PRIVATE AND PUBLIC INFORMATION FOR FOREIGN INVESTMENT DECISIONS

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November 1999

ABSTRACT

Previous studies have found that foreign direct investment is significantly related to the stock of existing investment in the area. The present paper makes an additional contribution by providing evidence that investment decisions are positively correlated to the firm's *own* previous investment in the area as well as to the current/planned investments by competitors. In addition, it is found that these two channels are primarily substitutes, i.e., investment by competitors comes less important when the firm already has experience in the market. The results are statistically significant and robust to various changes in model specification.

ABSTRAKT

Z předchozích studií je známo, že přímé zahraniční investice v určité oblasti významně souvisí s objemem stávajících investicí v téže oblasti. Příspěvek tohoto článku spočívá v poskytnutí důkazu toho, že rozhodnutí o investicích jsou pozitivně korelována s předchozími *vlastními* investicemi dané firmy v určité oblasti, jakožto i se současnými nebo plánovanými investicemi konkurence. Navíc je možno ukázat, že tyto dva kanály jsou primárními substituty, tzn. že investice konkurenční firmy jsou méně důležité pokud má již firma zkušenosti na daném trhu. Výsledky jsou statisticky významné a robustní vzhledem k různým změnám ve specifikaci modelu.

"...either he should discover the truth about them for himself or learn it from some one else; or if this is impossible, he should take the best and most irrefragable of human theories and make it the raft on which he sails through life." Plato.

Introduction

Does privately-acquired information play an important role in the decision to undertake foreign investment? If so, is the private information acquired through direct experience? Or is the information on a country's potential for economic returns inferred from observing actions undertaken by others who may have private information? What is the relationship between such private information and publicly available information on a country?

The setting for the empirical examination is investment by Japanese manufacturing firms in a number of key Asian countries in the early 1990s and the data is from a specially designed survey of Japanese investors. To deal with scaled responses by firms, an ordered logit model is used to estimate the relationships. The stated likelihood of planned investments in a country is the dependent variable that is explained by whether the firm is already present in the country and by its perceptions of the likelihood of investments by competitors in that country. We find persuasive evidence of private information—acquired through own experience and inferred from the plans and decisions of other investors. Others' actions are a specially important guide when "new" countries open up, when significant discontinuities in investment flows are observed.

Since the results obtained may be consistent with alternative interpretations, we attempt to control for several other information sources and investment drivers that may influence the foreign investment decisions. Specifically, we control for firm, country, and industry characteristics. Firm dummies (or firm characteristics) are included in the estimated equation to determine if the "private

information" merely reflects firm attributes. The influence of public information on investment decisions is dealt with by introducing country dummies, which are assumed to embody information available to all. Finally, dummies for industrial sectors seek to isolate the influence of industry-specific factors, including agglomeration effects.

The paper is organized as follows. The next section reviews the literature, focussing on the sources of public and private information relevant for foreign direct investment decisions. The section following describes the questions asked in the survey, the data, and the analysis methodology. We then present our benchmark model, which allows for the possibility of substitution or complementarity between the two sources of private information and which controls for publicly available information through the use of country dummies. We summarize several extensions (detailed in an earlier version of the paper, Kinoshita and Mody 1997) to highlight the robustness of the findings. Finally, to help distinguish the informational interpretation favored in this paper from agglomeration and strategic rivalry effects, we control for industry characteristics.

The literature and hypotheses

Physical agglomeration of foreign investment is commonly observed, as for example in the south-eastern provinces of China and in northern Mexico close to the U.S. border. Studies of aggregate foreign investment flows have found the stock of existing investment in the area has a significant influence on new investment into that area. Wheeler and Mody (1992) found that U.S. investments into a country were strongly conditioned by existing stocks of foreign investment in that country (after controlling for a variety of factors, including market size). Subsequent analysis

shows that new Japanese investment is equally influenced by the stock of past investment (Mody and Srinivasan 1998). The authors of these studies have speculated that the results may reflect the benefits of agglomeration economies, which may be especially relevant for industrial sectors that rely heavily on intermediate inputs from other suppliers or for sectors able to gain through spillovers between firms in close proximity.

