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An overseas business paradox: Are Japanese general contractors risk takers?

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An overseas business paradox: Are Japanese general contractors risk takers?

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Abstract

Japanese industries have struggled with stagnation after the collapse of bubble economy in the early 1990s, leading to overseas business expansion. This study examines Japanese general contractors' overseas operations over the post-bubble period. The result shows that general contractors facing financial distress expand overseas business more aggressively, or are forced to do so, when the domestic construction market shrinks. This result is in contrast to conventional wisdom that stronger entities expand their territories of operations, and thus "overseas business paradox." However, it can also be considered a new scenario of industries' evolution when economy matures in a country.

Key Words: Overseas business expansion; financial status in a credit market; location choice; general contractors; construction industry; Japanese economy

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1 Introduction

Decisions of overseas construction operations are often difficult due to the uncertainties, complexities, and risks associated with differences of business cultures, although construction firms have responded to new global competition by looking for new business opportunities in international markets, beyond traditional domestic markets (see, e.g., Han and Diekmann, 2001). Technological superiority and financial capacity have contributed to the success of Japanese general contractors in international markets, particularly the Asian region (see Raftery et al., 1998, Ofori, 2000). Strategic alliances with Japanese manufacturers through massive foreign direct investment, as well as Japan's construction aid, accounting for a large portion of bilateral foreign aid, have also facilitated market penetration of Japanese general contractors.[1] Moreover, it is acknowledged that recent trend of demand shrinkage for

[1]The Japanese government has played some important roles in promoting Japanese general contractors in international markets by fostering technological and financial capacity (Raftery et al., 1998).

construction in the domestic market after the collapse of the bubble period of the late 1980s has encouraged Japanese general contractors to engage in overseas business, even though they still keep the share of overseas sales at the low level due to their conservative business behavior against project risks.

One crucial issue is that for Japanese general contractors, the cost of financing needed to implement overseas projects is one of the most important factors determining their overseas business expansion. Since the financing cost of a general contractor generally reflects the evaluation on its current and expected future performances, including profitability and default risk, in credit markets, general contractors with high financial status have the advantageous position in terms of the project cost, so that they could be expected to engage in overseas business in a more aggressive manner. Thus, this study addresses the empirical validity of this conventional argument by examining how financial status in credit markets affects the location choice of overseas business expansion for Japanese general contractors over the post-bubble economy period from 1998 to 2010.

There have been many studies on overseas or international business activities in the fields of international business, economics, regional science, and decision theory. Traditional argument in the international management literature is that the motivation for foreign direct investment (FDI) by multinational enterprises is driven by the possible exploitation of firm-specific advantages in various forms, such as ownership, location, and internalization (see Dunning, 1988, 1993). More relevantly to this paper, a large number of works have examined locational determinants of FDI for multinational enterprises with an eye on various aspects, such as labor cost and quality, transportation and communication infrastructure, government policy, and industrial agglomeration, at the regional or national level.[2] Among them, some works, such as Woodward (1992), Kotabe (1993), Smith Jr. and Florida (1994), Head et al. (1995), Belderbos and Carree (2002), Fung et al. (2002), Zhou et al. (2002) and Cheng (2006)

[2]See, e.g., Lunn (1980), Bartik (1985), Coughlin et al. (1991), Grubert and Mutti (1991), Friedman et al. (1992), Hill and Munday (1992), Loree and Guisinger (1995), Cheng and Kwan (2000), Coughlin and Segev (2000), Nachum (2000), Shaver and Flyer (2000), Zhao and Zhu (2000) and Sun et al. (2002).

study location choices of FDI or overseas operations for Japanese investors.

Most of these empirical studies on overseas business expansion address manufacturers of a country during its high economic-growth period, and do not consider the relationship between firms' financial status (the cost of financing) and overseas operation. It should also be noticed that the construction industry differs from others, since general contractors are not entities that directly engage in FDI, and they usually receive orders of overseas projects from firms (typically manufacturers) which make a decision of direct investment. Thus, general contractors have played a significant role in constructing hard infrastructure for manufactures and in promoting economic growth in developing and developed countries.

Despite its importance, to the best of our knowledge, no empirical works exist on locational determinants of overseas business for general contractors.[3] Furthermore, few studies consider firms' financial status as well as the case of a country whose economy reaches maturity or even shrinks. Given this paucity, we examine overseas business activities of Japanese general contractors by incorporating their financial status into the analysis, and seek to provide important implications about organizational behavior and development policy. In particular, the novelty of our research lies in deriving a possible future scenario of industries in international business especially for a country whose economy reaches maturity. We consider Japan as a representative case of "matured" countries, and the implication of our research is more valuable as many other countries are expected to follow the same type of paths in the near future Japan has been experiencing with respect to population and economic growth.

For our analysis, we use some measurements capturing overseas business expansion and financial status in credit markets for general contractors. Sullivan (1994) suggests that

[3]There are some studies on the internationalization of the construction industry of a high-economic growth period in some major countries, such as Strassmann (1989), Raftery et al. (1998), Ofori (2000) and Han and Diekmann (2001). In addition, several studies have theoretically discussed an analytical framework of international entry decisions for construction firms in the field of decision theory (see, e.g., Hastak and Shaked, 2000, Chua et al., 2001, Han and Diekmann, 2001, Dikmen and Birgonul, 2004, Ozorhon et al., 2006, Cheng et al., 2011). However, they do not empirically characterize the regional or spatial aspects of international business operations.

among various indicators, foreign sales or revenues may be one of the popular indicators measuring the degree of internationalization of an enterprise. By using the comprehensive data set published by the Overseas Construction Association of Japan (OCAJI), this study constructs three measures of overseas business operations for each general contractor in each country: (1) a binary variable indicating whether a Japanese general contractor receives at least one order of the project in a country, (2) a count variable taking the number of orders of the projects received by a Japanese general contractor in a country, and (3) the real value of the orders of the overseas project received by a Japanese general contractor in a country.

Concerning financial status in a credit market, our analysis adopts the market-based evaluation, which is measured by the gap between the actual interest payment and the hypothetical one. The hypothetical interest payment is calculated by the interest payment that applies for a general contractor, assuming that it is the highest credible in a credit market so that short- and long-term prime rates would be applied. This market-based financial status may reflect an evaluation of the credit worthiness of a debtor, including profitability and risk in current and future periods.

With the aforementioned data, we apply three regression models by taking the degree of internationalization as a dependent variable, financial status and other necessary variables as independent variables. These three regressions are (i) logit, (ii) poisson and (ii) negative binomial. Each of the three regression analyses is carried out depending on which measurement we use as a dependent variable for the degree of internationalization among the three. By doing so, we double-check the robustness of our qualitative results, while we keep the same set of independent variables for all three regressions.

