Do Poor Institutional Factors Affect Outward Foreign Direct Investment? Evidence from China

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Introduction

- The transformation from a central planned economy to the global market not only contributed extensively to the Chinese economy, but also provided momentum to global economic growth.

- Moreover, the foreign direct investment (FDI) surge from China is beneficial to the host countries as it provides necessary capital and technology.

- However, some controversies and concerns have been raised regarding location choice by China's FDI. In general, it is perceived that Chinese firms tend to invest in host countries with poor institutional environments to exploit the natural resources

Introduction

- Outward foreign direct investment (OFDI) from developing countries is a nascent phenomenon. China, as a potential FDI outsource country, has received considerable attention from researchers in recent years.

- The inclination of China's OFDI towards neighboring Asian economies is regarded as the most insightful business phenomena in last 10-12 years.

- China is making substantial investment in Asia and certain advantages are associated with China's FDI, however, the distribution and pattern of China's FDI within the region is uneven.

Motivation of the Study

- The present study analyses the effect of institutions and natural resources on the investment decisions of Chinese firms, and offers some contributions to extant literature.

- First, this study significantly improves on previous studies, such as Li (2012), and Kolstad and Wiig (2012), whose analyses comprise various regions of the world, whereas we confine our empirical analysis to a set of 37 Asian countries where the bulk of Chinese investment is concentrated.

Motivation of the Study

- Second, the extant studies primarily focus on the single aspects of institutional quality, such as property rights, corruption, and political risk, to examine the effect of institutions on Chinese.

- voice and accountability (VA), political stability and absence of violence/terrorism (PS), government effectiveness (GE), regulatory quality (RQ), rule of law (RL), and control of corruption (CP).

Literature Review
China's OFDI & Host countries' Institutional Factor(s)

Study	Time period	Sample size	Findings
Buckley et al. (2007)	1984-2001	49	High Political risk is positively associated with China's FDI
Cheung & Qian (2009)	1991-2005	46	Mostly insignificant impact of institutional factors is observed
Huang & Wang (2011)	2003-2009	1563	Rule of law is positively linked with China's FDI
Cheung et al. (2012)	1991-2005	31	High level of corruption has attracted China's FDI
Hurst (2011)	2003-2008	154	*Property right established negative association with China's FDI
Duanmu (2012)	1999-2008	47	*Low political risk has attracted more China's FDI
Kang & Jiang (2012)	2001-2007	104	*High Political risk is positively associated with China's FDI
Kolstad & Wiig (2012)	2003-2006	142	Rule of law is inversely related with China's FDI
Li & Liang (2012)	2003-2005	95	*Property right in low income countries established negative association with China's FDI.
Quer et al. (2012)	2005-2009	52	Political risk is not associated with China's FDI
Ramasamy et al (2012)	2006-2008	59	*Political risk is positively related with China's FDI
Li (2012)	2003-2010	179	*Weak institutional factors attracted China's FDI

Research Questions/Objectives of the Study

- Based on the motivations of the study, following research questions have been developed:

1. What are the motivations of China‘s FDI in Asia?
2. What types of natural resources are the primary drivers of Chinese outbound direct investment in Asia?
3. What role do the host country’s institutional factors play in Chinese firms’ decisions to invest in the Asian region?

China's OFDI in Asia: A Descriptive Overview

Table-2: Pattern of Chinese outward foreign direct investmentin Asia

Region	China's FDI flows($ billion)		World's FDI flows ($ billion)	
	2004-12	2012	2004-12	2012
Total world	405.6	87.804	13212.98	1346.67
Total Asia	270.88	64.78	3418.06	444.42
FDI flows (excluding China from the World and Hong Kong from China, respectively)	44.53	13.52	2443.78	323.34
of which:				
Middle East	7.4	2.59	419.54	35.24
East and Southeast Asia	29.68	8.17	1481.29	223.42
Central Asia	6.43	3.49	243.77	31.32
South Asia	2.78	0.41	299.18	32.44
Distribution of FDI on the basis of oil richness (in %)				
Asia	31.96	43.63	30.7	31.05
Middle East	10.28	8.87	13.78	7.74
East and Southeast Asia	10.42	14.12	8.62	12.47
Central Asia	11.22	22.04	8.32	10.84
Distribution of FDI on the basis of mineral richness (in %)				
Asia	43.22	61.09	21.73	28.52
Middle East	4.63	5.4	0.8	0.5
East and Southeast Asia	25.75	30.76	13.27	18.05
Central Asia	12.82	24.92	7.65	9.97

Source: UNCTAD, 2012 and 2013 Statistical Bulletin of China's Outward Foreign Direct Investment, World Bank 'World Development Indicators', and authors' compilation of data.

