Firms and Foreign Market Engagement

Internationalization Strategies among Japanese Firms

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25 August 2011
Version 0.6

A growing body of trade research identifies significant differences between exporters (as well as importers) and firms that produce solely for the domestic market. Other strands of scholarship anticipate similar patterns among firms that engage in FDI and outsourcing, and those that do not. Furthermore, many firms engage in trade indirectly, utilizing third-party distribution networks. In this paper, I employ original survey data of Japanese manufacturing firms to study patterns among firm-level strategies for engaging the global economy. An improved understanding these behaviors should allow for the creation of better informed policy prescriptions; in future work, I also hope to increase our understanding of the ways in which heterogeneity in firm characteristics and behaviors can affect the ways in which firms seek to influence governments' policy-making processes.

I thank Gordon Hanson, Arata Kuno, Marc Muendler and Megumi Naoi for comments and suggestions, and to the Government of Japan for funding. All errors are my own. This version is for presentation at the annual conference of the Japan Society of International Economics, 23 October 2011 at Keio University, Tokyo.

Introduction

A vigorously expanding body of research employs data on productivity heterogeneity at the firm level and analyzes the various ways this heterogeneity impacts firms' behaviors in international markets. While the seminal works on trade with heterogeneous firms focused on direct exporting behaviors (Melitz 2003; Bernard et al. 2003), producers face a significantly larger menu of options for accessing foreign markets. Among them, both FDI (Helpman, Melitz and Yeaple 2004; Head and Ries 2003) and outsourcing (Baldwin and Okubo 2011; Hijzen, Inui and Todo 2006) have received significant amounts of treatment. However, the engagement of international markets through indirect means remains less studied, although this phenomenon has gained increasing scrutiny (Rauch 2004; Bernard, Grazzi and Tomasi 2010). In this paper, I introduce original firm-level survey data and discuss patterns in internationalization strategies employed by Japanese manufacturing firms.

Perhaps the most frequently repeated finding in the new new trade literature is the fact that exporters are more productive than firms that only produce for the domestic market. Exporters are also larger (both in terms of shipments and employment), more capital- and skill-intensive, employ more workers, and pay higher wages than non-exporters (Bernard, Jensen, Redding and Schott 2007; hereafter BJRS). These findings hold across both developed and developing economies (Alvarez and Lopez 2005; Seker 2011). Additionally, exporters grow and innovate at a faster pace than non-exporters. In light of the clear delineation between exporters and domestic producers, it would seem that non-exporting producers would seek to emulate exporters. Indeed, the 'learning by exporting' phenomenon identified in aggregated trade studies would suggest that firms try to do exactly this. However, the established empirical evidence is mixed (Bernard and Jensen 1999; Clerides, Lach and Tybout 1998; Van Biesebroeck 2005). More recent efforts have identified linkages between innovation and exporting (Costantini and Melitz 2008; De Loecker 2009; De Loecker 2010); these decisions each require high fixed costs of implementation that may prevent sufficiently low productivity firms from emulating high productivity exporters. Additionally, these investments may be coupled with other efforts to adjust to an increased international presence.

Many exporting firms also engage in importing, sourcing intermediate goods from abroad (BJRS 2007). Importers share many characteristics with exporters: they are rare, they are more productive, and they are larger; additionally, they spend more in intermediate goods than do non-

importers (Kasahara and Lapham 2008; Gibson and Graciano 2011). They also employ more workers and pay them higher wages, and are more skill- and capital-intensive than non-traders (BJRS 2007). Firms that only import, while more productive than non-importers, are slower growing and less innovative than two-way traders and firms that only export (Seker 2011).

Similarly, firms that engage directly in trade can be differentiated from those who trade through intermediaries, employing the distribution networks of other firms. This rapidly growing body of research still focuses on explaining variation in firms' export behaviors (see Ahn et al. 2010, Antras and Costinot 2010, Bernard et al. 2010a and Bernard et al. 2010b). Employment of an intermediary firm is driven primarily by country-specific fixed costs, meaning a firm that directly exports to one country may use an intermediary to reach another's market. Firms that engage in intermediated, or indirect, trade, are much smaller than direct traders in terms of employment, but this differential decreases when total sales are compared.

