

Reconsideration of the Effects of Political Factors on FDI: Evidence from Japanese Outward FDI

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Abstract: This paper empirically examines the role of political factors in the Japanese outward Foreign Direct Investment (FDI) activities with a panel data of 30 developed or developing countries for the period of 1995-2009. The estimation model is constructed on the basis of the OLI (ownership, location and internalization advantages) and knowledge-capital models. Political factors, which represent multiple dimensions of each host country including important institutional assessments, are included as additional explanatory variables with market potential, wages, skilled workforce endowments, investment cost, and openness. It is found that Political factor perception by Japanese MNCs is sensitive to different levels of initial political stability in the host countries. Thus, the model with political factors and traditional explanatory variables reasonably explains recent Japanese outward FDI flows and reveals new patterns in its behavior.

Keywords: Foreign direct investment, Multinational corporations, Political factor

JEL Classifications: F20, F21, F23; P48; D73

1. Introduction

The central objective of this paper is to examine the effects of political factors on the recent Japanese outward Foreign Direct Investment (FDI, hereafter) with a panel data of 30 developed and developing countries for the period of 1995-2009.

The paper focuses exclusively on outward FDI from Japan. It is true that Japan has actively engaged in FDI, and in 2010 Japan was the 8th largest country in the world by the volume of outward direct investment with an amount of 57 bil. \$ (JETRO, 2011). In addition, recent FDI flows to developing countries represent a higher share in the global FDI flows (e.g. 51% in 2011 according to UNCTAD (2012)).

Thus, the present investigation of Japanese FDI has been motivated by at least three 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 and Hefeker, 2007), as far as the authors know, the effect on FDI has been mixed when a composite index of political environment is used (Peng and Beamish, 2008), and there has been no closer examination of the effects of political factors on the *Japanese* FDI alone. Secondly, although a number of papers consider FDI flows to developed and developing countries, there has rarely been conducted a formal econometric examination of Political factor as a determinant of Outward FDI from the supply side of these capital flows to developed and developing countries. And thirdly, the authors use another composite index reflecting multiple dimensions of host country's political environment for empirical investigation, the Euromoney Country Risk (ECR) data. To the authors' knowledge, this composite index has rarely been used previously in the analysis of FDI. Thus, the authors are interested in how differently Japanese MNCs behave to the index. Since in fact it is found that there are some differences in sensitivity to

the index between developed and developing countries, the authors propose their tentative but new hypothesis for the difference, and discuss several alternative reasons as well.

Using a panel data of Japanese outward FDI flows to 30 developed and developing countries, the authors estimate a hybrid regression model reflecting the knowledge-capital model (Bergstrand and Egger, 2007; Carr, Markusen, & Maskus, 2001) and the OLI (Ownership, Location, and Internalization advantages) framework hypotheses (Dunning, 1992). They first construct a model which incorporates the traditional FDI determinants such as market size, growth perspectives, openness, investment cost, wage cost, skill difference, etc. Then, the model is extended to examine the effects of political factors on Japanese outward FDI flows to developed and developing countries separately, and consider some new explanatory variables, technological development index and national culture.

The rest of the paper is organized as follows. Section 2 provides a review of the recent literature, with special emphasis on the effects of political factors. Section 3 presents the authors' empirical model and estimation strategy. Section 4 focuses on the multi-collinearity problem, reports modified results and proposes their new hypothesis for a relationship between political environment and FDI. Section 5 provides the summaries and conclusions.

2. Political Factors Specification and Analysis: Review of Literature

In his recent review article, Blonigen (2005, p.390) mentioned that the "quality of institutions is likely an important determinant of FDI activity, particularly for less-developed countries".¹ While he argued that a negative impact of poor institutions on FDI leaves no room for doubt, it is difficult to confirm empirically the effects of institutions because of several problems inherent to the data; measurement errors and little informative variations over time, among others.

Although the theoretical modeling of the effects of political factors on international investment activities has been scarce², there have been many empirical investigations of political factors on FDI activities. For example, Singh and Jun (1996) was one of the first to analyze the impact of political environment for a 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. He 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.

To the authors' knowledge, Clare and Gang (2010) is the only empirical study that used the Euromoney Country Risk Score as a measure of political environment. They analyzed the effects of exchange rate and political risk on inward FDI to 53 countries during the years 1999-2003 and found that political stability has a positive effect on FDI only for developing countries. Moreover, when the analysis moved from "Manufacturing" to "All industries" the result changed to a paradoxical negative effect. For that matter the authors' redefinition and re-estimation of political factors will suggest below a complimentary explanation to this phenomenon.

Effects of political environment on FDI activities have also been examined empirically with panel data. For example, Busse and Hefeker (2007) used a panel consisting of 83 developing countries covering the period 1983-2003 and found that the seven out of a total of 12 political

¹ For a review of literature on FDI determinants see for instance Deseatnicov (2009).

² Few exceptions are Lipschitz, Lane, and Mourmouras (2006) and Kesternich and Schnitzer (2010).

indicators were closely associated with FDI, implying that a country with a lower political risk and better institutions receives more FDI.