Percentile Rank of Institutional Quality

Table-3: Percentile rank of institutional quality in top host Asian countries of China's OFDI in 2012

Country	Voice andaccountability	Political stability	Government effectiveness	Regulatory quality	Rule of law	Control of corruption	% share of China's OFDI stock until 2012
Hong Kong	67	80	97	100	91	93	84.1
Singapore	54	97	100	100	96	97	3.4
Kazakhstan	16	36	40	38	31	21	1.7
Indonesia	51	27	44	43	34	29	0.9
Myanmar	04	18	04	02	06	11	0.9
South Korea	70	52	84	77	80	70	0.8
Mongolia	51	61	31	46	45	38	0.8
Macao	40	66	82	89	70	70	0.8
Cambodia	19	41	22	39	17	14	0.6
Pakistan	24	01	23	25	19	14	0.6
Thailand	37	13	61	58	50	47	0.6
Iran	06	10	36	07	20	24	0.6

Source: World Bank 'Worldwide Governance Indicators', 2012 Statistical Bulletin of China's Outward Foreign Direct Investment.

Methodology and Estimation Techniques

$$OFDI_{it} = \beta_0 + \beta_1 X_{it} + \gamma_t + \eta_i + \nu_{it}$$

Where:

- $OFDI_{it}$ is China's FDI in country "i" in time "t"
- X_{it} represent determinants of China's OFDI
- γ_t is unobserved period effect which is common across countries
- η_i represents unobserved country effects that is constant over time
- ν_{it} is a component that varies across countries and time

$$OFDI_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 Z_{it} + \gamma_t + \eta_i + \nu_{it}$$

Where:

- X_{it} represents variables to capture motivations of China's OFDI
- Z_{it} represents set of control variables (infrastructure, institutional variables, trade variable)

$$\boldsymbol{OFDI_{it} = \beta_0 + \beta_1 Controls_i + \beta_2 Natural\ Resources_i + \beta_3 Institutions_i + \beta_4 Institutions * Natural\ Resources_i + \varepsilon_i}$$

Methodology and Estimation Techniques

Table-4: Description of variables

Variable	Proxy	Theoretical justification	Data source
China's FDI (FDI)	China's FDI stock in Asian countries	-	Statistical Bulletin of China's Outward Foreign Direct Investment, UNCTAD.
Market size	Host country's GDP	Market seeking	World Bank Development Indicators
Bilateral trade	Annual volume of bilateral trade (exports + imports)	Market seeking	China Statistical Year Books, UNCTAD
Natural resource endowment (fuel and non-fuel)	Natural Resources: ore, metal,and minerals export as % of all merchandise export in host country. Fuel: fuel export as % of all merchandise export in host country	Resource seeking	World Bank Development Indicators
Host country's institutional indicators	-Voice and accountability -Political stability and absence of violence/terrorism -Government effectiveness -Regulatory quality -Rule of law -Control of corruption	Institutional factors	World Bank Development Indicators

Papulation of the study

Appendix 1: All 37 countries included in analysis

Bahrain	Kuwait	Saudi Arabia
Bangladesh	Kyrgyz Republic	Singapore
Brunei	Lao	South Korea
Cambodia	Lebanon	Sri Lanka
Hong Kong	Macao	Tajikistan
India	Malaysia	Thailand
Indonesia	Mongolia	Turkey
Iran	Myanmar	UAE
Iraq	Nepal	Uzbekistan
Israel	Oman	Vietnam
Japan	Pakistan	Yemen
Jordan	Philippines	
Kazakhstan	Qatar	

Oil Exporting Countries

Appendix 2: Top 15 oil-exporting countries in Asia

Bahrain	Oman
Brunei	Qatar
Indonesia	Saudi Arabia
Iran	UAE
Iraq	Uzbekistan
Kazakhstan	Vietnam
Kuwait	Yemen
Malaysia	

Methodology and Estimation Techniques

- Breusch-Pagan Lagrange Multiplier (LM) test has been conducted for the choice between pooled OLS and random effects model.

- We did not apply the fixed effects (FE) method as the time span (2003-2012) for our analysis was short, while the number of countries (37) are relatively large, therefore, limited within effects do not favors using FE method.

- We have computed Variance Inflation Factor (VIF) diagnostic test for each model in our analysis to assess the multicollinearity among the variables.

