EFFECTS OF POLITICAL RISKS ON JAPANESE OUTWARD FOREIGN DIRECT INVESTMENTS: A PANEL DATA ANALYSIS

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Abstract

This paper empirically examines the effects of political risks on the Japanese outward Foreign Direct Investment (FDI) with a panel data of 30 countries for the period of 1995-2004. The estimation model is constructed on the basis of the OLI (ownership, location and internalization advantages) and Knowledge-Capital Models. Political risk variables are included as additional explanatory variables with market potential, wages, skilled workforce endowments, investment cost, trade cost and distance. We found that the model with interaction terms of these political risk factors with some traditional explanatory variables reasonably explains Japanese outward FDI flows.

Keywords: foreign direct investments, multinational corporations, political risk
JEL classification: F-21, International Investment; Long-Term Capital Movements

1. INTRODUCTION

This paper empirically examines the effects of political risks, with interactions with additional variables, on the Japanese outward Foreign Direct Investment (FDI, hereafter) with a panel data of 30 countries for the period of 1995-2004.

FDI activity is defined as an investment that is aimed at acquiring control in the foreign company and it is often associated with Multinational Companies (MNCs) activities. [Markusen, 2009]. Through FDI MNCs get access to larger markets, lower resource prices, cheap labor and other benefits that can provide them with higher profitability and stable growth. On the other hand the host countries can benefit not only from the capital, but also from managerial and technological knowledge, access to international business culture and practice, improved productivity etc. [Estrin, Hughes, and Todd, 1997; Lankes and Venables,

1996]. These benefits facilitate host countries economic growth [Ozturk, 2007]. In line with this FDI are considered by local governments as an important source of economic growth and are often stimulated through various governmental policies. [Sinn et al., 1997].

This paper focuses exclusively on outward FDI from Japan. It is true that Japan has actively engaged in global FDI for a number of recent years being among the top-10 countries for FDI. The value of Japanese Outward FDI represented around 5% (74650 mln. US$) of the global outward FDI in 2009 as reported by JETRO [Japan External Trade Organization, 2010]. In line with this their recent MNCs activities reflect to a certain extent the general tendency of the global economy and represent a high interest and importance from theoretical and empirical point of view.

The present investigation of Japanese FDI has been motivated by at least two reasons: First of all, although a recent trend of FDI research has stressed potential importance of political factors that might affect FDI flows [e.g. Busse, 2005], as far as the authors know, there has been no close examination of the effects of political factors on the *Japanese* FDI alone. And secondly, although Japanese FDI has been considered as a sample country among many others within cross-section or panel data analyses, there is seldom any empirical analysis isolating and focusing only on Japanese FDI activities.

Using a panel data of Japanese outward FDI flows to 30 countries, we run regression models based on a hybrid model incorporating the knowledge-capital model proposed by Markusen [2002] and the OLI (Ownership, Location, and Internalization advantages) model proposed by Dunning [1992]. We first estimate a model which incorporates the traditional FDI determinants such as market size, growth perspectives, trade cost, investment cost, wage cost, skill difference, etc. Then, we augment the model to examine the effects of political risk on Japanese outward FDI flows, and consider some interaction effects with new explanatory variables, technological development index and national culture.

The rest of the paper is organized as follows. Section II provides a review of the recent literature, with special emphasis on the effects of political factors. Section III present our empirical models and discuss the effects of explanatory variables on FDI. Section IV describes the data and methodology, followed by the estimation results in section V. Section VI provides the summaries and conclusions.

2. POLITICAL RISKS ON JAPANESE FDI: REVIEW OF LITERATURE

Since Mundell's [1957] attempt to explain FDI flows in terms of relative factor endowments and relative factor costs, a large number of theoretical and empirical works appeared to modify, elaborate, and/or propose new or alternative models for FDI flows. A review of the literature on FDI determinants is found in a recent article by Deseatnicov [2009], in which political factors are emphasized as potentially important determinants for the modern FDI. Thus, this section is devoted to present exclusively a brief review of recent literature that has stressed their significance on FDI flows.

In his recent review article, Bloningen [2005,p.390] mentioned that the "quality of institutions is likely an important determinant of FDI activity, particularly for less-developed countries". While he argued that a negative impact of poor institutions on FDI leaves no room for doubt, it is difficult to empirically confirm the effects of institutions because of several problems inherent to data; measurement errors and little informative variations over time, among others.

Although the theoretical modeling of the effects of political risks on international investment activities has been scarce, Lipschitz, Lane, and Mourmouras [2002] are an exception. They argued that institutional factors "that determine the perceived risk of confiscatory taxation or exchange controls, as well as unclear property rights and uneven application of laws and contracts"(p.11) could be blamed as a source of small capital flows for ten CEE countries.

There have been many empirical investigations of political risks on FDI activities. For example, Edwards [1990] presented a cross-section estimate of OECD's FDI to 58 LDC sample countries, using data of the sample means for the period 1971-1981. Although he found that "both economic and political variables affect the distribution and magnitude of FDI", political variable's "relative importance is not very high when compared to that of other regressors". The political risk factors he used were some structural reform measures.

Jun and Singh [1996] was one of the first to analyze the impact of political risk for the sample of 31 developing countries and found by a panel data estimation that the political risk turned out to have a negative and significant effect on FDI. Another empirical analysis with cross-section estimation was presented by Wei [2000] who used a sample of bilateral FDI from 12 OECD source countries to 45 host countries. The political risk variables include corruption, bribes, or transparency.[1] In order to avoid a difficulty associated with estimation with zero-FDI observation, he used a modified Tobit model and found that a rise in either the tax rate on MNCs or the corruption level in a host country reduces inward FDI, and that American investors are more averse to corruption in host countries, but not necessarily more so than average OECD countries.

