2.58	0	0	3.37	5.18	11.87
ln(Products)	13624	1.55	0.88	0	1.1	1.61	2.08	5
CapEx	24579	3.86	4.22	0	1.2	2.59	4.96	29.19
TFP	24586	8.25	8.59	0.75	2.07	4.71	11.88	37.5
ROA	24553	1.51	4.47	-15.04	0.37	1.74	3.64	16.64
Sales Growth	24592	1.46	16.12	-44.8	-5.87	1.05	7.54	81.55
Foreign Ownership	24592	5.37	10.41	0	0	0.5	6.2	100
Stock Option Usage	21569	0.18	0.39	0	0	0	0	1
ln(Employees)	24592	6.6	1.19	3.91	5.74	6.44	7.3	11.3
Wage	24592	5.99	1.67	1.07	4.93	5.98	7.04	10.02
ln(Firm Age)	24592	3.89	0.35	0	3.83	3.97	4.08	4.81
Listed Firm	24592	1	0	1	1	1	1	1
ln(Prefecture GDP)	24592	17.33	0.98	14.16	16.68	17.38	18.25	18.34
Non-Cognitive Score	24592	-0.21	0.75	-3.78	-0.51	-0.51	0.61	3.5
Language Score	24592	0.45	0.8	-3.61	0.11	0.79	1.14	1.17
Science Score	24592	0.24	1.04	-1.92	-0.77	-0.17	1.38	1.63

Panel C: Unlisted Firms

Variable Name	N	Mean	St. Dev.	Min	P25	Median	P75	Max
Exporter	196204	0.26	0.44	0	0	0	1	1
Export Share	196204	3.21	10.59	0	0	0	0.09	100
Export Share for Exporters	51188	12.32	17.83	0.0001	1.13	4.84	15.99	100
FDI	196204	0.05	0.21	0	0	0	0	1
R&D Intensity	196185	0.66	1.5	0	0	0	0.47	8.04
ln(Patents)	196204	0.68	1.32	0	0	0	0.69	10.66
ln(Products)	53403	0.96	0.67	0	0.69	1.1	1.39	3.91
CapEx	196140	3.59	5.2	0	0.37	1.7	4.53	29.19
TFP	196185	6.94	6.73	0.75	2.4	4.5	9.14	37.5
ROA	195488	1.73	4.3	-15.04	0.21	1.37	3.47	16.64
Sales Growth	196204	1.2	18.25	-44.8	-7.64	0	8.07	81.55
Foreign Ownership	196204	1.41	10.57	0	0	0	0	100
Stock Option Usage	173498	0.02	0.15	0	0	0	0	1
ln(Employees)	196204	5.03	0.79	3.91	4.43	4.88	5.46	10.73
Wage	196204	4.64	1.59	1.07	3.6	4.53	5.53	10.02
ln(Firm Age)	196204	3.57	0.6	0	3.37	3.74	3.95	5.33
Listed Firm	196204	0	0	0	0	0	0	0
ln(Prefecture GDP)	196204	16.64	1.09	14.16	15.74	16.67	17.38	18.34
Non-Cognitive Score	196204	0.03	1.02	-3.78	-0.56	-0.04	0.64	3.5
Language Score	196204	-0.06	1.01	-4.66	-0.8	0.11	1.14	1.17
Science Score	196204	-0.03	0.99	-1.92	-0.77	-0.22	0.89	5.15

Table 3: Export Share, R&D Intensity, and Foreign Ownership by Industry and Prefecture
This table reports the distribution of R&D Intensity, Export Share, and Foreign Ownership by industry (in Panel A), and by prefecture (in Panel B). The number of firms in each group listed in the first line is reported. Panel B also reports the Prefecture level GDP where the value for Tokyo is normalized to 100. In order to examine the cross-sectional differences, the sample is restricted to 2013 in both panels.