Regression Results

Table-5: Regression results (base line)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
GDP	-0.15 (0.34)	-0.23 (0.39)	-0.42 (0.38)	-0.22 (0.34)	-0.14 (0.31)	-0.09 (0.31)	-0.06 (0.32)	-0.14 (0.32)	-0.12 (0.31)
Bilateral trade (BT)	1.62*** (0.27)	1.69**** (0.34)	1.86*** (0.31)	1.74*** (0.25)	1.63*** (0.26)	1.58*** (0.26)	1.66*** (0.25)	1.67*** (0.26)	1.62*** (0.26)
Natural resources (NR)		0.24** (0.11)							
Fuel endowment (FE)			0.01 (0.08)						
Political stability (PS)				-1.03*** (0.19)					
Corruption (CP)					-1.88*** (0.68)				
Voice and accountability (VA)						-1.64** (0.71)			
Govt. effectiveness (GE)							-2.58** (1.22)		
Regulatory quality (RQ)								-1.73 (1.11)	
Rule of law (RL)									-1.53** (0.65)
Constant	-7.83***	-7.95***	7.25***	-6.63***	5.36**	-6.06***	-5.18**	-5.70**	-5.92**
Observations	349	312	305	349	349	349	349	349	349
Countries	37	37	37	37	37	37	37	37	37
R^2	0.43	0.49	0.56	0.44	0.47	0.45	0.46	0.46	0.40
LM-test (P-value)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

* p<.10; ** p<.05; *** p<.001 (standard errors are in parenthesis).

Regression Results

Table-6: Regression results (interaction of natural resources and institutional factors)

	Model 1	Model 1a	Model 2	Model 2a	Model 3	Model 3a	Model 4	Model 4a	Model 5	Model 5a	Model 6	Model 6a
GDP	-0.22 (0.34)	-0.37 (0.35)	-0.14 (0.31)	-0.24 (0.34)	-0.09 (0.31)	-0.22 (0.35)	-0.06 (0.32)	-0.20 (0.34)	-0.14 (0.32)	-0.24 (0.35)	-0.12 (0.31)	-0.25 (0.32)
Bilateral trade	1.74*** (0.25)	1.88*** (0.26)	1.63*** (0.26)	1.71*** (0.30)	1.58*** (0.26)	1.67*** (0.30)	1.66*** (0.25)	1.74*** (0.28)	1.67*** (0.26)	1.73*** (0.29)	1.62*** (0.26)	1.73*** (0.28)
Political stability	-1.03*** (0.19)	-0.70*** (0.25)										
Pol.stab.*Nat. res.		0.16*** (0.06)										
Corruption			-1.88*** (0.68)	-1.52** (0.77)								
Corrup.*Nat. res.				0.22*** (0.08)								
Voice and acc.					-1.64** (0.71)	-1.32 (0.81)						
Voice and acc.*Nat. res.						0.22*** (0.06)						
Govt. effectiveness							-2.58** (1.22)	-2.51* (1.42)				
Govt. eff.*Nat. res.								0.23*** (0.08)				
Regulatory quality									-1.73 (1.11)	-1.73 (1.04)		
Reg. quality*Nat. res.										0.22*** (0.07)		
Rule of law											-1.53** (0.65)	-1.63** (0.83)
Rule of law*Nat. res.												0.23*** (0.08)
Constant	-6.63***	-7.03***	5.36**	-5.07**	-6.06***	-6.21**	-5.18**	-4.80	-5.70**	-5.47*	-5.92**	-5.62**
Observations	349	312	349	312	349	312	349	312	349	312	349	312
Countries	37	37	37	37	37	37	37	37	37	37	37	37
R^2	0.44	0.53	0.47	0.52	0.45	0.51	0.46	0.52	0.46	0.50	0.47	0.54
LM-test (P value)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

* p<.10; ** p<.05; *** p<.001 (standard errors are in parentheses).

Regression Results

Table-7: Regression results (interaction of fuel endowment and institutional factors)

	Model 1	Model 1b	Model 2	Model 2b	Model 3	Model 3b	Model 4	Model 4b	Model 5	Model 5b	Model 6	Model 6b
GDP	-0.41 (0.39)	-0.45 (0.38)	-0.29 (0.36)	-0.30 (0.36)	-0.27 (0.37)	-0.29 (0.37)	-0.28 (0.35)	-0.28 (0.35)	-0.34 (0.36)	-0.37 (0.35)	-0.30 (0.35)	-0.31 (0.36)
Bilateral trade	1.87*** (0.30)	1.93*** (0.29)	1.80*** (0.29)	1.80*** (0.29)	1.77*** (0.29)	1.78*** (0.29)	1.87*** (0.27)	1.87*** (0.27)	1.86*** (0.28)	1.88*** (0.28)	1.81*** (0.29)	1.81*** (0.29)
Political stability	-0.61** (0.31)	-0.45* (0.27)										
Pol.stab.*Fuel		-0.07 (0.06)										
Corruption			-1.74** (0.75)	-1.91*** (0.73)								
Corrup.*Fuel				0.06 (0.05)								
Voice and acc.					-1.72** (0.86)	-1.77** (0.86)						
Voice and acc.*Fuel						0.02 (0.05)						
Govt. effectiveness							-2.96** (1.27)	-3.19*** (1.23)				
Govt. eff.*Fuel								0.06 (0.05)				
Regulatory quality									-1.97 (1.37)	-2.15 (1.39)		
Reg. quality*Fuel										0.04 (0.06)		
Rule of law											-1.79** (0.73)	-1.98*** (0.70)
Rule of law*Fuel												0.06 (0.05)
Constant	-7.87****	-7.69***	-5.69**	-5.46**	-5.93**	-5.69**	-4.33	-4.05	-5.08	-4.76	-5.55	-5.26
Observations	309	304	309	304	309	304	309	304	309	304	309	304
Countries	37	37	37	37	37	37	37	37	37	37	37	37
R^2	0.55	0.58	0.59	0.57	0.57	0.56	0.61	0.59	0.58	0.57	0.61	0.59
LM-test (P value)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