Kogut and Chang (1996) use firm-level data for Japanese multinationals investing in the United States and find past presence to be an important predictor of new investments. This evidence is consistent with the aggregate studies: persistence of foreign investment is observed at the firm-level. However, the evidence has alternative explanations. It may reflect agglomeration economies: firms in specific agglomerations may seek to grow as they experience the benefits of proximate location. Alternatively, the evidence (and also the evidence from aggregate studies) can be interpreted as the consequence of a foreign investor's learning experience in a country. As greater familiarity with operating in the country is acquired, and the specific opportunities for expansion are revealed, more investment is committed.

Not only may firms rely on their own experience, but they may also be guided by the current/planned investment of their competitors. Where information on competitors' behavior is important, cascading of foreign investment may be observed. Persistence, punctuated by significant discontinuities, is commonly found for investments into specific countries. China has attracted a rush of investment not only from overseas Chinese but also from U.S., Japanese, and European investors, starting quite abruptly in the late 1980s and growing explosively into the mid-1990s. China receives about $40 billion a year of foreign investment despite cumbersome procedures and

uncertainty surrounding property rights and contract enforceability; in contrast, India even after rolling back restrictions and a longer tradition of a market economy chalks up between $3 and 4 billion a year. A discontinuity is also being observed for Vietnam, where competing investors are staking out positions.

In a pioneering study, Knickerbocker (1973) examined the response by firms to the investment decisions of competitors. He showed that the more oligopolistic an industry, the greater was the likelihood that foreign investments would be concentrated into a short period of time, and hence display spikes or discontinuities in foreign investment flows. Recently, Head, Ries, and Swenson (1995) have shown that Japanese investors in the United States tend to "follow-the-leader," affirming the signaling value of others' behavior. Once again, however, alternative explanations are possible. Evidence of strategic rivalry may be inferred where firms are staking out positions to obtain early mover advantages. However, if firms are mainly “following-the-leader,” then they are being driven less by strategic concerns than by interpreting the behavior of the leader as indicating the potential for profitable operations in the targeted location. Such *privately-held information*—or more accurately, *private beliefs*—can have a significant impact on investment flows even when no fundamental change has occurred but when a perception of change leads to actions by a critical mass of investors, which then has a snowballing effect. Herd behavior parallels and reflects "cascades" of information flows (Scharfstein and Stein 1990, Bikhchandani, Hirshleifer, and Welch 1992, and Lee 1993). The so-called "herd" behavior—actions based on others' actions—can be quite rational in as much as it economizes on the gathering of scarce information. Arthur (1995) discusses several examples from economics and finance where private

beliefs play an important role. Kuran (1995) explains the persistence of certain social institutions as well as their abrupt breakdown on the basis of privately-held but publicly concealed preferences.

Thus, from existing studies and observations of foreign investment flows, we are led to ask if private information, either from the firm's own learning experience or from observing other credible actors, is of substantial value in determining foreign investment. Private information may be important, especially in the context of emerging economies, where investors seek information on a variety of operational conditions which are not publicly available, including the functioning of labor markets, industrial literacy of the workforce (as distinct from educational attainments), the practical implementation of foreign investment polices, and the timely availability of inputs. The importance of such information on operating conditions in a country is notably illustrated by General Motors' decision to locate its Asian hub in Thailand: "...the fact that 11 car manufacturers already operate in Thailand was a sign that the country's infamous physical infrastructure and labor bottlenecks could be overcome" (Bardacke 1996).

As with past studies cited above, our findings are open to alternative explanations, and more so than is usually the case since we attempt to highlight the importance of an unobservable variable—private information. For example, past presence may increase the probability of new investment in the country not only because of a learning effect but also because investment is characterized by economies of scale. Disentangling strategic considerations a purely information-

based interpretation of the data is also difficult. The General Motors' investment in Thailand and other anecdotal evidence suggest that the strategic element of investment decisions is important.[1]

Recognizing the possibility of alternative interpretations, we find that the informational interpretation of investment flows has considerable basis. An important finding is that the two sources of private information are substitutes (the coefficient on the interaction variable is negative). If economies of scale and strategic rivalry were key, we would expect to find a positive and significant sign. Also, when the dummy variable representing past presence of a firm in a country is interacted with industry dummies, the interactions are all insignificantly different from zero. If economies of scale were a dominant factor, we would expect past presence to play a more significant role in industrial sectors with greater economies of scale. Similarly, interactions of industry dummy variables and perceived interest of rivals in specific locations are also not statistically significant.