Our empirical analysis finds that general contractors facing significant financial distress are likely to expand their overseas business in a more aggressive manner. Irrespective of the measurements we use for the degree of internationalization as a dependent variable, we confirm that the same qualitative conclusion holds for all of the three regressions. At first, this appears to be in sharp contrast to the conventional wisdom that advantageous firms with

good financial status expand their overseas business. However, our paradoxical result can be meaningfully interpreted, when considering how Japanese business environment evolves over time. We call this result "overseas business paradox" suggesting some possible future scenario of industries' evolution in a matured country.

After the collapse of the bubble economy in the early 1990s, the Japanese domestic construction market has shrunk due to the long-run economic distress with the reduction of public spending. Accordingly, many construction firms come to be recognized as "zombies" in the sense of Caballero et al. (2008), which need constant bailouts for their operation. In this type of situations, our results suggest that general contractors without sound financial status are forced to receive orders of risky projects abroad for their survival, and otherwise would be forced to exit from the market. The lesson from our paradoxical result could apply not only for the construction industry in Japan but also for some other industries in developed and emerging countries whose economy is expected to mature. As domestic markets become mature or shrunk, which is often observed in developed countries and may be experiential in developing countries in the near future, firms struggling with the high financing cost in a credit market may be forced to take higher risks and to expand their overseas business more aggressively.

2 The construction industry in Japan

2.1 Construction business

Construction business in Japan stands for the business industry, which consists of firms, called a contractor, making contracts on various building, architectural, and civil works provided under the Construction Business Act. The Act classifies the construction business into 28 types, and contractors are required to obtain license from either the Minister of Land, Infrastructure, Transport and Tourism or Prefectural Governors, depending on their business

type.[4] Contractors are composed of main contractors, which contract a mega project (e.g., construction of large-scale airport, road network, dam, and skyscrapers), and subcontractors and sub-subcontractors, which contract parts of projects (e.g., carpentry, plumbing, and painting) with main contractors.

The number of contractors (construction firms) has been in a downward trend due mainly to economic distress and cuts in public spending on construction. According to the Ministry of Land, Infrastructure, Transport and Tourism, the number of contractors has declined by 15% from around 569,000 in 1997 to around 484,000 in 2011 (figure 1).[5] Table 1 illustrates the distribution of construction firms by the business scale as of 2011. Out of the whole construction industry, 98.8% of the firms are classified as medium- and small-sized enterprises with the capital amount of 100 million yen or less, and only 1.2% of the firms are classified as large-sized enterprises with the capital of 100 million yen or more. This implies that small-sized firms dominate the construction industry.

[Figure 1 about here.]

[Table 1 about here.]

The business formation in the Japanese construction industry can often be characterized as a "layered pyramid structure." A main contractor (general contractor) contracts the project with an employer (owner of the project) and takes the responsibility for the entire construction management to complete the project. It also issues subcontracts with special contractors and material suppliers, depending on the necessity and prompt timing to carry

[4]The Construction Business Act defines 28 kinds of business types, (1) general civil engineering, (2) general building, (3) carpentry, (4) plastering, (5) scaffolding, earthwork, and concrete, (6) masonry, (7) roofing, (8) electrical, (9) plumbing, (10) tile, brick, and block, (11) steel structure, (12) reinforcement steel, (13) paving, (14) dredging, (15) sheet metal, (16) glazing, (17) painting, (18) waterproofing, (19) interior finishing, (20) machine and equipment installation, (21) heat insulation, (22) telecommunication, (23) landscaping and gardening, (24) well drilling, (25) fittings, (26) water and sewerage facility, (27) fire protection facilities, and (28) sanitation facilities.

[5]Among 28 types of business construction, over 30% of licensed firms have licenses of general building, scaffolding, earthwork and concrete, and general civil engineering. On the other hand, only less than 1% of licensed firms are given licenses of well drilling and sanitation facility. Another remark is that the number of construction firms holding only one license out of twenty eight is halved almost equally with the number of those obtaining multiple licenses.

out the project efficiently. If needed, the subcontractors and the material suppliers issue further subcontracts with other construction-related firms.

The formation of such a layered pyramid structure is more significant for large projects. In the case of a megaproject, which is typically defined as a large-scaled investment with the amount of more than one billion US dollars, the number of subcontracts to be issued by the main contractor to subcontractors often exceeds over a few hundred. The responsibilities for contractual performance are basically fulfilled between the parties. Thus, the owner of the project is not in the position to intervene any contractual issues incurred between the main contractor and its subcontractors. This logic remains valid to the lower-level contracts and it is usually used to risk avoidance to each layer.

2.2 General contractors

Since this study attempts to analyze overseas business expansion or embarkation for main or general contractors, this subsection describes their roles in the construction industry, given the fundamental structure of the industry introduced in the previous subsection. In Japan, the business style, known as the layered pyramid structure, has been playing an important role in the construction field for a long time. General contractors in construction business normally engage in contracts of civil or building projects in lump sum with their employers or owners and play a role as a main contractor to be responsible for the completion of the projects. Among them, the five largest general contractors, Kajima, Obayashi, Shimizu, Taisei, and Takenaka, are particularly called a "super general contractor," which form the nucleus of the construction industry in Japan.[6]

The construction industry has expanded with a large number of general contractors due to the large demand for construction during the rapid and stable economic growth period after World War II. Reconstruction in infrastructure and preparation for the 1964 Tokyo Olympic game can be considered as remarkable events during the post-war period

[6]Takenaka is not included in our sample, since it is not listed in the stock exchange market.

for not only the construction industry but the entire Japanese economy. However, after the collapse of the bubble economy with a sharp decline of asset prices in the early 1990s, many contractors, including general contractors, have struggled with the downturn in construction demands from private sectors and with the reduction in public investments associated with structural policy reforms. In fact, many contractors went into bankruptcy or kept alive under the assistance of financial institutes, such as debt waiver, during the late 1990s and the early 2000s.[7] These contractors who could survive by the relief were usually forced to execute radical management reforms, leading them to be more shrunk and conservative. Such problematic firms could be observed particularly in the middle-scaled contractors or smaller.

Since Japanese general contractors generally rely heavily on the domestic construction market, they have a significant tendency that the share of domestic sales dominates that of offshore market sales, unlike foreign contractors, such as Vinci and Bouryguos in France, Hochtief in Germany, Skanska in Sweden, and Bechtel in the US, whose sales shares in overseas business are relatively large. Table 2 shows the worldwide rankings up to the top 20 general contractors in terms of sales in 2006 and 2010, taken by Engineering News-Record (ENR) that provides information for the construction industry worldwide.

[Table 2 about here.]