Effects of political risks on FDI activities have also been examined empirically with panel data. For example, Busse, and Hefeker [2005] used a panel consisting of 83 developing countries for the period 1983-2003. They considered 12 different political risk variables that may affect their inward FDI. An important feature they stressed was the *endogeneity* inherent to political risks, and therefore, to avoid the possible effects through endogeneity, they employed the GMM method for estimation. They found that the seven out of a total of 12 political risk indicators were closely associated with FDI. Using different data sets and estimation techniques, several other studies also confirmed to a considerable extent the significance of political risk for MNCs when undertaking FDI [Harms and Urspung, 2002; Jensen, 2003; Busse, 2004].[2]

Empirical literature on the effects of political risk on FDI reviewed above were mostly aggregate analyses by aggregating FDI activities in a multi-country setting. Lipschitz et al. [2002] used a sample of 10 CEE countries, whereas both Edwards [1990] and Wei [2000] considered outward FDI from OECD countries including Japan. On the other hand, in Busse et al.[2005] Japanese FDI was not considered, meaning that the effects of political risks on Japanese FDI activities alone were ignored. However, this does not necessarily imply that the Japanese FDI activities have been overlooked in the literature. On the contrary Japanese FDI activities have been scrutinized empirically, as Japan has been one of the largest suppliers of outward FDI to emerging and developing countries. For example, an econometric test conducted by Cieślik and Ryan [2004] was aimed at investigating which of the gravity model (GM, hereafter) or economic potential model (EPM, hereafter) can better explain Japanese outward FDI into EU and its candidate countries (a total of 30 countries).[3] Using some econometric techniques they found that the EPM encompasses the GM at the reasonable significance level. However, they too have not considered any impact from political risks on the Japanese FDI into those countries.

In view of these recent theoretical and empirical developments, this paper aims at empirically analyzing the Japanese FDI flows based on the OLI theoretical framework and Knowledge-Capital theoretical model, with the possible determinants derived from these theoretical frameworks. The Knowledge-Capital model [Carr et al., 2001] proposed different types of FDI flows to be encouraged by the following factors: GDP, Skill Difference, Investment cost, Trade cost, distance and some other component variables. The objective and logic of Knowledge-Capital Model is not only to understand the FDI determinants, but also, if possible, to distinguish the horizontal and vertical FDI flows. The OLI theoretical framework allows for different alternative determinants in order to explain the FDI flows from Ownership, Internalization and Location advantage perspectives. We introduce also platform-type FDI flows in our hypotheses since they could also be explained to a certain extent from OLI and Knowledge-Capital model perspective.[4]

As put forth above, the present paper focuses on Japanese FDI, with particular emphasis on the effects of political risks. In addition to political risks, we also examine two new explanatory variables that have not been studied for Japanese FDI explicitly. These are National Culture and Technological Index. It is our contention that, among many traditional FDI determinants, these are not to be neglected in the modern fast changing and globalizing society from the point of view of political economy. The contribution of our investigation, if any, rests on the fact that ours is the first attempt to analyze empirically Political Risk as a possible determinant of Japanese FDI.

3. ESTIMATION MODELS AND DATA

This section presents our basic specification for the empirical strategy. The dependent variable in our study is Log FDI flow from Japan to a 'country i' in USD (LOG_FDI), and the independent variables are chosen as explained below. Two of them (GDP and Wage cost) are also taken in Log form, and the other remains as it is, as they represent the computed indexes. The log form allows reducing to a certain extent the influence of heteroscedasticity.

The basic model is specified in a reduced form

$$Y_{it} = \mu_i + X'_{it}\beta + \varepsilon_{it}. \quad (1)$$

where Y_{it} is the net annual outward FDI from Japan into a host 'country i' at time t and X'_{it} denote an (1 x k) vector of exogenous variables which vary in the cross-section and in the time dimension[5], and μ_i is a constant specific to each country.[6] The parameter μ_i is introduced to account for unmeasured specific features of countries concerned, and it varies only across countries. ε_{it} is a stochastic error term, which is assumed to be uncorrelated over all *i* and *t*.[7]

The estimation form of the basic model is linearly described as:

$$(LOG\_FDI)_{it} = \mu_i + \beta_1 LOG\_GDP_{it} + \beta_2 SD_{it} + \beta_3 LOG\_W_{it} + \beta_4 TCREAL_{it} + \beta_5 ICREAL_{it} + \beta_6 DIS_{it} + \beta_7 PR\_REAL_{it} + \beta_8 TI_{it} + \beta_9 NC_{it} + \varepsilon_{it}. \quad (2)$$

In addition two more linear specifications are applied in the panel data analysis:

$$(LOG\_FDI)_{it} = \mu_i + \beta_1 LOG\_GDP_{it} + \beta_2 SD_{it} + \beta_3 LOG\_W_{it} + \beta_4 TCREAL_{it} + \beta_5 ICREAL_{it} + \beta_6 TI*PR\_REAL_{it} + \beta_7 NC_{it} + \varepsilon_{it}. \quad (3)$$

and

$$(LOG\_FDI)_{it} = \mu_i + \beta_1 LOG\_GDP_{it} + \beta_2 SD_{it} + \beta_3 LOG\_W_{it} + \beta_4 TCREAL_{it} + \beta_5 ICREAL_{it} + \beta_6 NC*PR\_REAL_{it} + \beta_7 TI_{it} + \varepsilon_{it}. \quad (4)$$

Previous studies have measured FDI activity through affiliate sales of FDI stock in the host country; FDI divided by GDP, FDI per capita, FDI sum of home and host country and others. We use FDI flow as our dependent variable, as this first provides a greater amount of observations and second, allows statistical inferences for flow effect of real FDI. Data for FDI activity are collected from JETRO database which provides data of Japanese FDI for a large number of countries for the period 1965 to 2004.[8] This set of data was prepared by JETRO from Ministry of Finance (MOF) statistics for Japan's inward and outward FDI, MOF Policy Research Institute Monthly Finance Review, and Bank of Japan foreign exchange rates. The database includes statistics for 167 countries and includes MNCs activities in manufacturing and non-manufacturing industries.[9] However, this statistics was discontinued in 2004 and consistent data are presently provided for a considerably lower number of countries. Hence despite its historical nature to a certain extent we will use this dataset in order to include in the study a much larger number of countries and observations.[10]

The independent variables are selected mostly from those used in many previous empirical studies.[11] First is **LOG_GDP_{it}** representing the market size for country i at time t that has been considered as one of the first principal determinants of FDI.[12] The greater market is accessible through FDI, the higher should be FDI flow. Thus, we expect positive sign of GDP on FDI. The GDP data are taken from the World Bank World Development Indicators (WDI) database, and then converted to the US dollars for all countries with the 1996 exchange rate.

Second, human capital of the host economy is another important factor for FDI flows [Markusen and Venables, 1998, 2000]. It has been argued that two important aspects should be considered for human capital: skill endowment and labor cost. Skill endowment for 'country i' at time t is proxied by **SD_{it}=S(J)-S(i)**, where **S(J)** and **S(i)** mean the skill scores for Japan and the i-th host country, respectively. Thus, **SD_{it}** in effect represents the *difference* of the skill score for the host country relative to that of Japan.[13] The skill score measures the level of skilled labor availability in each country; the higher the score is, the easier is to get a skilled labor. Thus, the sign for this variable is expected to be positive in case Japanese MNCs are looking for cheap unskilled labor (it can happen in case of horizontal FDI) and negative in case Japanese MNCs are looking for qualified labor and expertise (it can happen in case of vertical FDI or platform-type FDI).

In addition, availability of low labor cost is expected to stimulate FDI of vertical type where the cheap wage is considered to be of high importance [e.g., Wheeler and Mody, 1992; Kumar, 1994; Sahoo, 2006]. Labor cost can be proxied by wage cost [Lankes and Venebles, 1996; Nunes et al. 2006]. Thus, **LOG_W_{it}**, which is the log of employees compensation received in US$ per hour for country i at time t, represents the labor cost.[14] The sign of this variable is expected to be negative as higher labor cost is expected to influence negatively FDI flows.

The next explanatory variable is **$TCREAL_{it}$** indicating trade cost. It represents the inverse of trade openness which is usually defined as ratio of import plus export to GDP. In general the impact of openness is linked to the type of FDI [Lankes and Venables, 1996; Holland and Pain, 1998; Sahoo, 2006; Asiedu 2002]. Horizontal FDI is attracted by high trade barriers first because of the high alternative export cost to the host country, and second

as it creates also barriers for the competitors. On the other hand, vertical FDI (which is export-oriented) is attracted by relatively opened economy. Following some previous studies, trade cost measures come from Penn-World Tables and are defined as 100 minus the ratio of the sum of imports and exports to GDP.[15] The trade cost is expected to have positive sign in case of horizontal FDI and negative sign in case of vertical FDI and platform-type FDI.

ICREAL$_{it}$ is investment cost for 'country i' at time t that is regarded as impediments and difficulties in the operational activity of foreign affiliate in the host country. These include financial, juridical, fiscal and other incentives/impediments. Carr et al. [2001] composed an index including the appropriate factors for the investment cost. Current paper follows the same approach.[16] The investment cost was constructed from various indexes of World Competitiveness Yearbook. This index includes the level of control of foreign companies, restraints on negotiating joint ventures, strict controls on firing and hiring practices, an absence of fair administration of justice, access to local and foreign capital markets, difficulties in acquiring local bank credit, an inadequate protection of intellectual property rights, anti-trust and competition laws, and immigrations laws. The sign of the investment cost is expected to be negative, implying that the higher investment barriers are, the lower the tendency for MNCs to invest in the host country will be.

DIS$_{it}$ in equation (2) represents distance in kilometers from Tokyo to a 'Country i' capital, and thus measures the level of geographical separation that might affect MNCs affiliate's decision to invest in the host country. Although it is not clear whether distance is included in trade costs or investment costs, it has to be taken into consideration as it is a trade impediment.[17]

PR_REAL$_{it}$ represents political risk for 'country i' at time t that has recently been emphasized as one of the most researchable issues in international economics, as reviewed and discussed in the previous section. Indeed, political risk usually influences some economic phenomenon not only in domestic activities, but also in international environment, and FDI is one of them. For instance, Japanese MNCs have a very negative historical experience in the Middle-east in 1970-1980s as well as during Asian crisis in 1990s when political instability led to a big financial loss. The Political risk index is calculated from the Euromoney Country risk statistics, and it is computed on scale from zero to 25, with a higher number indicating higher political risk. The Political risk is expected to have negative sign as higher political risk might influence negatively FDI flows.

TI$_{it}$ shows technological development of a host country i at time t whose difference is also expected to influence FDI flows. There could be different reasons. First, technological advantage of the home country gives the MNCs competitive advantage over the local firms. But, another way of logic is also possible. For instance, according to Kogut and Chang [1991], Japanese FDI was drawn to R&D-intensive US industries in 1980s. Thus, joint ventures were used for sourcing and sharing US technology which was considered to be more advanced at that moment. An index accounting for technological development is computed from the data provided by World Competitiveness Yearbook.[18] The index is computed on scale from zero to 30, with a higher number indicating higher technological development. The sign of Technological Index can be expected positive or negative. In case MNCs are expecting to profit from a competitive advantage in technology, the sign is expected to be negative. However, in case MNCs are expecting to profit from exploitation of the host country R&D potential, the sign is expected to be positive.

Cross-cultural psychology is also expected to influence the FDI flows. It is proxied by National culture openness index for country i at time t, **NC$_{it}$**[19] For instance, according to

Hofstede and Hofstede [2005], management practices and peculiarities differ to a certain extent between nations. Hence it is expected that MNCs would invest in those locations were management operations would be facilitated by opened national culture specifics or by the relatively close cultural perspectives. For the case of Japan, where the cultural aspects are known to differ to certain extent from other countries, this aspect might also play a significant role as FDI determinant. Thus, it is expected to be positive (negative) in case Japanese MNCs are oriented towards investment in more culturally open (closed) societies.

Finally, since the role of political risk in FDI decision is expected to be important, it is of scientific interest and practical value to understand whether political risk is considered together with other FDI determinants when Japanese MNCs make decisions to invest. In order to verify if there are in fact those possible influences in historical FDI data, a new approach is applied to check how Japanese MNCs behave in aligning together Technological Index and Political Risk, or National Culture and Political Risk. In order to investigate this possibility, two new indexes are considered: Technological Index*Political Risk and National Culture*Political risk. $TI*PR\_REAL_{it}$ captures the interaction effect between technological index and political risk for country i at time t, and measures a level of technological development consideration of a host country when taking into account political risk. The index shows how much Japanese MNCs might be concerned with Technological development and Political risk together as a factor for FDI decision. It is expected to be positive in case of Horizontal FDI and Negative in case of Vertical FDI. Similarly, $NC*PR\_REAL_{it}$ captures the interaction effect between national culture and political risk index for country i at time t and measures a level of openness of the host country national culture consideration when taking into account political risk. The index shows how much Japanese MNCs might be concerned with National Culture and Political risk together as a factor for FDI decision. It is expected to be either positive or negative depending on the sign of National Culture.

This completes the explanation of our estimation model. As evident, our model is a hybrid model of traditional Knowledge-Capital model and OLI model as reviewed earlier, with additional and explicit consideration of political risks. We leave this section by presenting Table 1, summarizing hypothetical signs for the FDI determinants discussed above.

Table no. 1 Hypothetical Signs of FDI determinants

		FDI type			
FDI determinant	**Abbreviation**	**Platform type**	**Horizontal**	**Vertical**	**GENERAL**
GDP	*LOG_GDP*	Positive	Positive	Not significant	Positive
Skill difference	*SD*	Positive	Positive	Negative	Positive
Labor cost	*LOG_W*	Negative	Negative	Negative	Negative
Trade cost	*TCREAL*	Positive	Positive	Negative	Positive
Investment cost	*ICREAL*	Negative	Negative	Negative	Negative
Distance	*Dis*	Negative	Negative	Negative	Negative
Political risk	*PR_REAL*	Negative	Negative	Negative	Negative
Technological Index	*TI*	Negative	Negative	Positive	Negative
National Culture	*NC*	Positive/ Negative	Positive/ Negative	Positive/ Negative	Positive/ Negative
Technological index*Political risk	*TI*PR_REAL*	Positive	Positive	Negative	Positive
National Culture*Political risk	*NC*PR_REAL*	Positive/ Negative	Positive/ Negative	Positive/ Negative	Positive/ Negative

4. EMPIRICAL APPROACH AND METHODOLOGY

The data set consists of annual observations for the period 1995-2004 for the 30 countries. List of countries is presented in Appendix 2. The data source for Japanese FDI is JETRO (Japan External Trade Organization) database, and for other variables different sources such as World Bank Development Indicators, World Competitiveness Yearbook, Penn-World Tables and Euromoney.[20]

We apply panel data analysis method in order to capture static and dynamic nature of the FDI flows, accounting for at the same time possible heteroscedasticity, autocorrelation and endogeneity. Thus our panel data set consists of two dimensions: one dimension is cross-section (30 countries: i = 1,….,N) and the other is time dimension (10 years: 1995-2004: t=1,…,T). The total number of observations in this context is 300, and can be considered adequate to produce robust estimations for the scope of the analysis. The correlation matrix of the data is presented in Appendix 3.

The Panel data model is analyzed using 3 different methods: (a) Common constant, (b) Fixed effects, (c) two different specifications of Generalized Method of Moments (GMM). The first, common constant (also called as pooled OLS) method assumes that the data set is *a priori* homogeneous, and that there are no differences among the data matrices of the cross-sectional dimension. This assumption is questionable for our data set as the sample countries are different to a certain extent in size and stage of economic development. However, it would be better to look at the common constant results to understand a general common tendency of the Japanese FDI flows.

The second, Fixed Effects method treats the constant as group-specific and allows for different constants for each group (which is also called Least Squares Dummy Variables (LSDV) estimators). This method allows distinguishing between different countries. However, to use this method we need to check whether Fixed Effects indeed should be included

in the model. To do this the standard F-test can be used to check Fixed Effects against a simple Common Constant OLS method.

Random effects method handles the constants for each section as random parameters rather then fixed, and assumes that each country differs in its error term. This provides some advantages in comparison to Fixed Effects estimation as there are fewer parameters to estimate and an option of including dummy variables is acceptable. However, before deploying the Random effects method, a Hausmann [1978] specification test should be performed in order to confirm the appropriateness of using Random effects model. Otherwise, Fixed Effects should be considered as the robust estimation.

However, all previous methods do not handle to an adequate extent the problem of autocorrelation and heteroscedasticity. By including lagged FDI flows we can change to a dynamic panel model. A commonly used method for dynamic panels is the Arellano and Bond [1991] GMM estimator. As their estimator is set up, the fixed effects are eliminated using first differences, and an instrumental variable estimation of the differenced equation is performed. In our case we will employ orthogonal deviations set-up, as the first differences produced biased estimators.[21] Thus, the GMM method allows us to produce robust estimations for the Japanese FDI.

5. ESTIMATION RESULTS

We consider equation (2) by using three different methods (namely, common constant, fixed effects, and GMM) in order to analyze the Japanese FDI with our data sample under different econometric specifications. The results are presented in Table no. 2 below.

In Table no. 2, the common constant method provides a preliminary estimation results for panel data (Column 2). These estimations present the results under the assumption that there are no differences between countries. Several interesting features are disclosed, and in what follows, we give some interpretations and evaluations for them.

First thing to note is that, GDP has a significant role in investor's decision as expected. The market size (proxied by GDP) that gives prospects for high level of sales opportunity, high level of expected growth and hence high level of profitability, is considered by Japanese MNCs to be important. Indeed, the positive coefficient estimate which is statistically significant supports this assumption and previous empirical studies [e.g Mainardi, 1992]. In addition, from these results we could assume that Japanese FDI are mostly of horizontal or platform type. However, the role of vertical FDI still should not be underestimated.

The role of Human capital is also supported by the estimation. However, only labor cost (**LOG_W$_{it}$**) is statistically significant. Its sign is negative and supports the hypotheses that Japanese MNCs are looking mostly for locations with a low labor cost that will ensure a lower cost of production and higher expected profitability. The statistical significance of Skill difference (**SD$_{it}$**) is not considerable enough to support a robust conclusion.

Trade cost (**TCREAL$_{it}$**) is negatively and significantly associated with FDI flows. This result shows that Japanese MNCs would prefer to reduce their investment if the trade cost is increased. Thus, we could interpret that this result supports the assumption that Japanese FDI activities take on average vertical form. Indeed, as their experience shows some of the Japanese investments in Taiwan or China are aimed at producing for the Japanese Market. However, this interpretation has to be reconfirmed by further econometric specifications.

Table no. 2 The determinants of Japanese FDI (Common constant, fixed effects, GMM)

Dependent Variable: LOG_FDI						
Method:	Panel Least Squares	Panel EGLS (Cross-section weights)	Panel Generalized Method of Moments			
Transformation:			Orthogonal Deviations			
		White period standard errors & covariance (d.f. corrected)				
Instrument list:			(a) (c) (d) @DYN(LOG_FDI,-2) LOG_GDP ICREAL (b) @DYN(LOG_FDI,-2) LOG_GDP ICREAL TCREAL			
Variables	**Common Constant**	**Fixed Effects**	**GMM (a)**	**GMM (b)**	**GMM (c)**	**GMM (d)**
Log_FDI(-1)			-0.142 (-7.139)*	-0.138 (-5.023)*	-0.146 (-12.105)*	-0.137 (-8.171)*
GDP	1.363 (10.814)*	0.742 (2.683)*	2.697 (3.724)*	2.199 (3.203)*	1.537 (4.758)*	1.820 (4.407)*
Wages	-0.484 (-3.157)*	-0.046 (-0.282)	-1.306 (-2.971)*	-1.264 (-2.542)*	-1.351 (-4.688)*	-0.668 (-2.699)*
Investment Cost	-0.0072 (-0.332)	-0.056 (-7.662)*	-0.129 (-5.237)*	-0.091 (-2.286)**	-0.109 (-6.094)*	-0.068 (-3.187)*
Skill Difference	0.098 (0.962)	0.092 (2.668)*	0.201 (2.779)*	0.279 (3.407)*	0.154 (2.743)*	0.138 (2.263)**
Trade cost	-0.015 (-7.311)*	-0.00033 (-0.082)	0.022 (1.857)***	0.0036 (0.289)	0.0195 (3.065)*	0.0172 (1.761)***
Distance	-0.00015 (-2.870)*					
Technological Index	-0.102 (-2.003)**	-0.096 (-2.780)*	-0.048 (-0.989)	-0.124 (-2.335)**		-0.052 (-1.273)
National Culture	0.314 (2.337)**	-0.105 (-1.796)***	-0.378 (-1.292)	-0.110 (-0.413)	-0.410 (-2.613)*	
Politcal Risk	-0.069 (-1.436)***	-0.034 (-1.201)	0.426 (3.095)*	0.398 (2.141)**		
Technological Index*Political Risk					0.0125 (2.739)*	
National Cul-Culture*Political Risk						0.026 (1.789)***
Constant	-15.082 (-3.762)*	3.737 (0.531)				
Rsquared	0.440	0.815				
Durbin-Watson	0.865	1.981				
F-Statistic	25.334	31.251				
J-statistic			21.288	18.026	25.051	19.829
Instumental Rank			30.000	30.000	30.000	30.000
Sargan test, 5% significance level			32.7	32.7	32.7	32.7
t-statistics in parentheses. *,**, and *** mean significant at the 1, 5, and 10% level, respectively.						

Results computed using EViews v.5.1

Investment cost (**$ICREAL_{it}$**) has the expected negative sign, supporting the hypotheses that high level of local impediments in terms of financial, administrative and juridical restrictions will negatively influence Japanese FDI flows. However this result is not statistically significant, and can not be considered as robust.

Our main concern in the present investigation, Political risk (**PR_REAL_{it}**) as well has a negative impact on Japanese FDI as was expected by the theoretical framework. Indeed, as historical evidence shows (e.g. case of investment in the Middle-East), Japanese MNCs would prefer to reduce investments in the countries with higher political instability. However, in this empirical specification the result is significant only at the 10% level, dictating the need for reexamination of the estimator.

On the other hand, Technological index (**TI_{it}**) has a negative and significant effect on Japanese FDI. This result is consistent with the hypothesis that Japanese MNCs would prefer to invest in countries with lower technological developments, so that they can exploit technological competitive advantage.

Finally, National culture openness (**NC_{it}**) is positively and significantly related to Japanese FDI flows which supports the hypotheses that National culture represent one of the FDI determinants for Japanese FDIs, and it plays a certain role in investors decision. Specifically, Japanese MNCs prefer to invest in culturally more opened countries.

Our interpretations given above for the estimated results however do not take into consideration the specific unmeasured features of each country. Thus we proceed by estimating equation (2) using fixed effects. Fixed effects models assume the constant in an estimation equation as a group specific parameter, and random effects models assume cross-sectional differences in error term. Fixed effect redundant tests' results are presented in Appendix 4.

According to the regression results only cross-section fixed effects can be shown significant. Hence we apply a feasible cross-section fixed general least squares estimation using the White's cross section coefficient covariance method in order to account for heteroscedasticity effects. These estimated results are expected to be robust.

A Hausmann specification test is performed in order to check the applicability of the Random effects method. The results of the test are presented in Appendix 5, from which we realize that the cross-section fixed effects should be preferred to Random effects. Thus, we omit to report here the random effects results.

In order to capture the effects of autocorrelation and heteroscedasticity, we applied the Arrelano-Bond GMM estimator using orthogonal deviations with two-period lagged dependent variable and 2 options of other instrumental variable choices: (a) GDP and Investment Cost and (b) GDP, Investment Cost and Trade cost. Both results present robust estimator and the Sargan test of over-identifying restrictions confirmed the appropriateness of the selected instruments. The results are presented in the rightmost 4 columns of Table 2.

In general the GMM estimation results are almost the same results in terms of variables' sign as the previous common constant and fixed effects models. However, there are nonetheless some differences. The sign of the trade cost (**$TCREAL_{it}$**) now is positive, and its influence is statistically significant but only at the 10% level (see column GMM(a)). This result supports the hypothesis of horizontal and platform type nature of the Japanese FDI flows. This conclusion could be interpreted appropriate as many Japanese foreign affiliates in Europe and in Asia aim at supplying local and neighboring markets. The positive effect of the trade cost in this GMM estimation is not significant enough, simply because vertically oriented types of Japanese FDI still would not be neglected.

In addition, the sign of national culture (**NC_{it}**) also turns out to be negative and significant, which is opposite to the previous result. Thus we could interpret that, according to this GMM estimation, Japanese MNCs tend to invest in the countries with more closed national culture. This can be explained by the fact that Japanese society was historically closed and hence tends to cooperate more with the same type of national culture.

A seemingly puzzling result of the GMM estimation is the fact that the coefficient of Political risk (**PR_REAL$_{it}$**) is positive and statistically significant for Japanese FDI flows. Literally interpreted, this suggests that Japanese MNCs tend to invest in the more politically unstable countries, which is opposite to our initial presumption. However, it should be recalled that our sample period covers the Asian currency crisis and its aftermath period, during which the risk ratings of countries hit by the crisis were considerably down rated. We should also note that some FDI activities continue for a long time, implying that some investments started from previous periods still continue even after the crisis broke up. Thus, we could expect that inward FDI by host countries continued to be positive even after their risk ratings deteriorated by the crisis, generating a *positive and significant* estimated coefficient.[22] We will come back to this point below when discussing the interaction terms of Political Risk.

It is also worth mentioning that most of the sample countries for our empirical study are relatively stable politically. Thus, the relative change in their political situation might not be reflected significantly in the FDI decisions. In addition, during the sample period there was the Asian financial Crisis in 1997-1998, which led to the drop down of the ratings of some Asian countries' political stability. Due to high appreciation of the Japanese yen and wider profitability opportunities, Japanese companies invested heavily in those countries, despite of the political instability. Such examples could include Thailand, Korea, and Philippines, showing up with a positive correlation between Japanese FDI flows and Political risk index. This interpretation is, however, still controversial and has to be confirmed by future empirical investigations.

In order to investigate if there are some interactions between explanatory variables, we further performed several regressions with interaction variables by Technological development, National culture openness, and Political risk for possible determinants when Japanese MNCs make decision to invest. In order to check this possibility we regressed equations (3) and (4) using GMM specification. The results of the regressions and their comparisons are presented in Table 2. GMM(c) includes the interaction term of Technological Index*Political Risk index and GMM(d) includes that of National Culture*Political Risk index.

According to the table all previously analyzed variables keep their signs and significance. Only Technological index is insignificant in GMM(d) specification, and trade cost is positive and significant at 10% level in specification GMM(d).

In addition, two newly introduced interaction terms are significant as they were expected. The first interaction term, Technological Index*Political risk is positively and significantly related to FDI flows, which supports our presumption that Japanese MNCs are concerned about Technological development and Political risk factor together as FDI determinant when they make decision to invest. We interpret that Japanese MNCs are expecting to profit from a competitive advantage in technology, and hence the effects of technological index is expected to be negative on FDI. This negative effect interacts with another negative effect exerted by political risk, and both of the negative effects give rise to a positive coefficient to this interaction term. In addition, positive index's sign confirms the assumption that during the sample period Japanese FDI flows tend to be horizontal or platform-type of FDI on average.

The second interaction term, National culture*Political risk is also positively related to FDI. However it is significant only at 10% level. In general, it also supports our hypotheses that Japanese MNCs are concerned about National culture openness and Political risk of the

host country together as FDI determinant factor when they make decision to invest. According to the GMM estimate national culture has a negative effect on FDI, as presented earlier. This negative effect interacts with another negative effect exerted by political risk, and both of the negative effects also give rise to a positive coefficient to this interaction term.

Finally, another important finding is that the coefficient of Technological Index*Political risk is statistically more significant while National culture*Political risk is only marginally significant for Japanese FDI flows. Although our inference rests on the point estimates, this statistical fact might suggest that Japanese MNCs are more concerned about level of Technological development together with Political Risk of the host country than about level of National Culture openness together with Political Risk as FDI determinant when they make the decision to invest.[23] This result is highly important from the policy prescription perspective as the host countries' government could consider technological development and political stability together when prescribing FDI attracting policies.

6. CONCLUSIONS

This paper empirically examined the outward Japanese FDI with a panel data of a total of 30 countries for the period 1995-2004. Based on the OLI theoretical framework and Knowledge-Capital model, a number of traditional determinants (GDP, Human capital indicators, Investment cost, Trade cost, etc.) are complemented with 3 untraditional determinants for Japanese FDI, namely Political Risk, Technological Index, and National Culture. Several different methods are applied to this data set, namely a common constant, a fixed effect, and a generalized method of moments.

The main results are mostly consistent with the preceding studies and are robust for all specifications. Specifically, market size plays a significant positive role; wage cost is negatively associated with FDI flows. Investment cost as well is negatively associated with FDI flows. Skill difference influences positively the FDI flows which means that Japanese MNCs prefer to profit from the low cost and relatively low-skilled labor. Technological index is also robust and is negatively associated with Japanese FDIs. This enables us to interpret that Japanese MNCs prefer to invest in countries that are technologically less developed, so that they can ensure technological competitive advantage on the local market.

Trade cost was not consistent across specifications. However, according to the GMM specification which is expected to be robust against autocorrelation and heteroscedasticity, it is positively associated with FDI, suggesting that Japanese FDI tends to be of horizontal and platform type on average, and thus serving more host countries and neighboring markets.

National culture is mostly significant, but signed inconsistently. GMM specification suggests that Japanese MNCs tend to invest more in countries with less opened national cultures, which can be explained by the historical tendency of the Japanese companies to be more closed and with narrow business activity. Further investigation would be necessary to confirm this result, since the estimates are not robust across specifications.

One of our main concerns in this paper, Political risk, was inconsistently signed. In a common constant and fixed effects model, it has a negative sign which is consistent with most of the preceding literature. However, within the GMM framework the sign turned to positive, meaning that Japanese MNCs tend to invest in politically less stable countries. This could be explained by Japanese MNCs' expectations of much higher potential profitability and the effects of the Asian financial crisis in 1997-1998. Further research is necessary to confirm this conjecture, and this is on our future research agenda.

Finally, interactions between Technological Index and National Culture together with Political Risk are considered as FDI determinants. It was shown that Japanese MNCs are more concerned about Technological development together with Political Risk when they make a decision to invest. This result is highly important from the government policies perspective.

In sum, we conclude that Japanese FDI can be reasonably explained by the proposed independent variables. The most probable form of Japanese FDI according to the results is horizontal and platform type FDI on average. And finally, as far as the authors know, this is the first attempt to empirically examine the effects of political risk on Japanese FDI. We successfully found that political risk, with interaction with national culture and technological indices, is, as expected, significantly associated with Japanese FDI flows, and those determinants should be taken into consideration within future research on Japanese FDI.

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Appendix no. 1 Definition of Variables and Data Sources

Variable	Definition	Scoring details	Sources
LOG_FDI_{it}	Foreign Direct Investment flow from Japan to an i country at a year t. The value is given in mln.US $.	Logarithmic form is used in the analysis.	JETRO
LOG_GDP_{it}	Gross Domestic Product of an i country at a year t. The value is given in billions of 1996 US dollars	Logarithmic form is used in the analysis.	World Bank World Development Indicators (WDI) database
SD_{it}	Skill difference which represents a proxy for skill endowment measure. It is calculated from skilled labor availability scores provided by WCY for a respective country and year.	$\mathbf{SD_{it}=S(J)-S(i)}$, where **S(J)** and **S(i)** mean the skill scores for Japan and the i-th host country for a year t.	World Competitiveness Yearbook (WCY)
LOG_W_{it}	Wage which represents the level of employees compensation in US dollar per hour for a country i at time t.	Logarithmic form is used in the analysis.	WCY
$TCREAL_{it}$	Trade cost which represents the inverse of trade openness measure for a country i at time t.	$TCREAL_{it}$ = (GDP)/(import+export)	Penn-World Tables
$ICREAL_{it}$	Investment cost which represents impediments and difficulties in the operational activity of foreign affiliate in the host country i at time t. Index includes level of control of foreign companies (CFC), restraints on negotiating joint ventures (NJV), strict controls on firing and hiring practices (FHP), an absence of fair administration of justice (FAJ), access to local (LCM) and foreign capital markets (FCM), difficulties in acquiring local bank credit (BC), an inadequate protection of intellectual property rights (IPR), anti-trust and competition laws (CL), and immigrations laws (IL).	$ICREAL_{it}$ = CFC + NJV + FHP + FAJ + LCM + FCM + BC + IPR + CL + IL. The index is computed on scale from zero to 100, with a higher number indicating higher investment cost.	WCY
DIS_{it}	Distance in kilometers from Tokyo to a 'country i' capital. The service uses data from the US Census and a supplementary list of cities around the world to find the latitude and longitude of two places, and then calculates the distance between them (as the crow flies).	Distance is constant over time.	Indo.com: http://www.indo.com/distance/index.html
PR_REAL_{it}	Political risk for 'country i' at time t. Euromoney pooled risk analysts, risk insurance brokers and bank credit officers. Country risk is defined as the risk of non-payment or non-servicing of payment for goods or services, loans, trade-related finance and dividends and the non-repatriation of capital.	The score of political risk is provided by Euromoney on a scale of 25.	Euromoney
TI_{it}	Technological index represents technological development of a host country i at time t. Index includes level of New Information Technologies penetration (NIT), level of technological cooperation between companies (TC), and level of available financial resources for technological development (FR).	TI_{it} = NIT + TC + FR. The index is computed on scale from zero to 30, with a higher number indicating higher technological development.	WCY
NC_{it}	National culture represents an index measuring the level of openness of the "i" country's culture to foreign ideas at time t.	NC_{it} = index from WCY	WCY

Appendix no. 2 List of countries included in analysis (total 30 countries)

Asia:
Hong Kong, India, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan, Thailand, China
Europe:
Belgium, Denmark, France, Germany, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Switzerland, United Kingdom, Sweden, Austria, Turkey, Finland, Hungary, Poland, Czech Republic

Appendix no. 3 Correlation of variables in the study (t statistics included)*

Sample: 1995 2004										
Included observations: 300										
Covariance t-Statistic	LOG FDI	LOG GDP	ICREAL	LOG_W	NC	PR REAL	SD	TCREAL	TI	DIS
LOG_FDI	5.431									

LOGGDP	0.745	1.172								
	5.337	-----								
ICREAL	4.320	1.384	121.644							
	2.943	2.015	-----							
LOG_W	-0.742	0.304	-11.472	2.048						
	-3.939	3.455	-18.267	-----						
NC	0.171	-0.368	-3.019	0.003	0.836					
	1.388	-6.914	-5.407	0.037	-----					
PR_REAL	1.095	-0.920	36.516	-5.388	-0.262	19.954				
	1.826	-3.347	19.060	-27.033	-1.110	-----				
SD	0.387	-0.020	4.563	-0.558	-0.092	1.223	1.283			
	2.555	-0.284	6.773	-6.335	-1.531	4.300	-----			
TCREAL	-37.423	43.308	324.578	-8.831	-30.554	51.472	2.648	6101.400		
	-3.626	10.291	7.021	-1.368	-8.168	2.575	0.517	-----		
TI	-1.020	-0.073	-34.698	3.782	0.438	-11.817	-1.523	-115.129	15.386	
	-1.939	-0.297	-23.181	15.742	2.126	-15.767	-6.300	-6.999	-----	
DIS	-2484.41	99.969	-12921.8	2014.733	142.43	-5806.88	-307.922	52700.02	1651.086	7967304.
	-7.041	0.564	-7.876	9.934	0.954	-8.957	-1.670	4.249	2.603	-----

Computed using EViews 5.1

Appendix no. 4 Redundant Fixed Effects Tests

Test cross-section and period fixed effects			
Effects Test	**Statistic**	**d.f.**	**Prob.**
Cross-section F-test	15.599135	(29,253)	0.0000
Critical at 5% significance level	1,51		
Cross-section Chi-square	307.601991	29	0.0000
Period F-test	1.591010	(9,253)	0.1181
Critical at 5% significance level	1,91		
Period Chi-square	16.516062	9	0.0569
Cross-Section/Period F	12.702940	(38,253)	0.0000
Critical at 5% significance level	1,45		
Cross-Section/Period Chi-square	320.234660	38	0.0000

Computed using EViews 5.1

Appendix no. 5 Hausmann test Random Cross-section

Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	21.514138	8	0.0059
Critical at 5% significance level	15.5		

Computed using EViews 5.1

Notes

[1] Some of the data were undated, however.

[2] Harms and Ursprung(2002), Jensen (2003), and Busse (2004) all uses samples of developing and emerging countries, except Jensen (2003) whose sample countries were undisclosed. The numbers of countries were, 62, 114, and 69, respectively. All of them performed a panel data analysis for the period of 1989-1997, 1970-1997, and 1972-2001, respectively.

[3] Although the GM has been popularly used in empirical examination of FDI, they hypothesized that the EPM may be preferred for investigating Japanese FDI, because Japanese MNCs typically locate in countries with higher economic potential.

[4] Horizontal FDI have a scope of producing and trading in the host country market, while Vertical FDI are aimed at producing semi-products in the host country and delivering them to home country for final assembling. Platform-type FDI are aimed at producing and serving host country market as well as neighbor countries' market.

[5] Since we perform a panel data analysis we assume that the vector β is common to all countries.

[6] n general, we estimate different structures of the panel model under different assumptions. The constant is specific to each country only under the fixed effects estimation.

[7] Since we perform a one-way fixed effect analysis we assume that the error term captures all remained disturbance over cross-section and time dimension.

[8] Figures for FY1994 and before were released in US dollars. From FY1995 onwards, figures were first released in Japanese yen and converted to US dollars using Bank of Japan average interbank rates for the applicable period.

[9] This study pursues a goal of analyzing general outward FDI without industries' specification. Thus we will not present here FDI by industry further details.

[10] However, the other data sources also put a certain restriction to number of countries and observations.

[11] Appendix 1 presents the calculation details of all variables used in the empirical analyses.

[12] The market size allows for economies of scale exploitation and offers significant growth perspectives (Bhasin et al., 1994; Morrissey and Rai, 1995), and it is proxied by the log of Gross Domestic Product in current US$.

[13] The data source of the index is the World Competitiveness Yearbook.

[14] The data source is also the World Competitiveness Yearbook statistics and represents an average salary ($/h) in the host country.

[15] In an ideal setting, trade costs could be decomposed into institutional, political and geographic components. However these data are difficult to discover for a wide range of countries and year. So the employed measure can serve as an appropriate proxy, having into mind that the influence of any of the mentioned components would be expected to influence the trade cost measure.

[16] A number of empirical works analyzed different investment incentives and their influences on FDI (Bond and Samuelson, 1986; Barros and Cabral, 2001; Black and Hoyt, 1989; Haaparanta, 1996; Haufer and Wooton, 1999; Haaland and Wooton, 1999, and others).

[17] Distance is included only in the common constant econometric specification. And due to its time constant nature, it is not used in Fixed effects and GMM econometric specifications.

[18] The index is compiled from the level of New Information Technologies penetration, level of technological cooperation between companies, and level of available financial resources for technological development.

[19] National culture is an index based on the data from World Competitiveness Yearbook, measuring the level of openness of the host country national culture.

[20] As mentioned in section III the data sources limit to a certain extent number of observations. Finally the data pool is reduced to 10 years of observation and 30 countries (representing Asia and Europe).

[21] An extensive explanation of why first-difference could produce weak instruments and biased estimation can be found in Arellano and Bover (1995), Arellano and Bond (1991), and Nelson and Startz (1990a,b).

[22] Another possible interpretation of this result could be offered by the fact that most probably the weight of potential benefit for Japanese MNCs is higher than the weight of political risk uncertainty for the sample of the countries used in the analysis. And as soon as we realize the fact that higher risk is usually associated with higher profits, political risk could serve as an incentive for Japanese FDI flows. This is an interesting hypothesis to be tested, and it is on our future research agenda.

[23] This is also confirmed by stronger association of political risk with technological index than with national culture, as shown in Appendix no. 3.