Peng and Beamish (2008) is in a sense close to the authors' in spirit, in which they empirically investigated Japanese FDI using a panel data set of 50 host countries from 1999-2003 by OLS and random effect regressions. They examined the relationship between FDI and host country's corporate social responsibility (CSR) environment. A composite index, a National Corporate Responsibility Index (NCRI), based on a series of CSR has been developed as a composite index comprising 7 broad components which include several measures of political environment such as the "business cost of corruption" or the "degree of civil freedom" as basic data. They first derived a testable hypothesis for developing countries that FDI increases with higher NCRI, because NCRI is an indicator of the corporate responsibility institutions in host countries. But their novelty is summarized in their discussion for developed countries, summarized as the second testable hypothesis claiming that NCRI has a *negative* relationship with FDI. They reported that both hypotheses are successfully vindicated empirically, and the results are robust after several additional checks.

Several interesting facts are drawn from the studies reviewed above. First of all, the Political Factors have been taken from various data, often represented by an aggregate (or composite) index incorporating multiple dimensions of socio-economic, and internal and external political and/or institutional characteristics. As a result, secondly, political factors may reflect different needs of political environment and/or different cost sensitivity to those factors for MNCs. Thus, thirdly, MNCs behave differently, depending on such factors as host country's development stages. As a consequence the effects of political factors on FDI may have different results for developed and developing countries. Specifically, the multiple dimensions of aggregated political environment indices have made it difficult, if not impossible, to reach a corroborative effect on FDI in empirical research (Peng & Beamish, 2008).³

Empirical literature on the effects of political factor on FDI reviewed above were mostly aggregate analyses by aggregating FDI activities in a multi-country setting. 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. Few examples are Cieslik and Ryan (2004) and Tanaka (2009). However, they too have not considered any impact from political factors on the Japanese FDI into developed and developing countries.⁴

In view of these recent theoretical and empirical developments, this paper aims at empirically analyzing the Japanese FDI flows by a regression model reflecting the OLI and knowledge-capital model's hypotheses, with the possible determinants derived from these theoretical frameworks. The knowledge-capital models (Bergstrand & Egger, 2007; Carr et al., 2001) proposed different types of FDI flows (horizontal, vertical, platform) to emerge endogenously, and to be encouraged by a number of factors such as: GDP, Skill Difference, Investment cost, Trade cost, and some other explanatory variables. The OLI theoretical framework allows for different alternative determinants in order to explain the FDI flows from Ownership, Internalization and Location advantage perspectives. A panel data analysis of FDI determinants using the variables and methodology presented in this paper was emphasized in the literature in a few recent studies (Leitao, 2010, 2011, 2012).

As put forth above, the present paper focuses on Japanese FDI, with particular emphasis on the effects of political factors. Another composite index for Political Factors is used here, the

³ One commonly observed feature of those composite indices is that the correlation between them is high (e.g. Alesina and Wagner, 2006).

⁴ To the authors' knowledge the only exception is Peng and Beamish (2008).

Euromoney Country Risk (ECR) Index. In addition to political factors, the authors also examine two new explanatory variables that have not been examined for Japanese FDI explicitly. These are National Culture and Technological Index. It is their 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 their investigation, if any, rests on the fact that theirs is the first attempt to analyze empirically the effects of Political Factor exclusively on Japanese FDI flows to developed and developing countries.

3. The Empirical Model and Estimation Strategy

This section presents the authors' basic specification for the empirical strategy. The dependent variable in their study is FDI flow from Japan to a 'country i' in US Dollar (FDI), and the independent variables are chosen as explained below.⁵

The basic model for Generalized Method of Moments (GMM) is specified in a reduced form as:

$$y_{it} = \delta y_{i,t-1} + \mathbf{X}'_{it}\boldsymbol{\beta} + \varepsilon_{it} \quad (1)$$

where y_{it} is the net annual outward FDI from Japan into a host 'country i' at time t and \mathbf{X}'_{it} denote a $(1 \times k)$ vector of exogenous variables which vary in the cross-section and in the time dimension. δ is a scalar. $y_{i,t-1}$ is a lagged dependent variable. ε_{it} is a stochastic error term, which is assumed to be uncorrelated over all i and t .

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

$$(\text{FDI})_{it} = \delta(\text{FDI})_{i,t-1} + \beta_1 \text{LOG_GDP}_{it} + \beta_2 \text{SD}_{it} + \beta_3 \text{LOG_W}_{it} + \beta_4 \text{OPENNESS}_{it} + \beta_5 \text{ICREAL}_{it} + \beta_6 \text{PE_REAL}_{it} + \beta_7 \text{TI}_{it} + \beta_8 \text{NC}_{it} + \varepsilon_{it} \quad (2)$$

The authors use FDI flow as their dependent variable, as this first provides a larger number of observations and second, allows statistical inferences for flow effect of real FDI. Data for FDI activity are collected from the OECD database which provides data of Japanese FDI for a large number of countries for the period 1985 to 2009.⁶

The explanatory variables are selected from those used in many previous empirical studies to test the knowledge-capital and/or the OLI hypotheses. The traditional control variables' details are summarized in Table 1 below. They are complemented by political environment and two newly introduced FDI determinants, namely technological index and national culture.