Panel A: Export Share, R&D Intensity, and Foreign Ownership by Industry

		Export	R&D	Foreign Ownership					
		Share	Intensity		0.1 to	10 to	33.4 to	50 to	
Code	Industry Name			0%	9.9%	33.3%	49.9%	99.9%	100%
9	Construction	0.74	0.16	463	14	9	0	0	1
12	Food	0.59	0.40	1335	43	10	4	2	4
13	Beverage	1.11	0.39	176	10	2	1	1	0
14	Printing and allied industries	2.84	1.40	281	6	4	1	2	2
15	Clothing	1.21	0.12	137	0	3	0	1	0
16	Wood Products	0.64	0.09	139	5	0	0	0	1
17	Manufacture of furniture and fixtu	0.58	0.38	108	2	2	0	0	1
18	Pulp and paper	1.12	0.14	361	14	4	0	0	1
19	Print	0.60	0.08	715	16	4	0	0	3
20	Chemical	7.88	2.32	726	70	67	16	19	34
21	Petroleum and coal products	7.82	1.04	33	5	7	2	1	0
22	Plastic products	3.92	0.52	691	23	13	2	5	9
23	Rubber products	5.83	0.83	131	6	6	0	2	3
24	Leather products and fur skins	1.45	0.91	17	1	0	0	1	0
25	Ceramic, stone and clay products	3.95	0.53	394	26	9	3	6	3
26	Iron and steel	3.37	0.18	407	11	18	0	3	1
27	Fabricated metal products	5.98	0.48	327	19	16	2	3	2
28	Machinery and machine parts	3.37	0.31	967	35	11	3	2	7
29	Metal working machinery	11.73	0.94	1464	78	43	14	13	18
30	Electronic parts and devices	9.46	1.65	1372	81	58	22	8	23
31	Electronic data processing machi	6.62	0.79	1086	49	57	14	11	16
32	Industrial electric apparatus	14.13	2.66	288	18	12	6	6	9

Panel B: Export Share, R&D Intensity, and Foreign Ownership by Prefecture

	Prefecture	Relative GDP (Tokyo = 100)	Export Share	R&D Intensity	Foreign Ownership					
					0%	0.1 to 9.9%	10 to 33.3%	33.4 to 49.9%	50 to 99.9%	100%
1	Hokkaido	19	1.31	0.31	257	2	0	0	0	0
2	Aomori	4	3.31	0.20	81	0	1	0	0	0
3	Iwate	4	1.08	0.47	104	0	0	0	0	1
4	Miyagi	9	4.66	0.57	124	1	1	1	0	3
5	Akita	4	2.02	0.53	86	0	1	0	0	1
6	Yamagata	4	2.96	0.25	162	0	0	0	1	3
7	Fukushima	8	2.71	0.33	153	2	1	1	0	2
8	Ibaraki	12	2.66	0.25	182	1	2	1	3	1
9	Tochigi	8	5.97	0.62	159	2	1	2	1	4
10	Gunma	8	4.45	0.65	194	8	1	0	1	4
11	Saitama	20	5.71	0.87	463	19	9	2	2	4
12	Chiba	20	4.73	0.65	216	9	2	0	2	2
13	Tokyo	100	7.94	1.29	1988	195	170	39	38	62
14	Kanagawa	32	8.50	1.57	533	39	16	6	10	14
15	Niigata	9	4.75	0.43	269	7	2	0	0	2
16	Toyama	5	3.39	0.41	230	8	4	0	0	0
17	Ishikawa	5	2.65	0.69	144	5	2	1	1	1
18	Fukui	3	4.12	0.91	107	4	1	0	0	1
19	Yamanashi	3	9.02	1.10	67	2	0	1	1	0
20	Nagano	8	6.95	0.74	301	7	8	0	2	3
21	Gifu	8	3.02	0.54	289	3	2	1	1	1
22	Shizuoka	17	6.40	0.94	376	16	7	3	1	2
23	Aichi	36	4.73	0.68	953	37	22	3	4	5
24	Mie	7	2.85	0.67	151	2	1	0	1	1
25	Shiga	6	5.99	0.60	148	1	1	1	3	4
26	Kyoto	10	10.44	1.35	218	13	15	5	0	0
27	Osaka	41	6.30	1.14	1242	80	53	17	3	6
28	Hyogo	20	5.68	0.83	484	32	16	2	1	7
29	Nara	4	4.16	0.39	70	1	1	0	1	0
30	Wakayama	4	5.26	0.68	65	1	0	0	0	0
31	Tottori	2	3.87	0.26	59	0	2	0	0	0
32	Shimane	2	0.93	0.16	60	0	0	0	0	0
33	Okayama	8	3.92	0.33	184	3	1	0	0	1
34	Hiroshima	11	4.12	0.67	264	12	3	2	0	0
35	Yamaguchi	6	6.07	0.70	114	3	2	0	1	0
36	Tokushima	3	4.83	0.77	52	1	0	0	0	0
37	Kagawa	4	3.51	0.38	117	3	1	0	0	0
38	Ehime	5	4.31	0.22	117	0	1	1	0	1
39	Kochi	2	2.33	0.35	37	1	0	0	0	0
40	Fukuoka	18	3.50	0.44	305	8	2	1	3	0
41	Saga	3	2.09	0.53	78	1	1	0	0	0
42	Nagasaki	4	3.03	0.40	57	0	0	0	0	0
43	Kumamoto	5	1.01	0.42	107	2	0	0	0	0
44	Oita	5	0.44	0.13	71	1	0	0	1	0
45	Miyazaki	4	1.70	0.26	60	0	0	0	1	0
46	Kagoshima	5	0.22	0.20	77	0	0	0	1	1
47	Okinawa	3	3.02	0.01	43	0	2	0	0	0

Table 4: Correlations

This table shows descriptive statistics for the main variables used in the analysis. The sample includes all Japanese manufacturing firms from 1995 to 2013.