Data and methodology

The survey questionnaire was mailed by the Japanese Ministry of International Trade and Industry (MITI) to several hundred Japanese firms of which 173 returned usable responses in March 1993. The sample thus obtained cannot be treated as representative of all Japanese firms—we do not know the characteristics of firms who did not respond. There is, however, sufficient heterogeneity amongst the respondents to permit a statistical analysis of their foreign

[1] A perceived "first mover" advantage has contributed to the rush of motorcycle investors to Vietnam. Referring to the interest in Vietnam, a German investor summarized his firm's interests:" We simply cannot sit back and let the Japanese take over another market unchallenged." (Financial Times, March 28, 1995)

investment behavior. The firms in our sample are relatively large. The average annual sales are 330 billion yen (over $3 billion), the largest firm in the sample has sales of $70 billion and the smallest has sales of $2 million. This is also a set of firms that is prone to making significant foreign investments—in the three years prior to the survey, over a fifth of their investment was undertaken outside Japan.

Our dependent variable is based on the following question regarding the firm's expectation that it will invest in specific Asian countries: "In each of the following countries, how likely are you to invest in the next three years?" Respondents were asked to check a space on a 1-7 scale provided, ranging from "very unlikely" to "very likely".

VERY UNLIKELY VERY LIKELY

:___:___:___:___:___:___:___:

The question was answered for the following seven countries: China, Thailand, Malaysia, Indonesia, Vietnam, Philippines, and India. These countries constitute the principal developing country recepients of foreign investment in Asia. Their level of economic development is substantially lower than in the so-called Asian Tigers—South Korea, Taiwan, Hong Kong, and Singapore—with Malaysia being the closest to the Tigers by most development measures. For each of the seven countries, we have 173 responses, potentially creating 1211 (173x7) observations (however, since all respondents did not answer all questions, for certain estimations fewer usable observations are available and where appropriate we have tested for selection bias).

Our two key independent variables are PAST and RIVAL. The questionnaire asked whether the firm already had a presence in each of the seven countries being studied. For each firm and each country, the PAST variable was coded 1 if the firm was present in the country and 0 if it was not. Recall that we infer a learning effect if past presence leads to a high likelihood of future investment. The other key variable allowed inference on the information obtained from competitors. The question asked was: "Are your competitors making investments in the following Asian countries?" Once again, the response allowed ranged on scale of 1 (very little) to 7 (very substantial).

The average value of the responses for the seven countries (and the standard deviations) are reported in table 1. Respondents to our survey are most likely, by far, to invest in China, the average measure on the 1-7 scale for China being 4.08. Only 20 percent of the firms have existing investments in China; the perceived level of rivals' interests in China is high, second to Thailand. Four countries have similar likelihoods of investment: Thailand, Malaysia, Indonesia, and Vietnam. Of these, Malaysia and Thailand have traditionally attracted substantial Japanese interest, with 25 and 30 percent of firms respectively reporting existing presence in those countries; and rivals are also strongly interested. In contrast, Vietnam has low existing Japanese presence and also a relatively low interest from rivals. The least attractive sites are the Philippines and India, with low expected investment, low initial presence, and low rivals' activity. Thus, a simple comparison across countries indicates a correlation between expected investment by the firm and its perception of the strength of rivals' interest in the country. Since past presence is indicated only in 15 percent

of the possibilities, information provided by behavior of rivals is likely to be valuable where the firm is entering new countries.

An ordered logit model was used to investigate these relationships more precisely. The ordered logit is an extension of the binomial logit and deals with situations where there exist multiple ordered choices (see Greene 1993). For the purpose of the regression, the likelihood of investment (LFDI) variable was rescaled to create three ordered choices. As illustrated above, the original data is on a scale of 1 through seven. The three rescaled categories are: 2 (highly likely to invest where the response was 6 or 7), 1 (moderately likely, where the response was 3,4, or 5), and 0 (unlikely to invest, where the response was 1 or 2). As in the binomial logit model, we assume a latent regression model of the following form:

$$y^* = \beta \, \mathrm{x} + \varepsilon \qquad \textbf{(1)}$$

A vector of variables, **x**, which includes PAST AND RIVAL, determines a latent variable, y^*. The latent variable y^* is not observed, but the response indicating the likelihood of investment is observed. The observed responses are related to the latent variable in the following manner:

$$y = 0 \quad if \quad y^* \leq 0$$

$$y = 1 \quad if \; 0 < y^* \leq \mu \qquad \textbf{(2)}$$

$$y = 2 \quad if \; \mu \leq y^*$$

Then, for the logistic cumulative distribution function, the model predicts the following probabilities for each of the responses:

$$Prob(y = 0) = \Lambda(-\beta x)$$

$$Prob(y = 1) = \Lambda(\mu - \beta x) - \Lambda(-\beta x) \qquad \textbf{(3)}$$

$$Prob(y = 2) = 1 - \Lambda(\mu - \beta x)$$

The joint probability or the likelihood function is:

$$L = \prod_{i=1}^{n} [Pr(Y_i = 0)]^{d_{i0}} [Pr(Y_i = 1)]^{d_{i1}} [Pr(Y_i = 2)]^{d_{i2}} \qquad \textbf{(4)}$$

2

where d_{ik} (k = 0,1,2) is an indicator function equal to 1 if y_i = k and zero otherwise. "n" is the number of observations, where the observational unit is a firm's investment plans for each country, implying up to seven observations per firm. The parameters are estimated by maximizing the log of the likelihood function above.

The value of private and public information: the benchmark model

In the benchmark model, we regress the firm's likelihood of investing in a particular country against its past presence or absence in that country (PAST), perceptions about competitors' interest in that country (RIVAL), the interaction between PAST and RIVAL, firm and country dummies (table 2, column 4).

It is clear that the both the firm's past presence and its perception of competitors' behavior have a strong influence on its plans to invest in a country. The inclusion of the PAST*RIVAL variable improves the log-likelihood and from the likelihood ratio test we can conclude (at the 2.5 percent significance level) that the interaction term belongs to the model. The negative sign on the interaction term (PAST*RIVAL) indicates that the two channels of private information appear primarily as substitutes for each other.

Inclusion of firm dummies is possible because we have multiple observations for each firm (with a maximum of seven observations where a likelihood was reported for each country). If firm j's unobserved characteristics (h_j), which are part of the composite error term ($e_{ij}=h_j + g_{ij}$), are correlated with PAST and RIVAL, then the coefficients will be biased. By adding firm dummies to the regression, the unobserved characteristics become part of the set of regressors and the error term now has only the white noise component, g_{ij}.[2] The results show that adding the firm dummies improves the statistical fit in standard ways (table 2, column 3).

The country dummies capture in summary form the relative attractiveness of the different countries and, since the coefficients on the dummy variables represent the average perception of the country, we take these to represent the publicly available information. An alternative specification would include specific country features, such as infrastructure, market size, and labor costs. As Head, Ries, and Swenson (1995) have argued, a full elaboration of country characteristics is

[2] Introduction of the firm dummies strengthens the result both in the size of the coefficients and statistical significance. The increased coefficient sizes on the PAST and RIVAL variables suggests that the composite error term is negatively correlated with these variables. In other words, those who have past presence or perceive active rivals are generally more conservative in reporting their investment likelihood.

difficult, and hence a country dummy, which captures the country's attractiveness to the "average" investor, is preferred in this situation. In the next section, we do examine the effects of specific country features. The regressions leaves out Vietnam, which is consequently the reference against which the attractiveness of other countries is measured.

The robustness of the PAST and RIVAL effects is evident. The benchmark regression also highlights the complementary role of private and publicly available information: general perceptions of a country based on publicly-held information are also influential in driving investment flows. The significantly lower log-likelihood when the country dummies are included indicates that important information is contained in these country dummies and hence in the generally held view of the country. With Vietnam as the reference, on average, investors express a strong preference for China. The Indonesian coefficient is not significantly different from that of Vietnam. Interestingly, Thailand and Malaysia, though scoring high on the raw numbers, have significantly negative coefficients. These two countries have high past presence and competitor interest. Thus the continued high levels of anticipated investments in these countries are based on firms' operating experience rather than on general country characteristics. The two countries lowest on the preference list are the Philippines and India.

Based on Greene (1993, pp. 675-676), we compute that the model correctly predicts 78 percent of the firms' investment plans (table 3, panel B). The "very unlikely" declarations are almost fully predicted. In the "likely" category the prediction rate is about 55 percent. The addition of country dummies specially improves the prediction rate for the "very likely" category. The model's predictive power of about three-fifths in the "likely" and "very likely" categories (as

against 90 percent in the "very unlikely" category) indicates that a number of firms with PAST and RIVAL equal to zero have aggressive foreign investment plans—possibly, high production costs in Japan have the general effect of pushing firms to seek lower cost production locations.