The scalar PE_REAL_{it} represents political environment 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. The political index is calculated from the ECR index and it has been rescaled from 0 to 10 with a higher number indicating higher "political risk". According to the conventional wisdom, the political risk is expected to have negative sign as higher political risk might have adverse effects on FDI flows.

However, the ECR index includes not only political risk, but also *government* and *institutional assessment* as the qualitative expert opinions. In addition, the ECR index also includes information and policy environment (see Table 2 below).

⁵ FDI flows are not logarithmically transformed since they are positive and negative for some countries in different years.

⁶ The authors use the statistics reported in US dollars in their analysis. This statistics was compiled by the OECD statistical division from Bank of Japan and Japanese Ministry of Finance statistical sources.

Table 1 The variable description

Variable	Description	Data source	Expected sign	Reference
LOG_GDP _{it}	Logarithm of the real gross domestic product in \$US billions	World Bank World Development Indicators (WDI) database	+	Morrissey and Rai (1995)
SD _{it}	Difference in skill score 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	World Competitiveness Yearbook (WCY)	+/-	Carr, et al. (2001)
LOG_W _{it}	Logarithm of the real wages in US\$	WCY	-	Sahoo (2006); Nunes, et al. (2006)
OPENNESS _{it}	Openness to trade	Penn-World Tables	+/-	Sahoo(2006); Carr, et al. (2001)
ICREAL _{it}	Investment cost (scale [0,100])	WCY	-	Carr, et al. (2001)

Table 2 Variables and indicators incorporated into the Euromoney Country Risk (ECR) index

Political risk component	Score (qualitative expert opinions)
Corruption	10=no corruption, 0=serious corruption
Government non-payments/ non-repatriation	10=no government interference, 0=high government interference
Government stability	10=stable, 0=highly unstable
Information access/ transparency	10=unrestricted, 0=totally restricted
Institutional risk	10=efficient and independent institutions, 0=no state institution
Regulatory and policy environment	10=highly consistent, 0=no regulatory environment exists

In fact, real data in figure 1 suggest an inverted U-shape relationship between PE and Japanese outward FDI. Thus, it is likely that this multiple dimensionality of a composite index may have different effects on the MNCs' behavior for FDI, depending on host country's development stages, as will be discussed later in more detail.

TI_{it} shows technological development of a host country i at time t whose change 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 looking at this 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 established for sourcing and sharing US technology which was considered to be more advanced at that moment ($\beta_7 > 0$). An index accounting for technological development is computed from the data provided by WCY.⁷ In case MNCs are expecting to profit from a competitive advantage in source country's technology, the TI sign is expected to be negative (i.e. $\beta_7 < 0$). However, in case MNCs are expecting

⁷ 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. It is computed on scale from zero to 30, with a higher number indicating higher technological development.

to profit from exploitation of the host country R&D potential (i.e. $\beta_7 > 0$), the sign is expected to be positive.

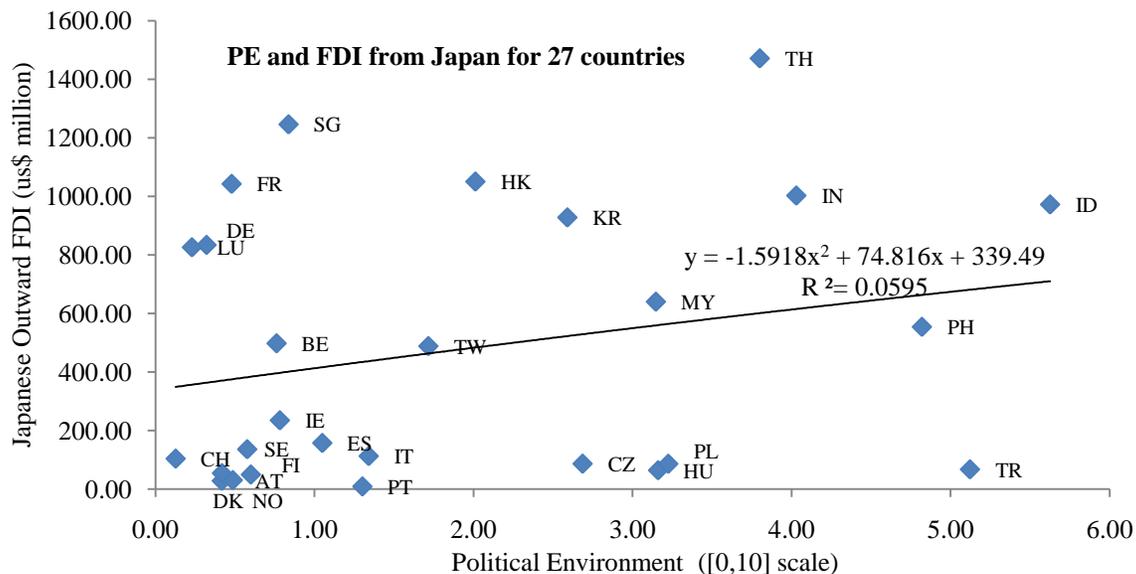


Figure 1 PE ([0,10] scale) and FDI (millions of US dollar), All countries, 1995-2009

Note: Values are averaged by country from 1995 to 2009. A higher PE value is associated with increased political risk. The regression represented by the fitted line yields a coefficient of -1.591 for a squared term and 74.81 for a direct effect, $N = 27$, $R^2 = 0.0595$. China (3896.80 mil. \$US), UK (5639.65 mil. \$US) and Netherlands (5268.99 mil. \$US) are excluded as outliers.