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Exporter	(1)	1.000									
Export Share	(2)	0.521	1.000								
FDI	(3)	0.294	0.250	1.000							
R&D Intensity	(4)	0.334	0.262	0.193	1.000						
ln(Patents)	(5)	0.401	0.311	0.286	0.406	1.000					
ln(Products)	(6)	0.205	0.137	0.190	0.187	0.341	1.000				
CapEx	(7)	-0.010	-0.003	-0.007	0.050	-0.001	0.021	1.000			
TFP	(8)	-0.088	-0.099	0.003	0.026	0.001	0.085	0.067	1.000		
ROA	(9)	0.032	0.026	0.006	0.048	0.012	-0.040	0.050	0.071	1.000	
Sales Growth	(10)	0.024	0.034	0.011	0.016	0.000	0.000	0.092	0.058	0.267	1.000
Foreign Ownership	(11)	0.157	0.173	0.077	0.136	0.139	0.114	0.008	0.073	0.084	0.024
Stock Option Usage	(12)	0.119	0.129	0.105	0.136	0.172	0.091	0.008	0.006	0.016	0.011
ln(Employees)	(13)	0.303	0.217	0.302	0.321	0.499	0.429	0.132	0.177	0.018	0.009
Wage	(14)	0.223	0.141	0.148	0.248	0.306	0.209	0.055	0.054	0.065	-0.049
ln(Firm Age)	(15)	0.096	0.023	0.071	0.015	0.154	0.148	-0.085	-0.042	-0.083	-0.057
Listed Dummy	(16)	0.302	0.226	0.261	0.279	0.430	0.310	0.014	0.058	-0.014	0.005
ln(Prefecture GDP)	(17)	0.193	0.095	0.116	0.154	0.190	0.082	-0.063	0.038	-0.002	-0.006
Non-Cognitive Score	(18)	-0.067	-0.027	-0.044	-0.051	-0.077	-0.060	0.042	-0.033	0.001	0.006
Language Score	(19)	0.174	0.086	0.104	0.137	0.182	0.070	-0.045	0.003	0.008	-0.002
Science Score	(20)	0.059	0.045	0.043	0.063	0.079	0.042	-0.019	0.037	-0.006	-0.007

		(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
Foreign Ownership	(11)	1.000									
Stock Option Usage	(12)	0.138	1.000								
ln(Employees)	(13)	0.160	0.176	1.000							
Wage	(14)	0.163	0.070	0.260	1.000						
ln(Firm Age)	(15)	-0.051	0.020	0.106	0.059	1.000					
Listed Dummy	(16)	0.117	0.252	0.506	0.253	0.176	1.000				
ln(Prefecture GDP)	(17)	0.113	0.076	0.168	0.272	0.121	0.194	1.000			
Non-Cognitive Score	(18)	-0.037	-0.024	-0.060	-0.075	-0.053	-0.076	-0.358	1.000		
Language Score	(19)	0.081	0.066	0.146	0.218	0.103	0.159	0.725	0.000	1.000	
Science Score	(20)	0.093	0.038	0.079	0.111	-0.002	0.086	0.347	0.000	0.000	1.000

Table 5: Dependent Variables in Firms Without and With Foreign Ownership

This table reports means of the dependent variables in Japanese manufacturing firms without Foreign Ownership and those with any Foreign Ownership > 0%. In order to examine the cross-sectional differences, the sample is restricted to 2013. The right-most column reports a *t*-test for the difference in means in each dependent variable between the two types of firms. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

		Non-foreign ownership		Foreign ownership		
		N. of obs.	Mean	N. of obs.	Mean	*t*- value
Exporter	Entire	11618	0.303	1201	0.748	-32.09 ***
	Listed	446	0.628	841	0.778	-5.80 ***
	Unlisted	10930	0.292	352	0.682	-15.80 ***
Export Share	Entire	11618	4.216	1201	18.102	-33.27 ***
	Listed	446	11.121	841	18.220	-5.60 ***
	Unlisted	10930	3.964	352	17.981	-20.65 ***
FDI	Entire	11618	0.058	1201	0.231	-22.05 ***
	Listed	446	0.157	841	0.276	-4.83 ***
	Unlisted	10930	0.055	352	0.125	-5.60 ***
R&D Intensity	Entire	11618	0.596	1201	2.149	-34.13 ***
	Listed	446	1.581	841	2.395	-6.32 ***
	Unlisted	10930	0.561	352	1.607	-13.93 ***
ln(Patents)	Entire	11618	0.908	1201	3.482	-50.24 ***
	Listed	446	2.677	841	4.161	-9.97 ***
	Unlisted	10930	0.845	352	1.935	-13.45 ***
ln(Products)	Entire	2223	0.943	356	1.427	-11.80 ***
	Listed	135	1.224	321	1.467	-2.88 ***
	Unlisted	2088	0.925	35	1.055	-1.11
CapEx	Entire	11617	3.205	1201	3.053	1.09
	Listed	446	2.954	841	3.091	-0.69
	Unlisted	10930	3.198	352	2.937	1.03
TFP	Entire	11618	7.028	1201	8.529	-6.84 ***
	Listed	446	7.818	841	8.386	-1.12
	Unlisted	10930	6.979	352	8.848	-4.91 ***
ROA	Entire	11618	2.435	1201	3.482	-7.83 ***
	Listed	446	2.815	841	3.052	-1.01
	Unlisted	10930	2.402	352	4.525	-8.90 ***
Sales Growth	Entire	11394	2.692	1193	4.798	-4.39 ***
	Listed	446	4.417	841	4.569	-0.19
	Unlisted	10930	2.622	352	5.347	-3.16 ***