To test the robustness of these findings, several extensions were examined. To conserve space, only the main results are reported here (details are available in the working paper version of this paper, Kinoshita and Mody 1997). Replacing firm dummies with specific firm characteristics left our principal results unchanged. Larger firms have higher expected foreign investment. R&D has only a weak positive relationship to expected investment; since R&D and size are correlated, it is not surprising that once the influence of size is controlled, then any independent influence of R&D is not discernible. Finally, firms expecting to investment significantly in Asia have a low export propensity.

Instead of country dummies in a pooled regression, we also ran regressions for individual countries. Again, while the basic results remain unchanged, some interesting country variations are worth highlighting. For India, Philippines, and Vietnam, where the PAST variable is not statistically significant, the extent of past presence is also very small, limiting the statistical predictive power of that coefficient. For Vietnam, the coefficient on RIVAL is very large, suggesting that firms are very sensitive to perceived actions of rivals and hence the possibility of a cascading effect. Though the effect is smaller, a similar force may well be operative for India. At the other extreme, in Malaysia, where significant past presence exists, the effect of RIVAL is negligible for those who are already operating in that country (PAST=1); however, even in Malaysia, new entrants are significantly guided by the actions of rivals. In this respect, Thailand is

different from Malaysia: though a significant past presence exists there, existing investors in Thailand also appear influenced by the behavior of their rivals.

Finally, instead of country dummies, we explored how perception of specific country characteristics influenced foreign direct investment (FDI). We report here the results on FDI policy (other country characteristics are discussed in Kinoshita and Mody 1997). FDI policy was explained to respondents to include such elements as the ability to repatriate earnings, restrictions on foreign ownership, and the requirements to export and source inputs locally. Perceptions of FDI policy are strongly influential in conditioning future plans to invest in a country. The coefficient on FDI policy is positive and significant at the 5 percent level. However, since the coefficients on PAST and RIVAL also remain positive and significant at the 1 percent level, the evidence seems to suggest that FDI policy is additional information to that obtained by from past investment experience and actions of competitors. Perceptions of FDI policy interact in interesting with ways with PAST and RIVAL. The coefficient on the interaction term, FDIplcy*past is negative. Hence when past is equal to 1—i.e., when the firm has a past presence in that country—the effect of FDI policy is more than wiped out. In other words, perceptions of FDI policy matter little when the firm has first-hand operational experience in the country. The corollary is that perceptions of good FDI policy are especially important in attracting new investors.

Industry effects

We examine if industrial sector characteristics have a significant bearing on foreign investment choices. As the discussion above indicated, PAST and RIVAL may be picking up

agglomeration and strategic rivalry rather than informational effects. Controlling for industry characteristics goes some way towards determining how important the informational effects are. We are not able to control for industry *and* firm characteristics at the same time since the variance in investment plans *within firms within an industrial sector* is relatively small such that when firm dummies are included, the standard errors on the industry dummies tend to be very large. This also implies that firm-level dummies are proxying for the same information as industry-level dummies. As such, when we drop the firm-level dummies and include instead the industry-level dummies, we can expect the basic results to remain the same. However, some additional interesting insights are obtained through the exercise.

The first column in table 4 shows the basic model with only the industry dummies and the second column includes also the country dummies. In either case, the PAST, RIVAL, and the PAST*RIVAL remain highly significant as before. The industry that was used as the base was garments and footwear (and other light manufacturing firms that could not be elsewhere classified). Relative to this base, industrial sectors that expect similar levels of foreign investment are: building materials, chemicals, and food. Sectors for which the industry coefficient is negative and significantly different from zero (and which, therefore, have a lower propensity for foreign investment than the base) include electrical equipment, non-electrical equipment, and automobiles and auto parts. Inclusion of the industry dummies does not change the signs on the country dummies but does reduce their absolute values. China remains positive and highly significant as before (relative to the base, Vietnam), but since light industries, building materials, chemicals, and food have higher investment propensities than other sectors, the value of the China coefficient falls.