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} ⁸. For instance, according to Hofstede, Hofstede, and Minkov (2010), management practices and peculiarities differ to a certain extent between nations. Hence it is expected that MNCs would invest in those locations where management operations would be facilitated by opened national culture specifics or by the relatively closed cultural perspectives. For the case of Japan, where the cultural aspects are known to differ to a certain extent from other countries, this aspect might also play a significant role as an FDI determinant. Thus, it is expected to be positive (negative) in case Japanese MNCs are oriented towards investment in more culturally open (closed) societies.

The data set consists of annual observations for the period 1995-2009 for 2 sets of countries: 19 developed and 11 developing countries⁹. A panel data analysis is employed in order to capture static and dynamic nature of the FDI flows, accounting for at the same time possible heteroscedasticity, autocorrelation and endogeneity. By including lagged FDI flows as an additional regressor the authors change a static model to a dynamic panel model. Thus their panel data set consists of two sets and two dimensions: one dimension is cross-section (19 developed countries and 11 developing

⁸ National culture is an index based on the data from WCY, measuring the level of openness of the host country national culture.

⁹ The authors use a UN classification of developed and developing countries UNCTAD (2012). Developed countries are: Belgium (BE), Denmark (DK), France (FR), Germany (DE), Ireland (IE), Italy (IT), Luxembourg (LU), Netherlands (NL), Norway (NO), Portugal (PT), Spain (ES), Switzerland (CH), United Kingdom (UK), Sweden (SE), Austria (AT), Finland (FI), Hungary (HU), Poland (PL), Czech Republic (CZ). Developing countries are: Hong Kong (HK), India (IN), Indonesia (ID), Korea (KR), Malaysia (MY), Philippines (PH), Singapore (SG), Taiwan (TW), Thailand (TH), China (CN), Turkey (TR). The countries selection among others is limited by data availability.

countries: $i = 1, \dots, N$) and the other is time dimension (15 years: 1995-2009: $t=1, \dots, T$). The total number of observations in this context is 285 for developed countries and 165 for developing ones, and it can be considered adequate to produce robust estimations for the scope of the analysis.¹⁰

Generally the problems of autocorrelation, endogeneity and heteroscedasticity are characteristic to the economic data sets. In order to deal with all these problems a commonly used method for dynamic panels is the GMM estimator proposed by Arellano and Bond (1991). In addition due to the problem of weak instruments the authors follow Arellano and Bover (1995) and estimate eq. (2) by employing a “forward orthogonal deviations” set-up. Independent variables in their transformed form are included in the standard instrument matrix and lagged FDI is included in a GMM type instrument matrix as proposed by Holtz-Eakin, Newey, and Rosen (1988). Finally, the authors perform the Hansen J-test of over-identifying restrictions for the selected instruments. All the regressions were shown to be robust according to these criteria.

In addition, a method of coefficient variance decomposition by Belsley, Kuh, and Welsch (2004) is a useful tool for detecting potential collinearity problems amongst the regressors. This is in fact the case, particularly for developed countries, as will be discussed later. In case of developing countries the authors perform a robustness check of the results simply by excluding the correlated regressors.

4. Estimation Results and Discussions

The authors estimate equation (2) by using GMM method in order to analyze the Japanese FDI with their data sample under different econometric specifications.

The results are presented in the rightmost 6 columns of Table 3. Several interesting features are disclosed, and in what follows, the authors give some interpretations and evaluations for them.

Traditional control variables results are mostly consistent with the previous studies. GDP has a significant role in investor’s decision as expected. Wages (LOG_W_{it}) are negative and significant for developed countries. Skill Difference (SD_{it}) is significant, and the sign is negative for developed countries, while it is positive for developing countries. As suggested by knowledge-capital model (Carr et. al., 2001) this result implies that, Japanese FDI tend to be of horizontal type in case of developed countries and of vertical type in case of developing countries.

Openness ($OPENNESS_{it}$) is positively associated with FDI flows and its influence is statistically significant at 1% level implying that Japanese FDI tends to exhibit vertical type FDI characteristics. Investment cost ($ICREAL_{it}$) has a negative sign as expected and is statistically significant for developing countries, supporting the hypotheses that high level of local impediments in terms of financial, administrative and juridical restrictions will negatively influence Japanese FDI flows.

Technological index (TI_{it}) has a negative and significant effect on Japanese FDI for both developed and developing countries. 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 their technological competitive advantage.