Table 6: Export and Innovation Decisions: The Role of Foreign Ownership

This table presents panel regressions of dependent variables capturing innovation activities (R&D Intensity and ln(Patents)) and export decisions (Exporter, Export Share, FDI) on lagged Foreign Ownership and control variables. The sample includes all Japanese manufacturing firms from 1995 to 2013. Because the explanatory variables are lagged, the first observation year for the dependent variables is 1996. *t*-statistics, obtained from robust standard errors clustered at the firm level, are in parentheses below coefficient estimates. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

Dependent variable:	Exporter	Export Share	FDI	R&D Intensity	ln(Patents)
	[1]	[2]	[3]	[4]	[5]
Foreign Ownership	0.002***	0.128***	-0.000	0.004***	0.002*
	(9.87)	(11.25)	(-0.69)	(3.55)	(1.83)
ln(Employees)	0.075***	1.277***	0.040***	0.311***	0.628***
	(24.50)	(11.31)	(26.87)	(20.61)	(41.86)
Wage	0.017***	0.304***	0.005***	0.121***	0.127***
	(12.19)	(7.31)	(6.51)	(20.23)	(23.63)
ln(Firm Age)	0.035***	-0.157	0.008***	-0.063***	0.142***
	(8.66)	(-1.22)	(3.85)	(-3.77)	(10.08)
Listed Firm	0.172***	5.177***	0.043***	0.648***	1.175***
	(15.86)	(13.18)	(8.23)	(14.11)	(25.85)
ROA	0.000	-0.003	-0.000	0.008***	-0.006***
	(1.05)	(-0.23)	(-0.44)	(5.27)	(-4.63)
ln(Prefecture GDP)	0.040***	0.317***	0.011***	0.066***	0.098***
	(16.48)	(4.38)	(8.35)	(7.63)	(12.13)
Constant		-11.210***		-2.926***	-5.250***
		(-8.50)		(-18.22)	(-33.71)
Industry FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Observations	220,796	220,796	220,796	220,771	220,796
R-squared	0.221	0.154	0.184	0.255	0.420

Table 7: Production and Operational Performance: The Role of Foreign Ownership

This table presents panel regressions of dependent variables capturing production features (ln(Products), CapEx, and TFP) and operational performance (ROA, Sales Growth) on lagged Foreign Ownership and control variables. The sample includes all Japanese manufacturing firms from 1995 to 2013. Because the explanatory variables are lagged, the first observation year for the dependent variables is 1996. *t*-statistics, obtained from robust standard errors clustered at the firm level, are in parentheses below coefficient estimates. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

Dependent variable:	ln(Products)	CapEx	TFP	ROA	Sales Growth
	[6]	[7]	[8]	[9]	[10]
Foreign Ownership	-0.003***	-0.010***	0.012***	0.015***	0.037***
	(-2.97)	(-4.58)	(3.95)	(8.73)	(7.67)
ln(Employees)	0.255***	0.760***	0.885***	0.036***	0.411***
	(24.09)	(27.27)	(20.54)	(2.80)	(9.19)
Wage	0.011**	0.106***	0.599***	0.078***	-0.829***
	(2.21)	(8.52)	(29.53)	(11.26)	(-27.42)
ln(Firm Age)	0.135***	-0.586***	-1.069***	-0.350***	-1.905***
	(7.26)	(-14.70)	(-21.06)	(-16.29)	(-23.05)
Listed Firm	0.112***	-0.643***	-0.438***	-0.254***	0.594***
	(4.07)	(-8.43)	(-3.80)	(-6.06)	(4.31)
ROA	-0.011***	0.106***	0.048***	0.442***	-0.217***
	(-8.06)	(28.01)	(12.41)	(106.32)	(-18.24)
ln(Prefecture GDP)	-0.019**	-0.392***	0.145***	-0.042***	-0.010
	(-2.32)	(-20.18)	(5.38)	(-4.44)	(-0.26)
Constant	-0.807***	5.456***	5.389***	2.936***	11.845***
	(-4.74)	(15.42)	(10.36)	(16.28)	(17.16)
Industry FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Observations	67,027	220,719	220,771	220,041	220,796
R-squared	0.229	0.078	0.652	0.224	0.094