* p<.10; ** p<.05; *** p<.001 (standard errors are in parentheses).

Regression Results

Table-8: Regression results (top 15 oil-exporting countries in Asia)

	Model 1	Model 1c	Model 2	Model 2c	Model 3	Model 3c	Model 4	Model 4d	Model 5	Model 5d	Model 6	Model 6d
GDP	0.17 (0.40)	0.11 (0.44)	0.19 (0.35)	0.10 (0.38)	0.34 (0.45)	0.25 (0.48)	0.23 (0.37)	0.10 (0.40)	0.18 (0.40)	0.05 (0.45)	0.18 (0.34)	0.13 (0.35)
Bilateral trade	1.54*** (0.26)	1.60*** (0.29)	1.32*** (0.27)	1.40*** (0.30)	1.26*** (0.33)	1.32*** (0.34)	1.43*** (0.25)	1.50*** (0.27)	1.41*** (0.28)	1.51*** (0.31)	1.36*** (0.25)	1.40*** (0.27)
Political stability	-1.15*** (0.17)	-1.76*** (0.62)										
Pol.stab.*Fuel		0.14 (0.13)										
Corruption			-2.16* (1.15)	-3.07*** (0.74)								
Corrup.*Fuel				0.20 (0.17)								
Voice and acc.					-2.06* (1.20)	-2.88** (1.17)						
Voice and acc.*Fuel						0.19 (0.23)						
Govt. effectiveness							-2.70* (1.56)	-3.15*** (0.97)				
Govt. eff.*Fuel								0.12 (0.18)				
Regulatory quality									-2.18 (1.74)	-3.20* (1.80)		
Reg. quality*Fuel										0.23 (0.15)		
Rule of law											-1.71** (0.69)	-2.08** (0.68)
Rule of law*Fuel												0.08 (0.21)
Constant	-9.50***	-9.18***	-6.43*	-5.92*	-8.37**	-7.88*	-6.81*	-5.98*	-6.86	-6.14	-7.32**	-6.95**
Observations	139	139	139	139	139	139	139	139	139	139	139	139
Countries	15	15	15	15	15	15	15	15	15	15	15	15
R^2	0.58	0.57	0.62	0.61	0.51	0.49	0.59	0.59	0.57	0.55	0.61	0.61
LM-test (P value)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

* p<.10; ** p<.05; *** p<.001 (standard errors are in parentheses).

Correlation Matrix

Table-9: Correlation matrix

	FDI	GDP	Bil. trade	Nat. res.	Fuel endow.	Pol.stab.	Corruption	Voice and acc.	Govt. effect.
FDI	1.00								
GDP	0.37	1.00							
Bil. trade	0.70	0.61	1.00						
Nat. res.	0.36	0.27	0.16	1.00					
Fuel endow.	0.41	0.20	0.20	-0.08	1.00				
Pol. stab.	0.63	0.22	0.19	0.21	0.17	1.00			
Corruption	-0.21	0.31	0.30	0.15	0.11	0.62	1.00		
Voice and acc.	-0.29	0.26	0.25	0.34	-0.26	0.23	0.34	1.00	
Govt. effect	0.19	0.39	0.43	0.25	0.19	0.53	0.23	0.52	1.00
Reg. quality	0.16	0.16	0.24	0.20	-0.11	0.50	0.53	0.54	0.67
Rule of law	-0.25	0.32	0.32	0.27	0.15	0.67	0.44	0.49	0.34

Conclusions

- In general, China's FDI is attracted to resource-rich countries with poor institutional environments, and our results align with the extant empirical evidence.

- However, the interaction effect of institutional factors and non-fuel natural resources produces positive coefficients, which suggests that the availability of such natural resources increases/decreases the positive/negative impact of institutional factors on China's FDI. In other words, our findings suggest that host countries with abundant natural resources (non-fuel) and better institutions attract China's FDI.


Thank You!