In addition, the sign of national culture (NC_{it}) also turns out to be significantly negative for both developed and developing countries. Thus it could be interpreted that, according to this 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 more concerned with the internal cultural and social environment and hence tends to cooperate more with the same type of national culture.

¹⁰ The descriptive statistics of the data and the correlation matrix are available upon request.

A seemingly puzzling result of the GMM estimation appears in case of Political environment (PE_REAL_{it}), a composite index of "political risk". The coefficient is statistically significant both for developed and developing countries. In the case of developing countries it is negative and corresponds to the authors' initial hypotheses that the Japanese MNCs are concerned about political stability and reduce their investment when perceiving a higher political risk. In the case of developed countries the coefficient is *positive and statistically significant* for Japanese FDI flows (see GMM(a)). Literally interpreted, this suggests that Japanese MNCs tend to invest in the more politically unstable countries, which contradicts the authors' initial presumption. The next section is devoted to addressing this seemingly puzzling phenomenon, and to offer the authors' new hypothesis regarding difficulties in interpretation for aggregate indices^{11,12}.

Table 3 The determinants of Japanese FDI

Groups of countries	Developed	Developed	Developing	Developing	Developing	Pooled
Variables	GMM (a)	GMM(b)	GMM (c)	GMM (d)	GMM(e)	GMM(f)
FDI(-1)	0.19 (7.07)***	0.17 (7.54)***	0.59 (24.0)***	0.59 (27.7)***	0.72 (27.3)***	0.0008 (0.10)
GDP	1122.83 (9.35)***	1071.96 (8.9)***	932.37 (11.35)***	960.09 (22.35)***		672.31 (3.78)***
Wages	-921.35 (-8.16)***	-1223.67 (-7.2)***	8.98 (0.13)		109.06 (3.25)***	-369.99 (-3.66)***
Investment Cost	-27.08 (-7.57)***	-11.55 (-2.59)**	-11.65 (-2.62)**	-15.59 (-4.07)***	-9.24 (-2.46)***	-29.817 (-3.96)***
Skill Difference	-94.27 (-4.98)***	-126.43 (-7.17)***	245.34 (9.98)***	153.54 (8.68)***	179.16 (17.59)***	77.25 (3.02)***
Openness	13.18 (5.05)***	14.66 (5.32)***	5.24 (4.32)***	4.29 (6.62)***	8.50 (10.80)***	11.56 (5.59)***
Technological Index	-69.89 (-8.56)***	-40.56 (-2.93)***	-27.06 (-2.11)**	-24.58 (-5.74)***	32.10 (9.46)***	-63.07 (-3.81)***
National Culture	-103.4 (-2.39)**	-100.83 (-2.48)**	-69.72 (-1.67)*	11.24 (0.45)	-134.37 (-3.97)***	-189.10 (-2.36)**
Political Environment	229.8 (3.19)***		-36.26 (-2.28)**	-11.49 (-3.57)***	-56.96 (-2.43)**	900.35 (6.34)***
PE residual*		251.25 (3.36)***				
PE ²						-84.93 (-5.77)***
SE of regression	1405.75	1408.24	678.71	648.48	711.02	828.41
Hansen J-test (p-value) ^a	0.17	0.27	0.39	0.26	0.40	0.32
t-statistics in parentheses. *, **, and *** mean significant at the 10%, 5%, and 1% level, respectively.						
^a The null hypothesis is that the over-identification restriction is valid.						
*Residual of OLS regression of PE on all other explanatory variables						

¹¹ Note that the authors are not the only one FDI research that encounters different and contradicting signs for developed and developing countries samples for PE. A similar sign pattern was reported in a recent empirical research by Peng and Beamish (2008) who discussed difficulties in interpreting the effect of another composite index, the National Corporate Responsibility Index (NCRI) on the Japanese outward FDI.

¹² Note that the fact that the effects of some composite indices may be ambiguous has been found in another area, the choice of the (optimal) exchange rate regime. Alesina and Wagner (2006) used the Business Environment Risk Intelligence (BERI) index and the Composite Indicator Dataset of the World Bank in order to examine the ambiguous effects of institutional quality on the choice of the exchange rate regime.

5. Political Environment and Multi-collinearity

In order to investigate the possible reasons why the authors have a positive and statistically significant coefficient for the political environment (PE, a composite index of "political risk") variable for the sample of developed countries, they first suspected a problem of multi-collinearity among regressors. Second, in case of developing countries, the authors notice that the coefficient of Wages is not statistically significant while that of PE is negative and significant.

Note that if Government stability (item 3 in Table 2) and Institutional risk (item 5 in Table 2) of PE, meaning an unstable administration, are associated with economic performance and in this regard with unemployment (and the resultant undesirable phenomenon such as inflation) then PE may have a collinear relationship with inflation or wage increase following the Phillips curve argument.¹³ If this kind of reasoning is in fact true, then whenever the authors have a negative PE sign, they might have an insignificant coefficient for Wage, as in GMM(c)¹⁴. Thus, the authors also suspect that there may remain a collinear relationship between Wages and PE.

Following "coefficient variance decomposition" proposed by Belsley et al. (2004) the authors analyze information on the eigenvector decomposition of the coefficient covariance matrix.¹⁵ For both developed and developing countries cases it is found that there is high level of collinearity; in case of developing countries between four variables, namely FDI(-1), LOG_GDP, LOG_W, and OPENNESS. As the authors expected, indeed Wages are one of the collinear variables. On the other hand, in case of developed countries there are two out of nine collinear variables and they are LOG_GDP and PE. So, indeed, in GMM(a) the positive and significant coefficient of Political environment might be a result of multi-collinearity between some independent variables.

The authors start to correct multi-collinearity with the sample of developed countries. In order to eliminate collinear relationships of PE, first they follow the conventional method of running an OLS regression of PE on all other regressors. The purpose of the regression is to extract the orthogonal component of PE that is represented by the residuals. These residuals are used as the "true" PE to perform another GMM regression.¹⁶ The result is presented in GMM(b). Since by the described procedure the authors eliminated all the collinearity from Political Environment index, GMM(b) is expected to provide robust and legitimate estimation. The signs and significance of the variables remains consistent with the previously estimated GMM(a) specification. Thus, the main concern of this study, Political Environment, remains to be associated positively and significantly with FDI flows. Before discussing the possible reasons why PE has a "positive" effect on FDI for developed countries, the authors briefly discuss how to eliminate multi-collinearity from GMM regressions for developing countries case. To deal with it, another conventional method is followed; the authors first eliminate Wage and second GDP from their GMM specification. The results are respectively reported as GMM(d) and GMM(e) in Table 3. As it can be seen by comparison, all the variables (except for National Culture) keep their sign and significance level for GMM(d). The result of GMM(e) supports the authors' strategy of coping with multi-collinearity, as the sign of the coefficients is comparable with those of GMM(c).

The authors now turn to discuss and offer several reasons that seem to be plausible and convincing for the *consistently positive* coefficient of PE for their sample of developed countries. The reasons may not be exhaustive and mutually exclusive.

¹³ Indeed, a simple coefficient of correlation between wages and PE is equal to -0.86.

¹⁴ In fact, the authors noticed this kind of Wages and Political environment behavior in a larger number of GMM specifications under different assumptions that are not reported here.

¹⁵ The results of coefficient variance decomposition are available upon request.

¹⁶ VIF result for "true" PE is 5.64 and hence it can be considered that there is no remaining multicollinearity of this term.

They first propose their hypothesis as follows: Since the composite index PE is constructed with six different qualitative components (see Table 2), they may have different effects on MNCs behaviors for developed and developing countries. These qualitative components may be termed as “institutional quality (IQ, hereafter)”, reflecting multiple qualitative characteristics of host countries. Then, if MNCs are more concerned with IQ, there might be a case that an increase in IQ is associated with an increase in FDI positively. Specifically, if the level of “government stability” (item 3 in Table 2) reflects such factors as juridical, bureaucratic and social development in the host country, a lower value of the PE variable means a relatively higher level of IQ, resulting in a lower level of law's and social environment pressure. In other words, Japanese MNC's might expect lower pressure from the government and public sector, which could serve as an incentive for their FDI. From this point of view, starting from a point where PE has been sufficiently low (i.e., IQ has been high enough) as in developed countries, it is likely that Japanese MNC's could tolerate a slightly *lower* IQ (i.e. a slightly higher PE) to undertake additional FDI if profitable. Several reasons could be put forth. The first reason for it may be that an increase in PE (a decrease in IQ) means a slightly *higher* level of law's and social environment pressure, which could be perceived as a good sign by Japanese MNC's as it might imply “*more discipline*”. The second reason for it may be that if an increase in PE (a decrease in IQ) is associated with slightly deteriorated information access within the market (item 4 in Table 2) then some wider and more “profitable business opportunities” could be opened for Japanese MNC's due to asymmetric information argument. Interestingly, the first reason put forth as above is similar in spirit to Peng and Beamish (2008, p.691) who emphasize MNC's corporate responsibility. They used a word “political environment” to have an opposite meaning to the authors' PE, and concluded that “(a) *loosening* of ... (political) environment will attract more FDI” (emphasis added) for developed countries, because “the levels of (political environment) may be far above what is necessary” for MNC's operations.

Needless to say, when PE is high, implying a low level of IQ, as in a case of developing countries, a higher level of PE (i.e. lower IQ) is always associated with a lower FDI. This implies that Japanese MNCs may react differently to Political environment in developing host countries, compared with developed ones. Specifically, observing a composite Political environment variable, Japanese MNCs may be more sensitive to risk factors such as corruption and government non-payment/non-repatriation, (items 1 and 2 in Table 2) when deciding FDI to developing countries.

The authors formalize their hypothesis of the effects of IQ on FDI with the following three steps.¹⁷ First, there is some level of IQ for which Japanese FDI is insensitive. In general, Japanese MNC's may not be concerned with IQ if the host's IQ is not significantly different from theirs.¹⁸ Second, FDI may not be undertaken to countries with a very poor record of IQ. Thus, for a marginally lower IQ, FDI is reduced. Third, for very stable (developed) countries, FDI is undertaken. Moreover, a marginally lower level of IQ (i.e., higher PE) is interpreted as a good sign for a more disciplined economy, and thus more FDI.

Formally, let F be the appropriately-defined real-valued functional relationship between PE and FDI. The authors postulate that the function $F(PE, FDI | Z)=0$ be a real and multi-valued function on its domain, where Z stands for the other variables in equation (2). To reiterate their hypothesis, it is equivalent to assume that there is some *non-linearity* between PE and FDI (cf. Alesina and Wagner, 2006; Peng and Beamish, 2008). Figure 2, with the authors' estimated

¹⁷ For a similar formulation for exchange rate regimes with IQ, see Alesina and Wagner (2006).

¹⁸ According to the authors' Japanese data (not shown), the mean and the standard deviation of PE are, respectively, 0.67 and 0.31. Thus, the 95% confidence interval is [0.06, 1.28].

elasticities (evaluated at the sample means), visualizes their hypothesis, implying that an inverted U-shaped relationship exists between FDI and PE.^{19,20}

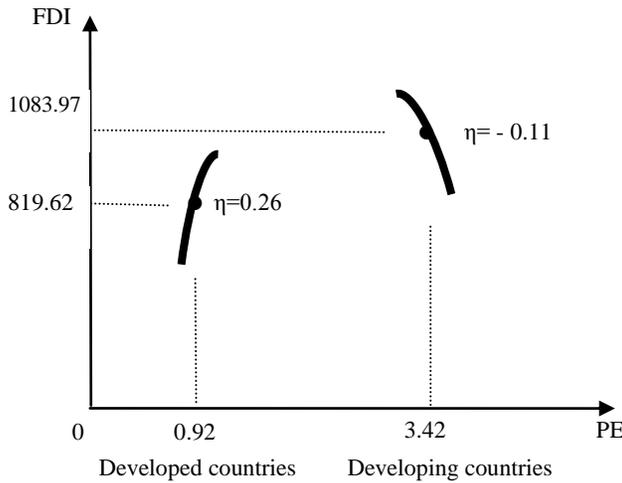


Figure 2 Relationship between PE ([0,10] scale) and FDI (millions of US dollar)

Note: The figure depicts inverted U-shape non-linear relationship between PE and FDI for developed and developing countries. Figures on the axes are the sample means: PE =0.92 for developed countries and PE = 3.24 for developing countries, FDI =819.6 for developed countries and 1083.97 for developing countries. η represents elasticity of FDI with respect to PE: $\eta=0.26$ for developed countries and $\eta=-0.11$ for developing countries.

As illustrated in the figure, the elasticity of FDI with respect to PE evaluated at the mean values for developed countries is 0.26, which is more than twice as larger than that for developing countries in absolute term (i.e. 0.11). This implies that Japanese MNC's are not insensitive to PE when investing in developed countries. It may be inferred from the figure that the function F attains the (unique or non-unique) maximum at some PE level somewhere in between the mean values of developed countries (0.92) and developing countries (3.42).

In order to test this hypothesis the authors pooled their sample and estimated the following equation:²¹

$$(FDI)_{it} = \delta(FDI)_{it-1} + \beta_1 LOG_GDP_{it} + \beta_2 SD_{it} + \beta_3 LOG_W_{it} + \beta_4 OPENNESS_{it} + \beta_5 ICREAL_{it} + \beta_7 TI_{it} + \beta_8 NC_{it} + \beta_6 PE_REAL_{it} + \beta_9 PE_REAL^2_{it} + \epsilon_{it} \quad (3)$$

Thus, the panel data set is represented by 30 developed and developing countries for the period of 1995-2009 years. It is estimated as well by Arellano-Bond GMM method. The results are robust and consistent with the previous estimations. The sign of β_9 coefficient is negative implying an inverted U-shape nonlinear effect of PE on Japanese outward FDI(GMM(f)). Thus, pooled sample estimation confirmed the authors' hypothesis.

Although the authors have put forth their hypothesis, and interpret the positive coefficient on the PE variable, alternative interpretations could be possible. The authors will finish this section by enumerating some of them. First of all, as noted in the section III, the PE variable is usually associated with, *inter alia*, the risk of corruption, non-payment, or other qualitative factors. Since the authors' sample of developed countries has been relatively stable politically and financially, the relative change in political situation would not necessarily mean an increase of the corruption, or non-payment risk, and thus could be associated with an increase in FDI (Peng and Beamish, 2008).

¹⁹ Figure 2 is inspired by the idea of Alesina and Wagner (2006). A similar figure can be found in Peng and Beamish (2008), but they have not mentioned the possibility of multi-valued function of $F(PE, FDI | Z)=0$, or non-linearity.

²⁰ The null hypothesis of equality of the mean for PR, 0.92 (s.d.=1.01) for developed countries and 3.42 (s.d.=1.74) for developing countries, is rejected by a normal test with the 1% level of significance.

²¹ The authors would like to thank Professor John Devereux for suggesting this estimation to confirm their hypothesis empirically.

The second possible reason for the positive sign of PE comes from a general characteristic of investments. Since some FDI activities continue for a long time, it may not be a rare case that some investments started from previous periods still continue even after the political situation changed.

The third reason is somewhat related to the first. It emphasizes a special nature of the authors' sample developed countries which include the former Socialist countries that have been in transition to the system of market economy. Thus, a slight vulnerability of PE might actually be a good sign for Japanese MNCs.

At this point, the authors are not certain which of the above suggested reason(s) is more convincing for the positive coefficient of PE for developed countries. They are more inclined to interpret the positive coefficient with their hypothesis of non-linearity à la Alesina and Wagner (2006) and Peng and Beamish (2008). The authors performed several robustness tests and the results were consistent.²² But in order to ensure theoretical consistency for the presented hypothesis, it should be tested by further empirical research, and thus, it is on the authors' future research agenda. However, to their knowledge, this is a new and significant contribution to the previous literature on FDI and Political Environment. The authors also would like to emphasize that this result is highly important from the policy prescription perspective as the host countries' government could consider political stability and the aspect of economic development stage together when prescribing FDI attracting policies. In case of developing countries an increase in Political stability will potentially lead to more FDI. On the other hand in case of developed countries, the issue may be more controversial. Up to a certain threshold level of political stability an increase in IQ will lead to more FDI, but if institutional reforms go further beyond the level which is necessary for MNCs operations, it might actually lead to less FDI. The reason is that PE in developed countries is far above what is necessary for Japanese MNCs. Thus, a certain balance might be necessary.

6. Concluding Remarks

This paper empirically examined the outward Japanese FDI with a panel data of a total of 30 developed and developing countries for the period 1995-2009. Based on the OLI theoretical framework and knowledge-capital models, a number of traditional determinants (GDP, Human capital indicators, Investment cost, Trade cost, etc.) are complemented with 3 non-traditional determinants for Japanese FDI, namely Political Environment, Technological Index, and National Culture. Generalized method of moments is applied to this data set. However, due to the identified multi-collinearity problem a formal econometric procedure is employed in order to ensure robust specification and results interpretation.

The main results are mostly consistent with the preceding studies and are robust for all specifications. One of the authors' main concerns in this paper, Political environment (PE), was differently signed for developed and developing countries. In case of developing countries it has a negative sign which is consistent with most of the preceding literature. However, in case of developed countries even after a formal econometric procedure is applied, the sign is positive, implying that Japanese MNCs tend to increase FDI for a marginal increase in PE (i.e. a marginal decrease in institutional quality), because political environment in developed countries may be far above what is necessary for MNCs' operations (Peng and Beamish, 2008).

On this seemingly contradictory result, the authors put forth their hypothesis of the existence of non-linearity between Political environment and FDI, following an interpretation by Alesina and Wagner (2006). They postulated that the political environment might be associated with

²² The authors' results are robust after performing several robustness tests. The results are available for interested readers on request for a year after the date of publication.

institutional quality (as shown in Table 2) and, if an economy has been in a sufficiently higher IQ environment, its marginal deterioration might be perceived by Japanese MNC's as laws' and social environment pressure increasing slightly, leading to a "more discipline" and "more profitable opportunities" operational environment. Moreover, a few possible interpretations could be suggested to explain this result. Further research is necessary to confirm which of these interpretations is true, and this is on the authors' future research agenda. This line of research is highly important from the government policies perspective since countries' development stage and Political environment could be considered simultaneously.

The authors checked the robustness of the analysis in several ways (by using alternative countries classifications, by dividing the sample period in sub-periods and by employing alternative econometric methods) and the results were consistent with the ones presented in the paper.^{23, 24}

The authors conclude that Japanese FDI can be reasonably explained by the proposed independent variables. The most probable and/or dominant form of Japanese FDI according to the results is vertical and platform type when investing in developing countries and horizontal type when investing in developed countries. And finally, as far as the authors know, this is the first formal attempt to empirically examine the effects of political environment on *Japanese* FDI to developed and developing countries using the Euromoney Country Risk index. It is successfully found that political environment is, as expected, significantly associated with Japanese FDI flows. These findings have important implications for future policy consideration by host countries and academic research on Japanese outward FDI.

Acknowledgements: Earlier versions of this paper were presented at various Conferences and Workshops, including ICE-TEA (Grine-TRNC), IAEC (Athens), ICOAE (Perugia), JEPA (Kwansei Gakuin Univ.), EUIJ (Pusan), GLOPE II (Waseda Univ.), Graduate Workshop (Waseda Univ.), WEAI (San-Francisco), HSS (Paris). The authors would like to express their sincere thanks to Professors Sara Calvo, Antonin Rusek, Shujiro Urata, Fukunari Kimura, Kenichiro Tamaki, Koji Takase, Hisatoshi Tanaka, Hideki Konishi, Ueda Atsuko, John Devereux, Nathan Cook, Lein Lein Chen and Aleksander Petkovic, and other participants for their critical but constructing comments and suggestions that improved the paper considerably. Usual disclaimer applies.

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²³ Due to space limitations the authors do not present the results here. They are available upon request.

²⁴ Several limitations are inherent to this study. Due to space limitations the authors omit their discussion here.

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