Table 8: The Role of Foreign Ownership in Listed and Unlisted Firms: Full Sample

This table presents summary results of panel regressions like in Tables 6 and 7 of all 10 dependent variables (regressions 1-5: export and innovation activities; regressions 6-10: production features and operational performance) on lagged Foreign Ownership and the same control variables as in the prior tables. The sample includes Japanese manufacturing firms from 1995 to 2013. Because the explanatory variables are lagged, the first observation year for the dependent variables is 1996. Panel A shows results for listed firms, Panel B shows results for unlisted firms. *t*-statistics, obtained from robust standard errors clustered at the firm level, are in parentheses below coefficient estimates. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

Panel A: Listed firms

Dependent variable:	Exporter	Export Share	FDI	R&D Intensity	ln(Patents)
	[1]	[2]	[3]	[4]	[5]
Foreign Ownership	0.002**	0.214***	0.000	0.002	0.005
	(2.19)	(5.54)	(0.63)	(0.54)	(1.32)
Observations	24,694	24,694	24,694	24,687	24,694
R-squared	0.205	0.265	0.106	0.320	0.502
Dependent variable:	ln(Products)	CapEx	TFP	ROA	Sales Growth
	[6]	[7]	[8]	[9]	[10]
Foreign Ownership	-0.005***	-0.012***	0.008	0.020***	0.028**
	(-2.90)	(-2.71)	(0.98)	(4.67)	(2.16)
Observations	13,716	24,679	24,687	24,654	24,694
R-squared	0.354	0.094	0.803	0.279	0.146

Panel B: Unlisted firms

Dependent variable:	Exporter	Export Share	FDI	R&D Intensity	ln(Patents)
	[1]	[2]	[3]	[4]	[5]
Foreign Ownership	0.002***	0.108***	-0.000	0.003***	-0.001
	(9.60)	(9.14)	(-0.78)	(2.76)	(-1.49)
Observations	196,102	196,102	196,102	196,084	196,102
R-squared	0.166	0.090	0.112	0.176	0.219
Dependent variable:	ln(Products)	CapEx	TFP	ROA	Sales Growth
	[6]	[7]	[8]	[9]	[10]
Foreign Ownership	-0.005***	-0.007***	0.015***	0.014***	0.040***
	(-4.96)	(-3.12)	(4.36)	(7.84)	(7.69)
Observations	53,311	196,040	196,084	195,387	196,102
R-squared	0.101	0.080	0.638	0.218	0.090
All Panels:					
Controls	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

Table 9: The Role of Foreign Ownership in Firms in Urban and Periphery Regions

This table presents summary results of panel regressions like in Tables 6 and 7 of all 10 dependent variables (regressions 1-5: export and innovation activities; regressions 6-10: production features and operational performance) on lagged Foreign Ownership and the same control variables as in the prior tables. The sample includes Japanese manufacturing firms from 1995 to 2013 that located in Tokyo, Kanagawa, Chiba, Saitama, Osaka, Hyogo, Kyoto, and Aichi in Panel A and other prefectures in Panel B. Because the explanatory variables are lagged, the first observation year for the dependent variables is 1996. *t*-statistics, obtained from robust standard errors clustered at the firm level, are in parentheses below coefficient estimates. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

Panel A: Urban Prefectures

Dependent variable:	Exporter	Export Share	FDI	R&D Intensity	ln(Patents)
	[1]	[2]	[3]	[4]	[5]
Foreign Ownership	0.002***	0.109***	-0.000	0.002	-0.001
	(7.09)	(9.13)	(-1.13)	(1.62)	(-0.69)
Observations	123,320	123,320	123,320	123,307	123,320
R-squared	0.202	0.171	0.173	0.281	0.457
Dependent variable:	ln(Products)	CapEx	TFP	ROA	Sales Growth
	[6]	[7]	[8]	[9]	[10]
Foreign Ownership	-0.004***	-0.006**	0.016***	0.017***	0.041***
	(-3.57)	(-2.51)	(4.21)	(8.87)	(7.95)
Observations	42,234	123,278	123,307	122,900	123,320
R-squared	0.290	0.073	0.683	0.236	0.101