In contrast, the Malaysian coefficient becomes less negative. In Malaysia, investment plans are high for electrical equipment, a sector that we noted above was not otherwise among the more highly favored by Japanese firms investing in developing Asian countries.

Table 4 also reports the interactions between PAST and industry dummies (column 3) and between RIVAL and industry dummies (column 4). These interactions are never significant, while the variables of interest to us, PAST, RIVAL, PAST*RIVAL remain highly significant. These results, therefore, imply that PAST investment is important in and of itself, as a learning device and is not associated with any specific industry characteristic. Similarly, the value of observing competitors is also independent of the sector.

Conclusions and discussion

Using a firm-level data set, we explored the empirical importance of privately-held information in foreign investment location decisions. Though the limitations of a one-time survey did not permit us follow an information "cascade" over successive generations, the value of private information, which is central to the cascade phenomenon was consistently and impressively evident.

The data permitted us, moreover, to distinguish between two types of private information: one that was obtained through direct experience in the host country and the other that was inferred from observing competitors. Direct experience is seen to provide the more credible information, as may be expected. However, in the early phases of investing in a new country when few firms have experience in the country, the actions of competitors are likely to be dominating effect, leading to

an apparent herd behavior. Such is apparently the case currently for China and Vietnam, which are attracting large numbers of new investors. In contrast, countries, such as India and the Philippines, that do not draw the attention of a critical mass of investors are in danger of being bypassed for significant periods of time.

We enquired how the privately-held information could was related to publicly available information and found it to be complementary. Thus, while firms form "average" perceptions about a country leading them all to view particular locations favorably, considerable variation in investment plans exists around these averages—an important element of such variation is explained by privately-held information. We explored also whether private information was a proxy for subjective beliefs on certain country characteristics (e.g., FDI policy). Again, the finding was that while such subjective perceptions are important, they represent additional information to that obtained through either past experience or through observing others.

For policymakers, these findings represent a challenge. A generally favorable view of the country based on its fundamentals as well as perceptions of good policy and low labor costs lead to increased foreign investment. However, creating the right conditions for investors to directly experience the rigors of operating in a country is empirically important, as is the opportunity to observe competitors. This raises the controversial issue of special zones for foreign investors. While successful in many instances, especially in East Asia, they have also been a waste of scarce investment resources where not appropriately planned. An emerging approach is for the government to take the lead in creating the policy conditions for the creation of such zones but allow private investors to undertake the necessary investments and thus ensure greater efficiency.

Mexico offers an example. Under the *maquiladora* program, the policy environment has been created to attract foreign investors. Several private initiatives have resulted in so-called "shelters" that provide early hand-holding services to new foreign investors.

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	Past presence (Yes=1, No=0)	Rivals' activity (Scale: 1-7)	Automobiles	Building Materials	Chemicals	Food	Electrical equipment	Non-electrical equipment	Light manufacture	All
Number of firms			22	20	3					
Average size of firms (billion yen)			3623	2870	293	14	27	34	23	173
R&D/sales (%)			3.05	2.72	2.40	494	9820	767	1649	3289
Exports/sales			0.13	0.04	0.63	3.64	4.08	3.13	2.56	3.32
					Future	0.09	0.15	0.30	0.12	0.03	0.13
China	0.20	3.67	3.18	3.79	4.6	Invetment Plans (Scale: 1-7)				
India	0.03	1.94	1.59	2.37	1.60	5.21	4.38	3.53	4.25	4.08
Indonesia	0.18	3.31	2.24	3.39	3.65	1.58	2.54	1.26	1.32	1.72
Malaysia	0.25	3.53	2.50	2.89	3.69	2.77	3.20	2.16	2.53	2.84
Philippines	0.06	2.54	2.14	2.06	2.37	3.00	3.70	2.22	2.37	2.85
Thailand	0.30	4.10	2.52	3.33	3.07	2.17	2.50	1.61	1.74	2.02
Vietnam	0.01	1.92	1.91	3.60	2.20	3.46	4.04	2.71	2.68	3.16
All	0.15	3.02	2.30	3.07	3.67	2.46	2.75	1.81	2.89	2.53
						3.00	3.32	2.19	2.55	2.75

Note: Light manufacture contains garments, electronics and other light manufactur ed products.