The share of overseas sales for the large-sized Japanese general contractors is around 10%, which is much lower than major foreign contractors. The low level of overseas operations for Japanese general contractors can be explained by the argument that most of them could maintain their business in the domestic market and thus they do not take a risk of foreign projects aggressively. Recent trend of demand shrinkage for construction after the bubble period may encourage Japanese general contractors to receive foreign projects, although most

[7]The construction industry has attained an increase in sales, since there was the unexpected demand for the recovery, reconstruction, and nuclear related works as a result of massive earthquake in the Tohoku region in March 2011. The upward trend can be anticipated for several years due to the additional and increasing demands as well as new governmental policy to expand government expenditure.

general contractors still keep the share of overseas sales at the low level due to conservative business behavior.[8]

2.3 Overseas business expansion of general contractors

The business expansion of Japanese general contractors to overseas markets started with the Seoul-Inchon railway construction in Korea (Joseon Dynasty) in 1897-1900, which was undertaken by Kajima Corporation, one of the major general contractors.[9] During the pre-war period, Japanese general contractors expanded overseas business operations mainly for infrastructure development in Japan's territorial region. After World War II, Japanese general contractors restarted to go abroad, Korea and Asian countries. At this stage, they were involved in overseas business expansion in a passive way under the war reparations. Since the 1960s, they have gradually transferred their overseas business associated with government foreign policy toward commercial based business. Their overseas business was further expanded, along with the international construction boom, in the 1970s due mainly to the demand from the middle-east countries backed up by oil money. The amount of the order position in the overseas market was about 20 billion yen in the early 1970s, and it achieved a sudden surge up to 500 billion yen during the decade.

The next boost emerged in the early 1980s when the amount of the order position rose from around 500 billion yen to the level of 1 trillion yen. The main reasons include overseas expansions of Japanese manufactures through foreign direct investment (FDI) and infrastructure development through official development assistance (ODA) in developing coun-

[8]Table 2 also presents that major Chinese general contractors record the low ratio of overseas sales. However, differently from Japan, this is due mainly to the fact that Chinese economy has drastically been growing in the recent decades. In addition, it should be noted that the ratio of overseas sales for most of major Chinese general contractors has increased, although their domestic share is still high. This clearly shows that major Chinese general contractors make the importance on both domestic and international markets.

[9]Okura-Gumi, a precursor firm of Taisei Corporation, currently being one of the major general contractors in Japan, established its London branch in 1874. This might be the first overseas business base among Japanese firms. However, the business formation of Okura-Gumi was not related to construction, but was a kind of trading firm dealing with machineries and military weapons.

tries, especially in Asia.[10] The success of Japanese general contractors can be attributed to technological superiority, financial capacity, and formation of strategic alliances with local governments and firms (see Raftery et al., 1998). In particular, ODA has been carried out continuously, contributing to Japanese general contractors' order position despite the significant decline in domestic demand. Moreover, the Japanese government has supported overseas contracting through informal pressures and coordination with the Sogo Shosha or private trading companies (see, .e.g., Strassmann, 1989).[11]

According to the data of overseas order position of Japanese general contractors, which is provided by OCAJI, the proportion of Asian countries is remarkably high. The order position amounts to 986 billion yen out of the total amount of 1.35 trillion yen, and its proportion reaches at 73% in 2011. Among Asian countries, the order position in Singapore is the highest of 253 billion yen, which is 18.7% of the total order position. This is due to the fact that recently Singapore has many opportunities to receive the orders of projects, including public works (e.g., construction of ports, roads, and subway), as well as private sector business (e.g., hotels, condominiums, and skyscrapers).

Thailand and Vietnam subsequently follow with the proportions of the order position of 8.9% and 7.7% in 2011, respectively, due mainly to the high demand for construction through FDI and ODA. In particular, the order position in Vietnam has increased drastically as a result of rapid infrastructure development, such as roads, bridges and airports, through ODA from Japan. The survey of Nikkei-Construction in 2012 shows that Vietnam is first-ranked as a place where Japanese general contractors are paying special attention to boost sales overseas.

[10]The development of the construction industry in Asia during the 1980s can be characterized by three trends: (1) more participation of private sectors in infrastructure projects, (2) vertical integration in the packaging of construction projects, and (3) foreign participation in domestic construction, and these trends can be attributed to the globalization and deregulation of markets (see Raftery et al., 1998).

[11]Strassmann (1989) emphasizes on the role of government support with finance during the period after the 1980s, particularly for Japanese, French, and Italian firms. In general, government supports take the form of export credits, tax preferences, trade promotion, tied foreign aid, and negotiating countertrade. Raftery et al. (1998) also present important roles in promoting Japanese general contractors by fostering technological and financial capacity.

3 Empirical analysis

This section conducts empirical analysis to discuss the role of financial conditions in making the location choice of overseas business operations for Japanese general contractors. We first provide an explanation of the methodology and data in our estimation. After showing several preliminary results, we present the results of our estimation and their implications.

3.1 Methodology and data

This study evaluates how financial status in credit markets affects the location choice of overseas operations for general contractors over the post-bubble period from 1998 to 2010. To do so, we estimate the following empirical model:

$$\mathrm{OP}_{i,j,t} = \alpha_0 + \alpha_1 \mathrm{FIS}_{j,t-1} + \alpha_2 \mathrm{CSIZE}_{j,t-1} + \sum_k \beta_k z_{k,i,t-1} + \epsilon_{i,j,t},$$

where $\mathrm{OP}_{i,j,t}$ is the measure of overseas business operations of contractor j in country i at year t, $\mathrm{FIS}_{j,t}$ is the measure of financial status for contractor j at year t, $\mathrm{CSIZE}_{j,t}$ is the measure of firm size for contractor j at year t, $z_{k,i,t}$ is variable k of country-specific factors in country i at year t and $\epsilon_{i,j,t}$ is an error term with standard properties. In addition to $\mathrm{FIS}_{j,t}$ as our main independent variable, we include firm size $\mathrm{CSIZE}_{j,t}$, which is measured by the log of the asset of contractor j, as a contractor-specific factor since it is well acknowledged that large-sized firms tend to be in an advantageous position due to the economies of scale and scope. This study uses the lag variables for all independent variables.

There are many studies on internationalization and globalization of enterprises over the past decades, but how to measure the degree of internationalization of a firm appears to remain an unsolved issue. Among various measures, foreign sales or revenues may be a meaningful first-order indicator of firms involvement in overseas business operations (Sullivan, 1994). In this study, the model takes each of the following three measures of overseas operations as a dependent variable, $\mathrm{OP}_{i,j,t}$, for robustness check of our empirical results. The

first dependent variable (OCD) is a binary variable which takes one if contractor j receives at least one order of the overseas project in country i and zero otherwise. The second (OCC) is a count variable which takes the number of orders of the overseas projects received by contractor j in country i. The last (OCA) is the log of one plus the total real value of the orders of the overseas project received by contractor j in country i in terms of the US dollar, which is adjusted by the US Consumer Price Index (CPI).