Panel B: Periphery Prefectures

Dependent variable:	Exporter	Export Share	FDI	R&D Intensity	ln(Patents)
	[1]	[2]	[3]	[4]	[5]
Foreign Ownership	0.003***	0.180***	0.000	0.006***	0.006***
	(9.44)	(6.03)	(0.68)	(3.23)	(3.39)
Observations	97,476	97,476	97,261	97,464	97,476
R-squared	YES	0.124	YES	0.163	0.278
Dependent variable:	ln(Products)	CapEx	TFP	ROA	Sales Growth
	[6]	[7]	[8]	[9]	[10]
Foreign Ownership	-0.002	-0.011***	-0.001	0.008**	0.020*
	(-0.96)	(-3.40)	(-0.16)	(2.22)	(1.69)
Observations	24,793	97,441	97,464	97,141	97,476
R-squared	0.123	0.086	0.620	0.212	0.087
All Panels:					
Controls	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

Table 10: The Role of Foreign Ownership in Firms with up to 50% of Foreign Owners

This table presents summary results of panel regressions like in Tables 6 and 7 of all 10 dependent variables (regressions 1-5: export and innovation activities; regressions 6-10: production features and operational performance) on lagged Foreign Ownership and the same control variables as in the prior tables. The sample includes Japanese manufacturing firms from 1995 to 2013 that have more than 0%, and less than or equal to 50% Foreign Ownership. Because the explanatory variables are lagged, the first observation year for the dependent variables is 1996. Panel A shows results for the entire sample, Panel B for listed firms, Panel C for unlisted firms. The sample is limited to firms with more than 0% and equal or less than 50% of foreign ownership. *t*-statistics, obtained from robust standard errors clustered at the firm level, are in parentheses below coefficient estimates. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

Panel A: Entire Sample

Dependent variable:	Exporter	Export Share	FDI	R&D Intensity	ln(Patents)
	[1]	[2]	[3]	[4]	[5]
Foreign Ownership	0.001	0.196***	-0.000	0.003	0.006*
	(1.33)	(5.10)	(-0.54)	(0.79)	(1.68)
Observations	16,440	16,440	16,425	16,434	16,440
R-squared	0.172	0.249	0.106	0.285	0.510
Dependent variable:	ln(Products)	CapEx	TFP	ROA	Sales Growth
	[6]	[7]	[8]	[9]	[10]
Foreign Ownership	-0.008***	-0.001	0.026***	0.033***	0.048***
	(-3.56)	(-0.16)	(3.38)	(9.06)	(3.89)
Observations	8,414	16,427	16,434	16,406	16,440
R-squared	0.405	0.089	0.793	0.323	0.162

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Panel B: Listed Firms

Dependent variable:	Exporter	Export Share	FDI	R&D Intensity	ln(Patents)
	[1]	[2]	[3]	[4]	[5]
Foreign Ownership	0.001	0.326***	0.001	0.010*	0.010*
	(1.10)	(6.79)	(1.25)	(1.91)	(1.94)
Observations	13,844	13,844	13,836	13,839	13,844
R-squared	0.192	0.289	0.0929	0.322	0.485
Dependent variable:	ln(Products)	CapEx	TFP	ROA	Sales Growth
	[6]	[7]	[8]	[9]	[10]
Foreign Ownership	-0.008***	-0.013**	0.008	0.040***	0.062***
	(-2.70)	(-2.08)	(0.71)	(8.24)	(4.06)
Observations	7,892	13,833	13,839	13,816	13,844
R-squared	0.393	0.094	0.814	0.307	0.168

Panel C: Unlisted Firms

Dependent variable:	Exporter	Export Share	FDI	R&D Intensity	ln(Patents)
	[1]	[2]	[3]	[4]	[5]
Foreign Ownership	0.000	0.036	-0.002***	-0.005	-0.004
	(0.20)	(0.57)	(-2.91)	(-1.05)	(-1.05)
Observations	2,574	2,596	2,487	2,595	2,596
R-squared	0.0965	0.130	0.148	0.143	0.449
Dependent variable:	ln(Products)	CapEx	TFP	ROA	Sales Growth
	[6]	[7]	[8]	[9]	[10]
Foreign Ownership	-0.010***	0.027***	0.035***	0.026***	0.073***
	(-3.30)	(3.02)	(3.22)	(4.21)	(2.93)
Observations	522	2,594	2,595	2,590	2,596
R-squared	0.414	0.117	0.718	0.345	0.164
All Panels:					
Controls	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

Table 11: The Role of Incentives: Stock Option Usage

This table investigates the role of stock options. Panel A presents marginal effects from Probit regressions of Stock Option Usage (which is 1 when a firm is using stock options in a given year and 0 otherwise) on (lagged) Foreign Ownership and control variables. The sample includes all Japanese manufacturing firms from 1996 to 2013. Marginal effects are reported. Panel B presents summary results of panel regressions like in Tables 6 and 7 of all 10 dependent variables (regressions 1-5: export and innovation activities; regressions 6-10: production features and operational performance) on lagged Foreign Ownership, Stock Option Usage, and the same control variables as in the prior tables. The sample includes Japanese manufacturing firms from 1995 to 2013. Because the explanatory variables are lagged, the first observation year for the dependent variables is 1996. *z*-statistics and t-statistics, respectively, obtained from robust standard errors clustered at the firm level, are in parentheses below estimates. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