Table 1: Firm characteristics by sector and futur investment plans

Table 2: The base model: value of private information
Dependent variable: LFDI (likelihood of FDI)

	[1]	[2]	[3]	[4]
intercept	-3.29***	-3.46***	-7.32***	-7.59***
	(0.17)	(0.18)	(0.49)	(0.57)
past	1.55***	2.79***	3.11***	3.46***
	(0.21)	(0.46)	(0.64)	(0.69)
rival	0.37***	0.42***	0.61***	0.56***
	(0.03)	(0.04)	(0.06)	(0.07)
past*rival	____	-0.27***	-0.29**	-0.29**
		(0.09)	(0.12)	(0.13)
μ	1.54	1.55	2.25	2.65
firm dummies	no	no	yes	yes
country dummies	no	no	no	yes
China	____	____	____	1.52***
				(0.35)
India	____	____	____	-2.03***
				(0.40)
Indonesia	____	____	____	-0.25
				(0.34)
Malaysia	____	____	____	-1.03***
				(0.38)
Philippines	____	____	____	-1.64***
				(0.37)
Thailand	____	____	____	-0.79**
				(0.38)
n	875	875	875	875
log likelihood	-686.74	-682.30	-494.30	-430.66

Note:
(1) Parentheses are standard errors. * and ** indicate 1% and 5% significance level, respectively.**
(2) μ is the second intercept defining the threshold for the transition from LFDI equal to 1 to 2.

Table 3: Model predictdictions: "hits and misses"

A: Model: lfdi=f(past, rival, past*rival, and firm dummies)

	Predicted			
	Very likely	Likely	Unlikely	Total
Observed				
Very likely	81	47	15	143
	(.57)			
Likely	24	105	65	194
		(.54)		
Unlikely	6	54	478	538
			(.89)	
total	111	206	558	875
				(.76)

B: Model: lfdi=f(past, rival, past*rival, firm dummies, and country dummies)

	Predicted			
	Very likely	Likely	Unlikely	Total
Observed				
Very likely	89	46	8	143
	(.62)			
Likely	29	107	58	194
		(.55)		
Unlikely	4	51	483	538
			(.90)	
total	122	204	549	875
				(.78)

Note:
In parentheses are the percentage of observations that are correctly predicted. For example in the first panel for predict=2, 81 out 143 (57%) of the observations are predicted correctly. For the model with only firm dummies (81+105+478) out of 875 or 76% are correctly predicted.

Table 4: Industry effects on investment plans
Dependent variable: LFDI (likelihood of foreign investment)

	[1]	[2]	[3]	[4]
intercept	-3.16***	-2.79***	-2.73***	-2.82***
	(0.36)	(0.31)	(0.32)	(0.44)
past	2.82***	2.94***	2.41***	2.94***
	(0.47)	(0.48)	(0.89)	(0.49)
rival	0.44***	0.42***	0.43***	0.42***
	(0.04)	(0.04)	(0.04)	(0.11)
past*rival	-0.26***	-0.27***	-0.29***	-0.29***
	(0.09)	(0.09)	(0.10)	(0.09)
Industrial sectors			**past*industry dummy**	**rival*industry dummy**
automobile	-0.66**	-0.69**	1.15	0.35**
	(0.32)	(0.28)	(0.91)	(0.17)
building materials	0.25	0.26	-0.18	-0.17
	(0.30)	(0.31)	(1.02)	(0.15)
chemical	-0.29	-0.24	1.28	0.02
	(0.27)	(0.28)	(0.84)	(0.13)
food	-0.13	-0.14	0.23	0.06
	(0.33)	(0.34)	(1.08)	(0.16)
electrical equipment	-0.52*	-0.49	-0.07	-0.13
	(0.29)	(0.31)	(0.84)	(0.14)
non-electrical	-0.81***	-0.85***	0.73	0.03
equipment	(0.27)	(0.29)	(0.86)	(0.14)
μ	1.58	1.69	1.70	1.71
Industry dummies	Reported above	Reported above	Yes	Yes
Country dummies	No	Yes	Yes	Yes
n	875	875	875	875
log likelihood	-671.30	-634.69	-630.56	-627.52

Note:
(1) Parentheses are standard errors. *, ** and * indicate 1%, 5% and 10% significance level, respectively.**
(2) μ is the second intercept defining the threshold for the transition from LFDI equal to 1 to 2.
(3) For industry dummies, light manufacture was used as base.
(4) For country dummies, Vietnam was used as the base.