In our analysis, financial status is regarded as the overall credibility or evaluation on each contractor in a credit market. When a contractor receives an order of the overseas project, it generally needs to obtain the credit from banks for the deposit associated with the order. The contractor with high credibility in a credit market tends to be offered bank loan with the low interest rate. In contrast, for the contractor with less credibility in a credit market, banks tend to offer loan with the high interest rate due to the high risk premium. Thus, financial status, or the credibility in a credit market, would influence the financing costs for each contractor. Our analysis captures financial status for each contractor by using the measure of market-based evaluation. For this purpose, we first construct the hypothetical interest payment:

$$R^*_{j,t} = r^S_t D^S_{j,t} + r^L_t D^L_{j,t},$$

where r^S_t is the short-term prime rate at year t, r^L_t is the average long-term prime rate over the past three years from the year t, $D^S_{j,t}$ is the average of the short-term debt of contractor j in year $t-1$ and year t, and $D^L_{j,t}$ is the average of the long-term debt of contractor j in year $t-1$ and year t. This hypothetical interest payment can be considered the interest payment that applies for the contractor with the highest credibility in a credit market, taking $D^S_{j,t}$ and $D^L_{j,t}$ as given. Then we construct the measure of the financial status for contractor j (FIS):

$$\text{FIS}_{j,t} = r_{j,t} - r^*_{j,t} = \frac{R_{j,t} - R^*_{j,t}}{D_{j,t}},$$

which is equivalent to the gap between the actual and hypothetical interest rates, where $R_{j,t}$

is the actual interest payment for contractor j at year t.

The value of $\mathrm{FIS}_{j,t}$ reflects general contractor's financial status in a credit market. This particularly reflects the credit rating, which is an evaluation of the credit worthiness of a debtor, including profitability and risk in current and future periods. The evaluation is made by a credit rating agency of the debtor's ability to pay back the debt and the likelihood of default. If a general contractor entails the high credibility in a credit market, the actual interest payment is close to the hypothetical one, so that the financial status $\mathrm{FIS}_{j,t}$ is relatively low. If a general contractor has financial problems, currently or in the future, due mainly to the expectation of low profitability, then the lender requests high risk premium, so that the actual interest payment is higher than the hypothetical one. In this case, the financial status $\mathrm{FIS}_{j,t}$ is relatively high.

Concerning the country-specific factors to be expected to affect the decision of overseas business operations, we include variables related to official development assistance from Japan to country i ($\mathrm{ODA}_{i,t}$) and foreign direct investment inflow from Japan to country i ($\mathrm{FDI}_{i,t}$), which are measured by the log of one plus real ODA from Japan to country i and the log of one plus real FDI inflow from Japan to country i, respectively. The overseas activities of general contractors are generally associated with the projects financed through ODA by public sectors or FDI by private enterprises, as mentioned in Raftery et al. (1998) and Ofori (2000), so that ODA and FDI are expected to enhance general contractors' overseas expansion. The model also includes trade flow between Japan and country i ($\mathrm{TRAD}_{i,t}$), which is measured by the log of one plus trade flow (export plus import) between Japan and country i.

In addition, we include the size of the economy of country i ($\mathrm{ESIZE}_{i,t}$), which is measured by the log of real GDP, to capture how the economic size affects general contractors' overseas activities. More business opportunities for construction firms may exist in a large country. However, large economies have already established hard infrastructure with the less demand for construction. Thus, the impact of the economic size on the overseas activities depends on

which one dominates the other. The model further includes the income difference between Japan and country i ($\mathrm{INCM}_{i,t}$), which is measured by real per capita GDP of Japan minus that of country i, to capture how per capita income or skill difference affects the overseas business activities. Moreover, the measure of political stability in country i ($\mathrm{POLIT}_{i,t}$) is included in the model to evaluate the impact of political risk.

Furthermore, the model includes the degree of Japanese general contractors' concentration in country i ($\mathrm{CON}_{i,t}$), which is defined by the Hirshmann-Herfindahl Index (HHI) for each country and each year:

$$\mathrm{CON}_{i,t} = \sum_j h^2_{i,j,t},$$

where $h^2_{i,j,t}$ is the relative exposure of general contractor j in country i at year t, which is calculated by the amount of received orders by contractor j in country i divided by the total amount of received orders by all Japanese general contractors. The degree of the concentration provides general contractors with a signal of how Japanese firms have operated in their business. If many of general contractors have already been under operation, they might believe that their own operation could also obtain the profit successfully. In this case, the impact of the concentration on the overseas business activities could be negative.

The data set of order position records published by the Overseas Construction Association of Japan (OCAJI) is used to construct the panel data of the three measures of overseas business operations ($\mathrm{OP}_{i,j,t}$) during the sample period from 1998 to 2010. This data set of OCAJI shows information about all overseas projects received by 65 membership companies (including most Japanese general contractors) with the details of the projects, such as the received contractors, the amount of orders received, country (location where to implement), fund source, and executing agency in the country. There exist overseas projects received by non-membership contractors of OCAJI, like relatively small construction firms. However, most cases are covered in the data set, since firms with overseas business typically become a membership of OCAJI partly to collect information related to their business. In other words, it can be considered that the results of our analysis may not change even if we include the

data of overseas projects received by non-membership contractors.

The contractor-specific data of financial position, such as asset, short-term and long-term debts, and interest payment, is obtained from Kaisya-Shikiho (Japan Company Handbook) and Datastream. Concerning the country-specific information, the data of bilateral real official development assistance is taken from Creditor Reporting System (CRS), maintained by the Development Assistance Committee (DAC) of the Organization for Economic Co-operation and Development (OECD), containing information on international aid and activity-level aid. In particular, we use the committed amounts of bilateral ODA.

Although the disbursed amounts would be more appropriate, they are not available only for some donors, as DAC mentioned in users guide. The data of nominal FDI flows and nominal trade (import plus exports) flows are taken from the International Direct Investment Statistics of the OECD and the Direction of Trade Statistics of the IMF (DOTS-IMF), respectively. To construct real FDI and trade flows, we divide nominal flows by the US GDP deflator, which is obtained from the World Development Indicators (WDI) of World Bank. As other country-specific variables, the data of real GDP and real per capita GDP are taken from the WDI, and the measure of political stability is taken from political risk rating of International Country Risk Guide (ICRG). Moreover, the short-term and long-term prime rates are taken from the Bank of Japan.

Our unbalanced panel data set consists of 16145 observations with 36 contractors and 72 countries during the sample period from 1998 to 2010, due to incomplete data of some country-specific and contractor-specific variables. Tables 3 and 4 present the lists of general contractors and countries in the sample used in our empirical analysis, respectively. To estimate our empirical model over the panel data, we employ the three measures of overseas business operations (OCD, OCC, and OCA) as a dependent variable. The first measure (OCD) is a binary variable capturing whether or each general contractor has business operation in each country. Thus, we apply the logit regression, which is typically used to model dichotomous outcome variables. In the logit model, the log odds of the outcome are modeled

as a linear combination of independent variables.

[Table 3 about here.]

[Table 4 about here.]

The second measure (OCC) is a count variable capturing the number of orders of overseas contracts for each general contractor and each country. Many studies, including those on FDI location choice, have applied count data models (Smith Jr. and Florida, 1994, Wu, 1999, Coughlin and Segev, 2000, Zhou et al., 2002, Roberto, 2004, Yavan, 2010). Since each general contractor has many countries where it has no operations, the dependent variable contains many zero counts and takes non-negative integer values. Given the fact, we apply the Poisson models and negative binomial models (NBMs) as an alternative model for robustness check.

As mentioned in Greene (2011), the preponderance of zeros and discrete nature of the dependent variable suggest that the Poisson model appears to be suitable. In addition, Arauzo Carod (2005) suggests that the Poisson model could mitigate the zero-problem, where the data of no operations contains relevant information, since the independent variables containing many zeros could help explain the reason why general contractors do not receive any orders of contracts in some specific countries. However, the assumed equality of the conditional mean and variance can be considered the major shortcoming of the Poisson regression models. Among many alternatives, the most common is the negative binomial models (NBMs). The NBM is an extension of the Poisson regression model by introducing an individual, unobserved effect into the conditional mean.

The third measure of overseas business operations (OCA) captures the total real value of the orders of overseas projects received by each contractor in each country. For this dependent variable, we apply ordinary least squares (OLS) for the estimation. However, in our data set, for each contractor, there are many countries in which it does not receive any orders of contracts, as mentioned in the previous discussion. This kind of zero-contract amounts is considered as a corner solution outcome in the context of economic theory, where

typical OLS estimation may not be appropriate. To mitigate this issue, we estimate our empirical model by applying the standard censored Tobit model or type I Tobit model. All estimated models include the year and contractor dummies to control for the year- and contractor-specific effects.

3.2 Some preliminaries

As a preliminary investigation, this subsection first examines the characteristics of dependent and independent variables used in the estimation. Then we briefly discuss the relationship between overseas business operations and financial status in a credit market.

Table 5 shows the summary statistics of our main variables and table 6 presents the correlation matrix. First, the size of the contractor (CSIZE) is positively correlated with overseas business operations (OCD, OCC, and OCA), so that large-sized general contractors tend to engage in overseas business expansion. Second, bilateral ODA, FDI flows, and trade flows (ODA, FDI, and TRAD) are also positively correlated with overseas operations. This implies that overseas business expansion might be promoted through foreign aid and FDI from Japan and trade with Japan. Third, the economic size of a country (ESIZE) is positively correlated with overseas business operations. Japanese general contractors tend to expand their business toward relatively large-sized countries. Fourth, the concentration measure (CON) is negatively correlated with overseas business operations, so that general contractors tend to expand their business toward the countries where other Japanese contractors have already been under operations. Fifth, more relevantly to the objective of this study, financial status in a credit market (FIS) appears to be uncorrelated with overseas business operations.

[Table 5 about here.]

[Table 6 about here.]

Table 7 presents the average of several variables related to overseas business operations and financial status over the sample period (OCD, OCC, OCA, total asset, the ratio of the

amount of contracts to total asset, and FIS). It is easily observed that large-sized general contractors, such as Kajima, Obayashi, Shimizu, and Taisei, have received a large amount of contracts in foreign countries. At the same time, their spread between the actual and hypothetical interest rates is relatively small so that their financial status is advantageous in the credit market. On the other hand, the relatively small-sized contractors have received a small amount of contracts, and their financial status is relatively low. However, once we adjust the amount of contracts by using the size of general contractors (total asset), the simple analysis in table 7 may fail to show a clear relationship between financial status and overseas business operations, as in correlation matrix of table 6. To carefully discuss how general contractors in our sample decide their overseas business in relation to their financial status in a credit market, we conduct empirical analysis by applying some econometric methods in the next subsection.

[Table 7 about here.]

3.3 Results

This subsection shows the results of our estimations to evaluate general contractors' location choice of overseas business operations and discuss how financial status affects their decision. Table 8 shows the results of our empirical models with OCD, OCC, and OCA as the dependent variable.

[Table 8 about here.]

3.3.1 Financial status in a credit market

The result consistently shows that the coefficients on financial status (FIS) are significantly positive for all measures of overseas business operations. Since the high value of FIS implies the low evaluation in a credit market due mainly to the low profitability or the high default risk, the result suggests that less credible general contractors tend to expand

overseas business operations by receiving orders of overseas projects. Given the argument that overseas business operations are risky in general, less credible general contractors tend to take a higher risk than highly credible ones.

Several possible explanations can be considered on this result related to financial status and overseas business operations. The first factor originates from Japan's experience of a long-term macroeconomic stagnation after the collapse of the bubble economy in the early 1990s. The construction industry in Japan generally depends on public infrastructure projects, such as roads, bridges, and highways construction projects. However, the long-term economic distress, along with some other factors such as aging society with increased social security burden, has caused local and central governments to face a drastic increase in public debts. Due to this budget problem, the governments have been unable to keep a high level of public spending and have been enforced to cut public spending, particularly on infrastructure development. Public opinion against the unnecessary infrastructure has also supported this policy.

Such an environment with weak business sentiment associated with a long-term economic distress has reduced the demand for construction from public institutions as well as private enterprises in domestic markets. This would reduce firms' profitability and increase their business risk in the construction industry, including general contractors. To mitigate this issue, some general contractors have been encouraged to seek for the opportunities of their business expansion in foreign countries with the expectation of higher profit. This tendency may be amplified more significantly for general contractors struggling with low profitability and high default risk, which is assumed to be captured by our measure of financial status (FIS). That is, less credible general contractors (high FIS) are more likely to expand overseas business operations (high OP).

The second factor affecting the relationship between financial status and overseas business operations is related to the financing of infrastructure and industrial projects. General contractors typically need to obtain credits from financial institutions when they implement

an overseas project. The financing cost is crucial when a general contractor obtains credit in a credit market. Credible financial status enables a general contractor to obtain credits at the low financing cost and to implement the project with the low cost. Thus, credible general contractors have the advantage in competitive bids or more generally, the sealed bid process, which is often applied in construction contracts, since competitive bidding aims at implementing the project with the lowest costs and stimulating competition by preventing favoritism. This argument implies that less credible general contractors (high FIS) are less likely to expand overseas business operations (low OP), in contrast to the discussion in the first factor.

The positive association between FIS and OP in our estimated results suggests that the first factor dominates the second, so that less credible general contractors (high FIS) are more likely to expand overseas business operations (high OP) in total. Our findings appear to be in sharp contrast to the argument of the world history showing that stronger entities have expanded their territory of operation. We call our paradoxical finding in this paper "overseas business paradox." Since the early 1990s, the domestic construction market has shrunk due to the long-run economic distress with the reduction of public spending. In this situation, general contractors without sound financial status would be forced to receive orders of risky projects abroad for their survival, although their financing cost is relatively high. The lesson from our paradoxical argument could apply not only for the construction industry in Japan but also for some industries in developed and emerging countries whose economy is expected to mature in the near future. As domestic markets become mature or shrunk, which is often observed in developed countries and may be experiential in developing countries in the future, firms struggling with the high financing cost in a domestic credit market may take high risks by expanding their overseas business.

Caballero et al. (2008) suggest that Japanese banks have been involved in sham loan restructurings which kept credit flowing to otherwise insolvent borrowers, which is called "zombies." Zombie firms have obtained subsidized credits from banks through various finan-

cial assistances, such as debt forgiveness, interest rate concessions, debt for equity swaps, the reduction in interest payments, and moratoriums on interest payments. By constructing several measures of zombieness based on the subsidized credits over the period from 1981 to 2002, they present that during the 1990s and the early 2000s, the zombie problem was more serious for non-manufacturing industries, particularly the construction industry, than for manufacturing industries. A possible reason for the cross-industrial differences includes the intensified global competition, where manufacturing firms could not be protected easily by their banks.

Another reason may be that the construction and real estate industries had a significant negative impact of the collapse of asset prices, including land prices (see Caballero et al., 2008, for the details of the zombie problem). The zombie-related arguments imply that if banks had not provided subsidized loans, zombie contractors would have paid higher interest payments and thus have been characterized as the higher value of our financial status measure (FIS). In this case, the balance of the first and second factors, mentioned in the above discussions, determines how financial conditions would have influenced the location choice of overseas business operations for zombie contractors.

3.3.2 Other control variables

Table 8 also presents the estimation results related to other control variables, CSIZE, ODA, FDI, TRAD, ESIZE, CON, INCM, and POLIT, all of which are expected to affect general contractors' location choice. The coefficients on the firm size (CSIZE), as another contractor-specific control variable, are significantly positive for all models, which implies that large-sized general contractors tend to engage more in overseas business expansion. Possible justification for this result includes that large-sized general contractors implement projects in various fields of construction-related services so that they can comply with the requirement of projects' employers in foreign countries.

Concerning country-specific control variables, the coefficients on official development as-

sistance (ODA) and foreign direct investment (FDI) are significantly positive for all models. Bilateral foreign aid by Japanese government and foreign investment by Japanese firms, particularly Japanese manufacturers, would encourage general contractors to expand overseas business operations. It is well known that one of the main targets of Japan's foreign aid is to promote infrastructure development in recipient countries. One possible obstacle for Japanese general contractors to receive the contract order is that under the current regulation of ODA from Japan, the tender procedure is open for any nationalities if the bidder satisfies the criteria given by executing agencies in the host country, even though the fund comes from Japanese government. Such a circumstance causes Japanese firms to face the intense competition against international bidders, especially Chinese and Korean firms with the cost-related advantage.[12]

However, some projects require advanced technology, and Japanese firms generally have the advantage in construction technology and experiences. Thus, some grant aid projects are the exceptions from the open tender system, so that only Japanese firms are eligible to implement these projects. The positive association of ODA with overseas business operations in our empirical analysis suggests the positive role of foreign aid from Japan in helping Japanese general contractors' expansion of their business to foreign countries, although the open tender system intensifies the competition with foreign contractors.

In addition to foreign aid from Japan, the positive association of FDI with overseas business operations implies that direct investment of Japanese firms is also one of the crucial factors for Japanese general contractors' behavior. It should be noticed that the party to engage in foreign investment is not contractors themselves, but manufacturers, such as automobiles, electrical parts, textile, and retail dealers. Foreign investment of Japanese manufacturers creates business opportunities to Japanese general contractors. When Japanese

[12]Another problem is the financing issue related to the fact that for most of infrastructure development, covering all costs through ODA is almost impossible. Thus, Japanese firms are recommended to establish new business schemes, including operation after completion of the construction, and other alternative financing schemes, such as Public Private Partnership (PPP), where private business venture is often funded and operated through a partnership of the recipient government and private enterprises.

manufacturers set up new factories or facilities, they often order new construction to Japanese general contractors although they are free to choose non-Japanese firms. This is due mainly to the motivation to mitigate various risk factors, including the construction period and the quality of buildings, through the long-term reliance established between general contractors and manufacturers. In particular, the manufacturers that start business in a specific country without proper knowledge and information tend to order Japanese general contractors as a kind of inward security.

For other country-specific control variables, the analysis presents that the coefficients on bilateral trade flows (TRAD) are significantly positive for all models. Intensified trade activities with Japan increase the demand for construction and its maintenance, which would inspire overseas business expansion for Japanese general contractors. In addition, the model also shows that the coefficients on the size of economy (ESIZE) are significantly negative. This result supports that Japanese general contractors tend to expand their overseas business operations in small-sized countries. Moreover, the coefficients on the concentration measure (CON) are significantly negative, so that Japanese general contractors are likely to expand their overseas business in the countries where other general contractors have already been under operations. In other words, Japanese general contractors may be characterized as a follower of other successful firms in each country. Finally, the analysis fails to show clear evidence that the difference in per capita income (INCM) and political stability (POLIT) have the impact on contractors' overseas business expansion.

4 Conclusion

Since the collapse of the bubble economy in the early 1990s, Japan has experienced a long-term economic distress, which has caused Japanese business society to emphasize the importance of overseas business expansion for their survival. The construction industry is no exception to this trend. Focusing on the role of market-based financial status in a credit

market, this study has examined location choices of Japanese general contractors' overseas business expansion over the post-bubble period from 1998 to 2010. The conventional wisdom suggests that firms with the high corporate performance tend to take advantage of overseas business expansion. However, in sharp contrast to this argument, our results have shown clear evidence of the paradoxical argument, "overseas business paradox," i.e., general contractors facing financial distress tend to expand their overseas business in a more aggressive manner.

The lesson from our paradoxical results could apply not only for the construction industry in Japan but also for some other industries in developed and emerging countries. In other words, our empirical finding is interpreted as a possible future scenario of industries' evolution when the economy of a single country matures. This type of economic maturities may be observed in developed countries and be experiential in some emerging countries in the near future. Then, our results imply that less credible firms with low profitability and high default risk in domestic markets have stronger incentives of overseas business expansion for their survival. This result is quite inconsistent with what has happened in territory expansion of world history, i.e., stronger entities expand their territories. However, it is our belief that what we find in this paper could be considered a new path of how industries can evolve in globalized international business.

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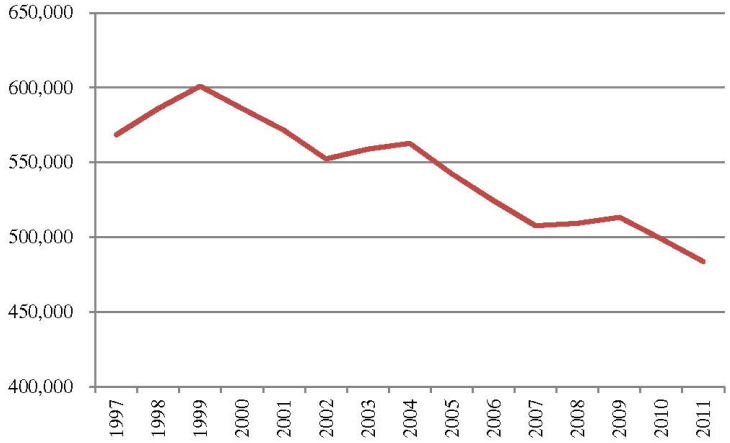
List of Figures

Figure 1: Transition of the number of licensed construction firms



List of Tables

Table 1: Distribution of contractors by capital, March 2011

Amount of capital	Number of contractors	Proportions
Less than 5 million yen	220,828	45.7%
5 – 10 million yen	66,462	13.7%
10 – 100 million yen	190,683	39.4%
100 – 1000 million yen	4,282	0.9%
1 – 10 billion yen	1,027	0.2%
Over 10 billion yen	357	0.1%
Total	483,639	100.0%

Source: Ministry of Land, Infrastructure and Tourism

Table 2: Worldwide ranking in sales among construction firms

	Name of firm	Country	Sales	Offshore sales	Offshore sales ratio
	Year 2006				
1	Vinci	France	32,699	11,065	33.8%
2	Bouyguos	France	24,960	9,576	38.4%
3	Chinal Highway Engineering	China	21,296	658	3.1%
4	Hochtief	Germany	19,795	17,599	88.9%
5	Grupo ACS	Spain	18,527	3,004	16.2%
6	China Railway Construction	China	17,327	415	2.4%
7	China State Construction Engineering	China	16,147	2,956	18.3%
8	Skanska	Sweden	15,722	12,347	78.5%
9	Bechtel	USA	15,367	8,931	58.1%
10	China Communication Construction	China	14,734	3,381	22.9%
11	Taisei	Japan	14,176	2,069	14.6%
12	Kajima	Japan	13,981	2,151	15.4%
13	Eiffage	France	13,970	2,010	14.4%
14	Strabag	Austria	13,502	10,799	80.0%
15	Shimizu	Japan	12,673	1,343	10.6%
16	Obayashi	Japan	12,462	1,779	14.3%
17	Fcc. Fomento	Spain	11,894	2,155	18.1%
18	China Metalhurgical	China	11,628	907	7.8%
19	Takenaka	Japan	11,293	1,649	14.6%
20	Fluor	USA	11,274	6,339	56.2%
	Year 2010				
1	China Railway Construction	China	76,206	3,424	4.5%
2	China Railway Group	China	73,012	3,158	4.3%
3	China State Construction Engineering	China	48,868	4,871	10.0%
4	Vinci	France	45,111	16,557	36.7%
5	China Communication Construction	China	40,418	7,134	17.7%
6	Bouyguos	France	30,671	12,432	40.5%
7	China Metalhurgical	China	29,905	1,514	5.1%
8	Hochtief	Germany	28,979	27,424	94.6%
9	Grupo ACS	Spain	20,631	6,562	31.8%
10	Bechtel	USA	19,714	12,500	63.4%
11	Leighten Holdings	Australia	18,510	3,648	19.7%
12	Eiffage	France	17,729	2,853	16.1%
13	Fluor	USA	17,194	11,565	67.3%
14	Fcc. Fomento	Spain	16,059	7,457	46.4%
15	Sinohydro	China	15,883	4,010	25.2%
16	Skanska	Sweden	14,635	11,632	79.5%
17	Shimizu	Japan	14,403	1,162	8.1%
18	Kajima	Japan	14,394	2,106	14.6%
19	Obayashi	Japan	13,675	1,916	14.0%
20	Shanghai Construction	China	13,005	1,654	12.7%

Source: Engineering news-record (ENR). Notes: Sales and offshore sales are in terms of million US dollars

Table 3: List of general contractors

	Name of general contractor
1	Ando Corporation
2	Aoki Corporation
3	Daiho Corporation
4	Fujita Corporation
5	Fukuda Corporation
6	Hazama Corporation
7	Hitachi Plant Technologies
8	JDC Corporation
9	Kajima Corporation
10	Kandenko
11	Kinden Corporation
12	Kitano Construction
13	Kumagai Gumi
14	Maeda Corporation
15	Nakano Kubota Construction
16	Nippon Road
17	Nishimatsu Construction
18	Obayashi Corporation
19	Ohki Corporation
20	Okumura Corporation
21	P.S. Mitsubishi Construction
22	Penta Ocean Construction
23	Sato Kogyo
24	Shimizu Corporation
25	Sumitomo Mitsui Construction
26	Taisei Corporation
27	Takenaka Civil Engineering & Construction
28	Tekken Corporation
29	Toa Corporation
30	Tobishima Corporation
31	Toda Corporation
32	Tokura Construction
33	Tokyu Construction
34	Toyo Construction
35	Wakachiku Construction
36	Zenitaka Corporation

Table 4: List of countries

	Code	Name		Code	Name
1	AGO	Angola	37	KWT	Kuwait
2	ARE	United Arab Emirates	38	LBN	Lebanon
3	ARG	Argentina	39	LKA	Sri Lanka
4	AZE	Azerbaijan	40	MAR	Morocco
5	BFA	Burkina Faso	41	MDG	Madagascar
6	BGD	Bangladesh	42	MEX	Mexico
7	BHR	Bahrain	43	MLI	Mali
8	BRA	Brazil	44	MNG	Mongolia
9	BRN	Brunei	45	MWI	Malawi
10	CHL	Chile	46	MYS	Malaysia
11	CHN	China	47	NER	Niger
12	CIV	Cote d'Ivoire	48	NGA	Nigeria
13	CMR	Cameroon	49	NIC	Nicaragua
14	COL	Colombia	50	OMN	Oman
15	CRI	Costa Rica	51	PAK	Pakistan
16	DOM	Dominican Republic	52	PAN	Panama
17	DZA	Algeria	53	PER	Peru
18	ECU	Ecuador	54	PHL	Philippines
19	EGY	Egypt	55	PNG	Papua New Guinea
20	ETH	Ethiopia	56	PRY	Paraguay
21	GAB	Gabon	57	SAU	Saudi Arabia
22	GHA	Ghana	58	SEN	Senegal
23	GIN	Guinea	59	SGP	Singapore
24	GMB	The Gambia	60	SLE	Sierra Leone
25	GNB	Guinea-Bissau	61	SLV	El Salvador
26	GUY	Guyana	62	SUR	Suriname
27	HKG	Hong Kong SAR, China	63	SYR	Syrian Arab Republic
28	HND	Honduras	64	THA	Thailand
29	HRV	Croatia	65	TUN	Tunisia
30	IDN	Indonesia	66	TUR	Turkey
31	IND	India	67	TZA	Tanzania
32	IRN	Iran	68	UGA	Uganda
33	IRQ	Iraq	69	VNM	Vietnam
34	JAM	Jamaica	70	YEM	Yemen
35	JOR	Jordan	71	ZAF	South Africa
36	KEN	Kenya	72	ZMB	Zambia

Table 5: Summary statistics

Variable	Observation	Mean	Std. dev.	Min	Max
OCD	16145	0.086	0.281	0.000	1.000
OCC	16145	0.636	3.805	0.000	116.000
OCA	16145	0.230	0.868	0.000	7.130
FIS	16145	0.011	0.012	−0.008	0.162
CSIZE	16145	12.656	1.052	10.416	14.899
ODA	16145	3.757	2.135	0.000	8.579
FDI	16145	2.144	2.190	0.000	8.794
TRAD	16145	6.839	2.393	1.605	12.413
ESIZE	16145	25.158	1.741	21.257	29.743
INCM	16145	2.055	1.139	−0.859	4.043
POLIT	16145	64.296	8.951	35.500	90.000
CON	16145	0.720	0.329	0.081	1.000

Table 6: Correlation matrix of main variables

	OCD	OCC	OCA	FIS	CSIZE	ODA	FDI	TRAD	ESIZE	INCM	POLIT	CON
OCD	1.00											
OCC	0.54	1.00										
OCA	0.86	0.65	1.00									
FIS	−0.03	0.01	−0.04	1.00								
CSIZE	0.23	0.15	0.24	−0.22	1.00							
ODA	0.11	0.11	0.06	0.00	−0.01	1.00						
FDI	0.31	0.24	0.29	0.02	−0.03	0.14	1.00					
TRAD	0.31	0.22	0.29	0.01	−0.02	0.06	0.82	1.00				
ESIZE	0.20	0.16	0.18	0.01	−0.02	0.24	0.74	0.84	1.00			
INCM	−0.11	−0.06	−0.13	0.00	0.02	0.53	−0.41	−0.61	−0.39	1.00		
POLIT	0.11	0.06	0.14	0.00	0.00	−0.40	0.29	0.37	0.07	−0.61	1.00	
CON	−0.36	−0.24	−0.33	0.00	0.00	−0.21	−0.59	−0.64	−0.43	0.22	−0.23	1.00

Table 7: Numbers of countries and contracts, amount of contracts and financial status (average over the period 1998-2010)

Contractor	Number of countries	Number of contracts	Amount of contracts (A)	Total asset (B)	Contract to Asset ratio (A)/(B)	Financial status
Ando Corporation	3.5	17.8	6,261	186,130	0.034	0.95
Aoki Corporation	1.1	3.8	1,598	534,900	0.003	0.06
Daiho Corporation	2.2	3.8	7,289	140,388	0.052	0.89
Fujita Corporation	9.6	104.3	20,592	502,337	0.041	1.61
Fukuda Corporation	0.4	2.2	120	164,081	0.001	1.01
Hazama Corporation	10.2	47.3	18,013	162,088	0.111	2.52
Hitachi Plant Technologies	1.2	6.8	3,809	230,044	0.017	0.83
JDC Corporation	0.2	0.3	355	420,363	0.001	0.80
Kajima Corporation	11.9	117.8	117,682	2,061,538	0.057	0.70
Kandenko	1.6	3.4	402	380,015	0.001	1.42
Kinden Corporation	5.7	47.6	6,248	514,322	0.012	2.60
Kitano Construction	3.3	4.5	3,008	70,624	0.043	1.61
Kumagai Gumi	6.5	29.3	26,024	697,031	0.037	1.23
Maeda Corporation	4.9	22.4	25,801	566,771	0.046	1.00
Nakano Kubota Construction	1.3	10.8	2,402	79,722	0.030	0.93
Nippon Road	1.2	2.6	492	140,266	0.004	0.11
Nishimatsu Construction	7.3	35.5	47,158	709,949	0.066	0.13
Obayashi Corporation	9.6	77.5	76,490	1,953,846	0.039	0.06
Ohki Corporation	0.6	1.1	396	107,059	0.004	0.67
Okumura Corporation	0.5	0.8	1,890	405,434	0.005	1.83
P.S. Mitsubishi Construction	0.2	0.2	210	96,736	0.002	2.85
Penta Ocean Construction	7.9	23.9	66,766	426,938	0.156	1.30
Sato Kogyo	3.0	19.9	19,942	716,534	0.028	0.92
Shimizu Corporation	14.5	83.5	88,181	1,907,692	0.046	0.34
Sumitomo Mitsui Construction	7.9	125.0	28,578	393,761	0.073	3.73
Taisei Corporation	15.0	120.6	102,338	1,961,538	0.052	0.48
Takenaka Civil Engineering & Construction	0.2	0.5	152	80,767	0.002	3.04
Tekken Corporation	1.0	1.6	2,759	216,301	0.013	0.69
Toa Corporation	4.4	5.8	14,371	253,144	0.057	0.91
Tobishima Corporation	4.4	10.9	4,641	252,035	0.018	0.61
Toda Corporation	5.6	45.8	8,651	648,316	0.013	1.30
Tokura Construction	2.3	3.1	2,070	36,579	0.057	1.00
Tokyu Construction	2.3	10.1	4,427	175,838	0.025	1.37
Toyo Construction	1.8	13.7	5,346	208,378	0.026	1.71
Wakachiku Construction	1.3	1.6	1,050	128,909	0.008	1.42
Zenitaka Corporation	2.5	6.9	2,020	240,747	0.008	1.08

Table 8: Locational choice of international operations

Dependent variable	OCD		OCC				OCA			
	LOGIT		POISSON		NBREG		OLS		TOBIT	
FIS	10.882**	15.006***	19.038***	19.038***	20.733***	19.729***	1.790***	1.790***	24.497***	22.407***
	(4.539)	(5.136)	(6.693)	(5.041)	(5.954)	(6.666)	(0.524)	(0.528)	(9.333)	(8.315)
CSIZE	0.860***	1.221***	0.500**	0.500***	1.423***	0.975***	0.162***	0.162***	2.101***	1.868***
	(0.132)	(0.166)	(0.213)	(0.182)	(0.216)	(0.217)	(0.033)	(0.031)	(0.308)	(0.269)
ODA		0.081***		0.078***		0.065**		0.009**		0.095**
		(0.025)		(0.027)		(0.030)		(0.004)		(0.040)
FDI		0.095***		0.216***		0.199***		0.040***		0.161***
		(0.023)		(0.035)		(0.026)		(0.004)		(0.038)
TRAD		0.415***		0.202**		0.369**		0.078***		0.660***
		(0.057)		(0.085)		(0.057)		(0.007)		(0.090)
ESIZE		−0.387***		−0.161**		−0.308**		−0.091***		−0.616***
		(0.048)		(0.069)		(0.049)		(0.008)		(0.076)
INCM		0.071		0.015		0.022		0.016*		0.092
		(0.070)		(0.086)		(0.076)		(0.008)		(0.113)
POLIT		−0.001		−0.001		−0.008		0.001		−0.001
		(0.005)		(0.005)		(0.006)		(0.001)		(0.009)
CONC		−3.117***		−3.214***		−3.136***		−0.522***		−5.127***
		(0.194)		(0.290)		(0.195)		(0.026)		(0.302)
Constant	13.005***	−9.944***	8.907***	−6.475***	18.889***	−6.475***	−1.798***	0.075	−31.830***	−14.506***
	(1.489)	(2.138)	(2.385)	(2.092)	(2.405)	(2.092)	(0.375)	(0.392)	(3.470)	(3.577)
Observations	16145	16145	16145	16145	16145	16145	16145	16145	16145	16145
(Pseudo) R-squared	0.134	0.406	0.243	0.608			0.090	0.222	0.093	0.265