Panel A: Determination of Stock Option Usage

Dependent variable:	Stock Option Usage
	[1]
Foreign Ownership	0.001***
	(14.78)
ln(Employees)	0.007***
	(7.03)
Wage	-0.003***
	(-4.95)
ln(Firm Age)	-0.007***
	(-5.50)
Listed Firm	0.122***
	(16.74)
ROA	0.000***
	(3.22)
ln(Prefecture GDP)	0.003***
	(3.49)
Industry FE	YES
Year FE	YES
Observations	209,205
R-squared	0.155

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Panel B: The Role of Stock Options

Dependent variable:	Exporter	Export Share	FDI	R&D Intensity	ln(Patents)
	[1]	[2]	[3]	[4]	[5]
Foreign Ownership	0.002***	0.126***	-0.000	0.003***	0.001
	(9.31)	(10.79)	(-0.92)	(2.76)	(0.86)
Stock Option Usage	0.045***	2.689***	0.014***	0.331***	0.222***
	(4.07)	(5.61)	(2.63)	(6.39)	(4.73)
Observations	195,067	195,067	195,067	195,054	195,067
R-squared	0.218	0.160	0.177	0.257	0.434
Dependent variable:	ln(Products)	CapEx	TFP	ROA	Sales Growth
	[6]	[7]	[8]	[9]	[10]
Foreign Ownership	-0.003***	-0.010***	0.013***	0.014***	0.036***
	(-2.86)	(-4.42)	(3.99)	(8.37)	[10]
Stock Option Usage	-0.030	-0.011	-0.347***	0.066	0.205
	(-0.92)	(-0.13)	(-2.79)	(1.16)	(0.95)
Observations	57,035	195,002	195,054	194,327	195,067
R-squared	0.224	0.074	0.651	0.225	0.100
Controls	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

Table 12: The Role of Changes in Foreign Ownership: Fixed Effects

This table presents summary results of panel regressions like in Tables 6 and 7 of all 10 dependent variables (regressions 1-5: export and innovation activities; regressions 6-10: production features and operational performance) on lagged Foreign Ownership, and the same control variables as in the prior tables. In addition, firm fixed effects are included. The sample includes all Japanese manufacturing firms from 1995 to 2013. Because the explanatory variables are lagged, the first observation year for the dependent variables is 1996. *t*-statistics, obtained from robust standard errors clustered at the firm level, are in parentheses below coefficient estimates. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

Dependent variable:	Exporter	Export Share	FDI	R&D Intensity	ln(Patents)
	[1]	[2]	[3]	[4]	[5]
Foreign Ownership	-0.001***	0.023***	-0.000	-0.001	0.003***
	(-3.59)	(3.09)	(-1.29)	(-0.81)	(4.42)
Observations	220,799	220,799	220,799	220,774	220,799
R-squared	0.011	0.020	0.003	0.005	0.117
Dependent variable:	ln(Products)	CapEx	TFP	ROA	Sales Growth
	[6]	[7]	[8]	[9]	[10]
Foreign Ownership	-0.002***	-0.001	0.005**	0.009***	0.013
	(-3.80)	(-0.46)	(2.18)	(3.14)	(1.27)
Observations	67,027	220,722	220,774	220,044	213,598
R-squared	0.027	0.022	0.025	0.070	0.026
Controls	YES	YES	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

Table 13: Instrumental Variables

This table presents summary results of 2SLS regressions with Foreign Ownership as the endogenous variable. The first column in the top panel shows the first-stage regression. Average Foreign Ownership in the same industry, prefecture, and year is used as the instrumental variable. The remainder of the table is organized like Tables 6 and 7, showing second-stage results of all 10 dependent variables (regressions 1-5: export and innovation activities; regressions 6-10: production features and operational performance). The same control variables as in the prior tables are included. The sample includes all Japanese manufacturing firms from 1995 to 2013. Because the explanatory variables are lagged, the first observation year for the dependent variables is 1996. *t*-statistics, obtained from robust standard errors clustered at the firm level, are in parentheses below coefficient estimates. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