Firm heterogeneity also provides an explanation for sub-industry variation in FDI engagement. A very small subset of the most productive firms may choose to invest directly in a foreign market to avoid transportation costs associated with exporting finished goods (horizontal FDI): FDI entails higher sunk costs, but potentially higher profits over time (Helpman, Melitz and Yeaple 2004; Head and Ries 2003). Relative to exporters, firms investing in plants abroad are more productive. Just as large, highly productive exporting firms are likely to serve multiple foreign markets, Wakasugi and Tanaka (2009) find that among Japanese firms investing in other Northern economies, those investing in both North America and Europe are the most productive. Interestingly, related research has shown this productivity gap to be smaller than among European firms (Wakasugi et al. 2008).[1]

Outsourcing, like intermediated trade, has received relatively little attention from scholars. A theoretical framework has been laid (Antras 2003; Antras and Helpman 2004), identifying the boundaries of the firm and sorting according to productivity. In the Antras and Helpman model, high productivity firms engage in FDI, while producers with middling productivity outsource abroad, and low productivity firms outsource domestically. Tomiura (2007) tests the implications

[1] At least for Japanese FDI directed to a small number of European hosts.

of the Antras and Helpman model against a large survey of Japanese firms finding evidence confirming the theory. Additionally, outsourcing producers appear to be less capital-intensive than firms pursuing other internationalization strategies. Hijzen et al. (2010) find that firms that outsource abroad increase their productivity after doing so; this relationship is stronger for outsourcers with a relatively low ex ante productivity than more productive producers.

Finally, firms may choose multiple engagement strategies to reach different markets. For example, one firm may choose to directly export its product to one market, export through an intermediary to another, and engage in horizontal FDI to reach a third market. Similar patterns can be expected for import behaviors, although theoretical modeling of this activity has lagged that of exporting. Outsourcing may be employed for the production of intermediate inputs for some or all of the firm's final products. One drawback of many existing empirical studies is the inability to address a full foreign-market engagement strategy on behalf of firms. Providing a first step in this direction should contribute to a better understanding of how trade and investment policy reforms affect firms in a clearer manner.

Survey Instruments

The unusually rich data for this project come from an original firm-level survey that was administered in February 2011 by Teikoku Databank; the instruments were constructed by Kumeikuo Kume, Arata Kuno, Megumi Naoi and myself. We had a total of 2,217 firms respond to our survey (a 53 percent rate), distributed across the agriculture, construction, manufacturing and services sectors; the majority of respondents (1,390) are located in manufacturing. This paper focuses on the activities of firms in this sector. In addition to the responses to our survey instruments, we have objectively reported financial and employment data for each firm within the sample that were provided by Teikoku Databank.

Individual respondents at the firms surveyed are employed in management positions, so they should be reasonably aware of their employers' business activities. For each respondent, we have information regarding his or her actual job title and division of employment, as well as a response to a question regarding perceptions of the employing firm's recent performance. Responses to this question can be compared against objectively reported changes in each unique firm's sales over the previous years, allowing us to calibrate responses at the level of the observation, if necessary.

In keeping with the export-oriented focus of the heterogeneous firms literature, our relevant survey instrument asks both whether firms sell a portion of their production abroad, as well as the methods they employ:

Is your company exporting its in-house manufactured products? Please choose all that apply (Q17).

(A) Exporting directly to an overseas firm or individual, without the services of a foreign agency or trading company.
(B) Exporting indirectly to an overseas firm or individual, through a foreign firm or trading company.
(C) A buyer of our in-house manufactured products is exporting directly or indirectly.
(D) Not exporting in-house manufactured products.

We ask a similar question regarding firms' importing activities:

Is your company importing raw materials, parts, or finished goods? Please choose all that apply (Q18).

(A) Importing directly from a foreign client (includes subsidiaries), without the services of Japanese import agencies or trading companies.
(B) Importing indirectly through Japanese import agencies or trading companies.
(C) My company is not importing raw materials, parts, or finished goods etc.

A third question focuses on whether or not firms are engaging in FDI:

Is your company currently establishing any factories abroad for the purposes of engaging in manufacturing, processing, or assembling?

(A) Establishing
(B) Not Establishing
(C) I don't know

Finally, a question addresses the offshoring/outsourcing issue:

> *Is your company outsourcing to any foreign firms (excluding its own subsidiaries) for any process of its production (manufacturing, processing, assembling, or other paperwork, etc.)?*
> *(A) Outsourcing*
> *(B) Not Outsourcing*
> *(C) I don't know*

Unfortunately, we were unable to collect information on trading partners or target states for trade, FDI, and outsourcing. Even without the burden of such detailed questions, we received a relatively low response rate on our question regarding FDI engagement, with just 364 of 2,217 firms responding. After providing descriptive analysis of the manufacturing segment of our data, I analyze firms' responses to these questions in light of their characteristics.

Firms and Internationalization Strategies

The firms included in the wave of survey questionnaires as potential respondents were not gated by any characteristics (such as size or employment), so the characteristics of the sample should roughly approximate the population of Japanese manufacturers.[2] Table 1 presents some industry-level characteristics of our sample of manufacturing firms. The average manufacturing firm in our sample employs 143 workers; variation in firm size within the sample is very large (the largest firm, by employment has 12,318 workers). Likewise, we observe significant variation in total sales and tangible fixed assets, among other firm-level characteristics. One thing that is notable about our survey is the inclusion of small and medium enterprises (SMEs); here I use the Government of Japan's criteria for specifying SMEs (cutoffs of 300 workers or capital stock of 300 million yen). In contrast with many previous studies of Japanese firms, the vast majority of the firms in our sample can be classified as SMEs. Even when creating more stringent gates for size, SMEs remain a significant portion of our sample. Despite this, firm size and productivity distributions appear to be approximately Pareto.

[2] We also sampled firms in agriculture, construction and service industries. However, these are not the focus of this paper.

Table 1 – Survey Coverage, Descriptive Figures

Industry	Total Firms	SME[1]	Tangible Fixed Assets[2]	Mean Sales[3]	Mean Employment
Processed Food	156	143	1832	6352	99
Textile & Apparel	48	46	466	1934	64
Funiture & Construction Materials	102	99	1594	3199	91
Paper & Paper Products	47	47	914	2387	73
Printing & Publishing	89	86	1399	3435	106
Chemical	182	166	6566	12475	179
Steel, Nonferrous & Mining	232	222	2087	4532	108
Machinery	238	215	2421	6486	182
Electric Machinery	184	166	2453	8939	199
Transportation Machinery	39	30	3156	9607	286
Precision Equipment	33	30	3828	6590	193
Other MFG	40	39	981	2064	73

1 – Small and medium enterprises: firms with fewer than 300 workers or capital stock of less than 300 million yen; these are the criteria used by the Japanese government.
2 – Industry average, in millions of yen.
3 – In millions of yen.

Table 2 presents trade participation by industry. Mirroring the findings of Bernard, Jensen, Redding and Schott (2007), I find that exporting is a rare activity for firms to undertake. Indirect exporting – that is, relying on a third party's foreign distribution network – is more common than direct exporting. Variations in levels of export engagement (the first four columns) appear to loosely follow the classic logic of comparative advantage: capital- and skill-intensive industries see higher levels of trade engagement. For example, among precision equipment manufacturers, nearly one quarter directly export; more than half reach foreign markets through the distribution channels of third-party firms. At the comparative disadvantage side of the spectrum, less than 20% of textile and apparel manufacturers directly or indirectly sell to foreign markets. However, nearly a third of these producers supply final products to firms that then sell abroad. It is interesting to note that more than half of transportation machinery producers sell a portion of their production to firms that then export the products. This seems to indicate that the specialization of tasks in the face of high transportation costs leads to less encompassing firm boundaries; however, our data do not allow for a test of this.

Table 2 – Trade Engagement by Manufacturing Industry

Industry	Direct Export	Indirect Export	Export Supply	No Export	Direct Import	Indirect Import	No Import
All MFG	17.5%	23.4%	30.2%	47.3%	25.1%	44.5%	40.1%
Processed food & beverage	7.7%	21.8%	27.6%	53.8%	12.2%	65.4%	30.8%
Textile & apparel	16.7%	14.6%	31.3%	54.2%	41.7%	54.2%	25.0%
Furniture, construction material	10.8%	13.7%	12.7%	74.5%	21.6%	52.0%	35.3%
Pulp & paper	8.5%	14.9%	27.7%	59.6%	14.9%	61.7%	29.8%
Printing & publishing	4.5%	7.9%	14.6%	77.5%	10.1%	33.7%	60.7%
Chemical	19.8%	28.6%	39.6%	32.4%	25.3%	50.0%	37.4%
Metals & mining	11.2%	14.2%	27.2%	59.5%	18.1%	30.2%	55.2%
Machinery	32.4%	35.7%	39.1%	30.3%	32.4%	37.4%	42.9%
Electric machinery	23.9%	28.8%	34.2%	34.2%	35.9%	45.1%	30.4%
Transportation machinery	15.4%	17.9%	53.8%	30.8%	25.6%	38.5%	48.7%
Precision equipment	24.2%	57.6%	24.2%	18.2%	45.5%	45.5%	21.2%
Other MFG	17.5%	17.5%	7.5%	62.5%	40.0%	37.5%	32.5%

Table 2's final three columns depict engagement in intermediate imports by industry and mode. Relative to exporting, importing is a less rare activity. With the notable exception of the textile and apparel industry, direct import engagement appears to loosely contradict the comparative advantage wisdom: comparative advantage sectors see higher levels of firm engagement in the direct import of intermediate goods. However, indirect imports of these goods appear to be relatively more frequent in comparative disadvantage sectors.

Manufacturing firms' engagement in two-way trade, FDI, and outsourcing are presented in Table 3. Producers utilizing direct two-way trade – that is, firms that both export and import themselves – are extremely rare, making up about 11% of all manufacturers. Generally speaking, this sort of trade engagement is relatively common in comparative advantage industries. Two-way trading, more broadly, is as rare as direct two-way trading. The two-way trade measure here indicates firms that both export somehow (direct, indirect, or supply to an exporter) and import (direct or indirect). Omitting the export supply category does not significantly change the percent of two-way traders as a total of manufacturers. Thus, it appears that, while direct trading is very rare, indirect

trading is not so rare; likewise, firms may vary their trade strategies. A direct exporter may not directly import intermediate goods.

Table 3 – Two-way Trade, FDI, and Outsourcing by Manufacturing Industry

Industry	Direct Two-way	Two-way	FDI	FDI Responses	FDI out of all Firms	Outsource
All MFG	11.0%	38.6%	213	313	15.3%	24.5%
Processed food	4.5%	30.1%	16	25	10.3%	19.1%
Textile & apparel	10.4%	37.5%	8	12	16.7%	47.9%
Furniture & construction material	7.8%	21.6%	11	16	10.8%	15.2%
Pulp & paper	6.4%	36.2%	4	5	8.5%	14.9%
Printing & publishing	3.4%	16.9%	2	8	2.2%	14.6%
Chemical	11.0%	50.0%	39	47	21.4%	25.4%
Metals & mining	4.7%	26.3%	27	37	11.6%	19.1%
Machinery	19.3%	49.6%	37	63	15.5%	26.1%
Electric machinery	17.9%	51.1%	47	67	25.5%	35.4%
Transportation machinery	10.3%	43.6%	12	16	30.8%	23.7%
Precision equipment	21.2%	72.7%	5	9	15.2%	27.3%
Other manufacturing	15.0%	32.5%	5	8	12.5%	41.0%

Table 3 also reports FDI engagement. We received few responses to our FDI question: 313 out of 1,390 potential firms. Because of this, I present the number of firms responding both positively and negatively, as well as an indicator of the percent of firms within each industry that engages in FDI (non-respondents for this question are considered to not engage in FDI). When compared to the total number of firms across each industry in our sample, engagement in FDI is a very rare activity. It is interesting to note that, like trade, patterns of FDI engagement also appear to follow the logic of comparative advantage: a greater percent of firms in comparative advantage industries use FDI as a means of production than in comparative disadvantage industries. Our survey does not distinguish between vertical or horizontal motivations behind the initial and continuing FDI decisions. The final column in Table 3 presents the percent of firms in each industry that outsources some aspect of their operations. This appears to be an infrequent occurrence that again loosely follows the comparative advantage logic, although the textiles and apparel industry is an outlier – nearly 50% of firms engage in outsourcing.

Many firms that engage foreign markets choose multiple strategies to do so. Table 4 presents counts of firms engaging in pairs of internationalization strategies. Several intriguing patterns emerge here. For example, more than half of firms that engage in FDI also are two-way traders; FDI-engaged firms are also likely to import at least a portion of their intermediate inputs. What is more surprising is the fact that nearly half of FDIers outsource a portion of their production process; likewise, a significant portion supply domestic buyers who then export the same final product. Even firms with sufficiently high productivity to pay the fixed costs of entry may choose to supply an exporter if their intensive margin does not seem to justify sinking entry costs. While export suppliers do not seem to differ significantly from domestic producers, it is possible that the firms they sell to play an analogous role to that of intermediaries in indirect trade; likewise, the figures in Table 4 seem to indicate that export suppliers are a very heterogeneous group among themselves (much like indirect traders, but perhaps to an even greater extent). That is, firms that buy domestically and sell abroad on their own terms (without any contractual obligation to the manufacturer) may provide an avenue into markets with sufficiently high fixed costs to make other options – direct or intermediated export – infeasible. If this is the case, the conventional wisdom of the rarity of trade may not be entirely accurate, at least when any sort of trade engagement is considered. It is possible that firms that are not immediately engaged in trade (either direct or intermediated) are made consciously aware of trade shocks via transmission through domestic buyers selling abroad.

The finding that a large portion of direct two-way traders also engage in indirect or intermediated forms of trade seems to align with the notion that country-specific fixed costs play a determining role in the choice of trade mechanism. These behaviors are not limited to exporting; many firms that import directly also import directly. It is likely that these activities can be explained systematically through variations in country-specific fixed costs.

Table 4 – Multiple Internationalization Methods, Firm Counts

	FDI	Outsource	Direct Two-way	Indirect Two-way	Two-way	Direct Export	Indirect Export	Export Supply	Direct Import	Indirect Import	Total
FDI	x	99	69	131	147	88	92	87	133	110	213
Outsource	99	x	74	163	204	90	116	112	187	182	333
Direct Two-way	69	74	x	153	153	153	74	60	153	69	153
Indirect Two-way	131	163	153	x	353	243	325	135	219	230	452
Two-way	147	204	153	353	x	206	245	300	264	376	537
Direct Export	88	90	153	243	206	x	116	93	153	124	243
Indirect Export	92	116	74	325	245	116	x	100	140	177	325
Export Supply	87	112	60	135	300	93	100	x	123	252	420
Direct Import	133	187	153	219	264	153	140	123	x	130	349
Indirect Import	110	182	69	230	376	124	177	252	130	x	618
Total	213	333	153	452	537	243	325	420	349	618	x

Firms that engage international markets differ from those that solely focus on domestic sources and consumers. Table 5 replicates a table from BJRS (2007, Table 8) that presents trading premia across a number of characteristics for US firms with various levels of engagement; here, I estimate foreign-market engagement premia for each of the methods for which firms were queried in our survey.

Without time-series data, it is very difficult, if not impossible, to estimate TFP at the firm level. Instead, I calculate approximate TFP (ATFP), following the practice of Head and Ries (2003) and Tomiura (2007).

$$ATFP = ln\frac{Q}{L} - \frac{1}{3}ln\frac{K}{L}$$

For output (Q), I use total sales; value added may be used as well, but the term is not readily available within my survey data. Labor (L) is calculated using the number of permanent employees, while capital (K) consists of the firm's tangible fixed assets.

Table 5 – FDI, Outsourcing, and Trading Premia

DV	FDI	Outsource	Direct two-way	Indirect two-way	All two-way	Direct export	Indirect export	Export supply	Direct import	Indirect import
ATFP	0.08***	0.09***	0.08***	0.06***	0.06***	0.07***	0.06***	-0.01	0.08***	0.04***
Sales	1.57***	0.21***	0.97***	0.86***	0.81***	0.90***	0.81***	0.26***	0.79***	0.40***
Fixed assets	1.38***	0.23***	0.83***	0.78***	0.72***	0.83***	0.71***	0.22**	0.59***	0.28***
Workers	1.30***	0.16***	0.72***	0.67***	0.65***	0.73***	0.61***	0.28***	0.56***	0.30***
Sales per worker	0.27***	0.05***	0.26***	0.19***	0.18***	0.17***	0.19***	0.001	0.23***	0.13***
KL ratio	0.16*	0.04	0.11	0.11*	0.08	0.10	0.13*	-0.002	0.05	0.02

***p<0.01, **p<0.05, *p<0.1 Coefficients are for bivariate OLS regressions on logged transformations of the DVs.

For each of the firm characteristics listed in the left-most column – ATFP, total sales, fixed assets, workers, sales per worker, and the capital-labor ratio – I run illustrative bivariate regressions, using the natural log of these terms as the dependent variable. I regress these separately on binary indicators depicting whether or not firms engage in the various globalizing activities. The results largely mirror what one would expect from the existing literature: firms with an international presence are larger, have more sales per worker, possess more capital, and employ more workers than producers that serve only the domestic market. The effect appears to be the largest for firms engaging in FDI, two-way trade, exporting or direct importing. Firms that supply products to exporters, but do not export themselves, differ from firms that do not supply to exporters; however, they do not have significantly higher rates of sales per employee. Additionally, this is the only group of firms for which ATFP does not take a value greater than zero, although it does not gain significance; this would seem to indicate that suppliers to exporters are not necessarily more productive than domestic producers. Finally, in a striking contrast to findings of other studies, firms with an international presence largely do not appear to have a significantly greater capital-labor ratio than others.

Finally, in Table 6 I present a series of probit regressions using each internationalization option as the dependent variables. The results tell a story that is largely consistent with that of the bivariate regressions in the previous table. Higher levels of ATFP are associated with a higher probability of engaging foreign markets, with the exception of firms supplying buyers who then export their products. Likewise, firms with large numbers of employees are more likely to pursue an

internationalization strategy. It is interesting to note that both firms' capital-labor ratio and the percent of foreign ownership have mixed relationships with internationalization. Higher K-L ratios are associated with a higher probability of FDI and direct import engagement, while high portions of foreign ownership are tied to a greater likelihood of the use of direct or intermediated importing.

Table 6 – Methods of Internationalization

IV	FDI	Outsource	Direct Two-way	Indirect Two-way	All Two-way	Direct Export	Indirect Export	Export Supply	Direct Import	Indirect Import
ATFP	0.30***	0.38***	0.31***	0.22***	0.23***	0.26***	0.18***	-0.06	0.33***	0.18*
K-L	0.12***	-0.01	0.07	0.07	0.06	0.07	0.05	-0.02	0.05*	0.03
Workers	0.40***	0.12***	0.21***	0.23***	0.25***	0.24***	0.17***	0.10**	0.20***	0.09***
FOwner	0.01	-0.001	0.01	0.01	0.02***	0.01	0.01	0.003	0.02***	-0.02***
Constant	-3.81***	-2.21***	-3.12***	-2.10***	-2.03***	-2.80***	-2.00***	-0.68*	-2.48***	-1.01***
Chi2	188.97	76.39	67.49	355.36	151.45	138.54	103.09	14.93	188.06	58.10
Pr>Chi2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Pseudo R2	0.13	0.04	0.06	0.05	0.06	0.06	0.03	0.01	0.06	0.01

***p>0.01, **p>0.05m *p>0.1

K-L and Workers are the natural log transformations.

All probit regressions are run with robust standard errors clustered on industry.

Conclusions and Discussion

Firms engage foreign markets through a number of internationalization strategies. Oftentimes, these options are analyzed independently of each other, while they in fact appear to provide clear substitutes as well as complements for each other. FDI, outsourcing and direct trading are all very rare firm activities; however, a relatively large portion of manufacturers choose to reach foreign markets through intermediated trading and by supplying domestic firms that then export goods to foreign markets themselves. Thus, the positive impact of trade liberalization at the firm level may be underestimated; even firms that only supply exporters may have benefits transmitted through these exporters' gains from liberalization. Additionally, the frequency with which globalizing strategies are employed may be severely underestimated in the existing literature on trade and offshoring.

Firms' preferences over trade policy vary widely as well. Analyses conducted in a companion study (Plouffe 2011) suggest that these preferences can be disaggregated systematically by firms' engagement of international markets. By understanding these preferences over trade policy, we may be able to better explain ways in which firms engage the policy-making process, as well as the ends they seek. A clearer comprehension of the preferences of actors in the political economy should assist policy-makers in the formulation of superior welfare-enhancing policies. Additionally, firms with even a tenuous global presence may hold clearly-formed preferences over global issues beyond trade and investment policies. The survey data introduced in this paper should assist in identifying some of the ways in which global issues and their associated policies affect an expansive range of Japanese firms, and the ways in which firms respond.[3]

[3] For an example, see the paper on the Trans-Pacific Partnership by Kuno and Naoi presented at this same conference.

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