Dependent variable:	Foreign Ownership	Exporter	Export Share	FDI	R&D Intensity	ln(Patents)
	[First Stage]	[1]	[2]	[3]	[4]	[5]
Foreign Ownership		0.015***	0.635***	0.003	0.058***	0.043***
		(3.99)	(5.16)	(1.50)	(3.83)	(3.35)
ln(Employees)	1.172***	0.065***	0.719***	0.057***	0.257***	0.600***
	(10.08)	(11.20)	(3.77)	(16.17)	(10.31)	(27.30)
Wage	0.692***	0.009***	-0.035	0.004***	0.091***	0.106***
	(12.18)	(2.99)	(-0.35)	(2.58)	(7.44)	(9.86)
ln(Firm Age)	-1.592***	0.053***	0.635**	0.013***	0.023	0.207***
	(-9.82)	(7.01)	(2.56)	(3.27)	(0.72)	(7.89)
Listed Firm	1.071***	0.193***	4.666***	0.090***	0.576***	1.132***
	(3.72)	(15.10)	(10.20)	(10.42)	(10.81)	(21.84)
ROA	0.152***	-0.002**	-0.087***	-0.001*	0.000	-0.013***
	(7.45)	(-2.50)	(-3.54)	(-1.65)	(0.07)	(-5.07)
ln(Prefecture GDP)	0.306***	0.033***	0.037	0.008***	0.045***	0.083***
	(4.64)	(9.11)	(0.34)	(4.07)	(3.63)	(7.10)
IV(Average Peer Foreign Ownership)	0.314***					
	(9.44)					
Constants	-8.128***	-1.028***	-5.602***	-0.456***	-2.571***	-5.010***
	(-6.01)	(-14.89)	(-2.59)	(-12.03)	(-10.20)	(-21.44)
Number of Observations	187,851	187,851	187,851	187,851	187,828	187,851
R-Squared	0.077	0.179	-0.022	0.113	0.154	0.376
Industry FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
F-stat of exclued instrument		89.15	89.15	89.15	88.95	89.15

Dependent variable:	ln(Products)	CapEx	TFP	ROA	Sales Growth
	[6]	[7]	[8]	[9]	[10]
Foreign Ownership	-0.021	-0.049*	0.136***	0.039***	0.224***
	(-1.06)	(-1.81)	(3.42)	(2.63)	(3.50)
Number of Observations	59,289	187,789	187,828	187,275	182,036
R-Squared	0.213	0.074	0.624	0.240	0.076
Controls	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
F-stat of exclued instrument	20.29	88.95	88.95	88.68	89.99

Table 14: The Role of Historical Education Patterns

This table presents summary results of panel regressions like in Tables 6 and 7 of all 10 dependent variables (regressions 1-5: export and innovation activities; regressions 6-10: production features and operational performance) on historical education scores (see the text for details, all educational score measures are orthogonalized) and lagged Foreign Ownership and the same control variables as in the prior tables. The sample includes all Japanese manufacturing firms from 1995 to 2013. Because the explanatory variables are lagged, the first observation year for the dependent variables is 1996. *t*-statistics, obtained from robust standard errors clustered at the firm level, are in parentheses below coefficient estimates. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

Dependent variable:	Exporter	Export Share	FDI	R&D Intensity	ln(Patents)
	[1]	[2]	[3]	[4]	[5]
Foreign Ownership	0.002***	0.128***	-0.000	0.004***	0.002*
	(9.96)	(11.21)	(-0.62)	(3.61)	(1.81)
Non-Cognitive Score	-0.018***	-0.172**	-0.005***	-0.010	-0.044***
	(-5.22)	(-2.06)	(-3.12)	(-0.95)	(-4.58)
Language Score	0.029***	0.154	0.010***	0.038**	0.057***
	(5.76)	(1.30)	(4.03)	(2.44)	(3.93)
Science Score	0.000	0.101	-0.001	-0.007	0.017
	(0.14)	(1.15)	(-0.45)	(-0.59)	(1.59)
Observations	220,796	220,796	220,796	220,771	220,796
R-squared	0.222	0.154	0.185	0.255	0.420

Dependent variable:	ln(Products)	CapEx	TFP	ROA	Sales Growth
	[6]	[7]	[8]	[9]	[11]
Foreign Ownership	-0.003***	-0.010***	0.012***	0.015***	0.037***
	(-3.01)	(-4.57)	(3.91)	(8.81)	(7.74)
Non-Cognitive Score	-0.031***	0.125***	0.065*	-0.017	-0.062
	(-2.90)	(4.65)	(1.79)	(-1.33)	(-1.30)
Language Score	0.014	-0.115***	-0.021	0.034*	0.170**
	(0.89)	(-3.00)	(-0.39)	(1.88)	(2.53)
Science Score	0.004	-0.021	0.018	-0.036***	-0.092**
	(0.42)	(-0.83)	(0.50)	(-2.96)	(-2.02)
Observations	67,027	220,719	220,771	220,041	220,796
R-squared	0.230	0.079	0.652	0.225	0.094
All Panels:					
Controls	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES