

Foreign Direct Investment Commitments in East Asia

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Motivation

- Information frictions and uncertainty can cause planned investments to be modified
- We examine this investment gap in the context of foreign direct investment (FDI)
- FDI is associated with economic growth
 - in presence of local financial market development and technology absorption capacity
 - due to labor market spillovers and resultant higher productivity

Approach

- Compare disclosed values of approved FDI (ex ante) with actual inflows of FDI (ex post)
- Test impact of uncertainty on FDI plan implementation; real options theory
- Commitment ratio
 - Measure deviations of actual investment from planned investment
 - $CR_{ijt} = \frac{U_{ijt}}{0.5(C_{ijt} + C_{ijt-1})}$
 - U_{ijt} : Utilized FDI = Total value of cross-border FDI inflows from source country i to host country j
 - C_{ijt} : Approved FDI = Total value of FDI projects approved by host country j for investors from source country i = Non-binding contracted target of FDI
 - Varies across host countries, source countries, and time.
 - Hornstein (2011, 2017) works with this measure for China

Panel data

- 4 middle-income host countries: China, Indonesia, Philippines, and Thailand
- 25 high-income source countries
- Period: 1996-2013 (varies by host country)
- More variation in sources & hosts than prior literature

Approved FDI

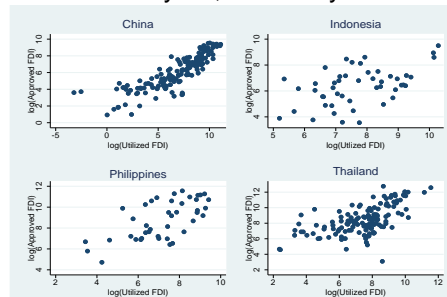
- Rarely disclosed by firms or governments on systematic basis
- However, some governments disclose data routinely on source country basis or industry basis
- Imperfect, noisy signal of expected value of actual FDI inflows, which may occur in same or future year

Regulation of FDI Inflows

- National security considerations
- Valuation – machinery, taxes
- Pro forma financial plans
- Sensitive industries; threshold levels (monetary value, employment)

Ex ante vs. ex post

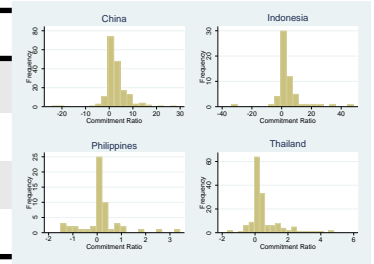
- Approved FDI explains 66% of actual FDI in the same year; circularity



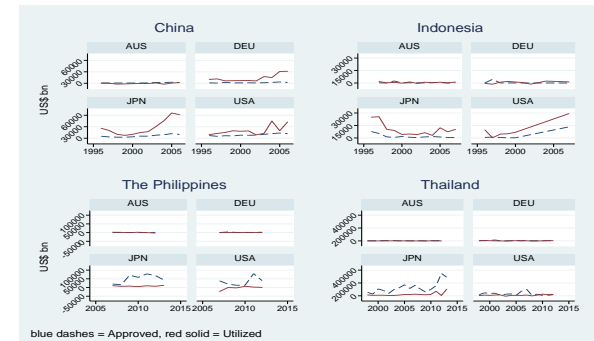
Commitment Ratio

Average estimated commitment ratio is 1.90

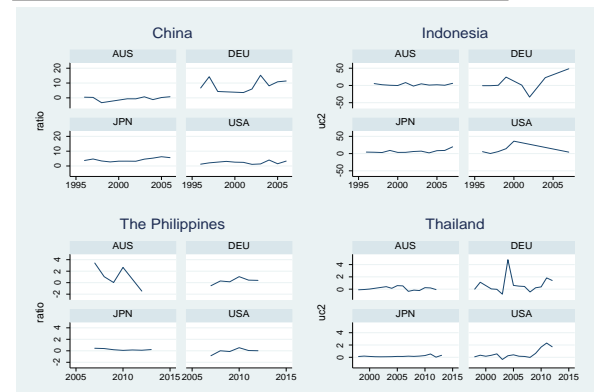
Range	Pct of Data
≤ 0	17%
0-1	42%
~ 1	2%
> 1	41%



Inflows from Selected Sources



Commitment Ratio from Selected Sources



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Commitment Ratio: Summary Statistics

	China	Indonesia	Philippines	Thailand
Average	2.793	4.307	0.155	0.548
Std. Dev.	5.142	10.358	0.843	0.972
No. Obs.	180	59	55	153

Baseline Specification

$$CR_{ijt}$$

$$= \alpha + \beta W_{ijt} + \gamma X_{ij} + \delta Y_{it} + \theta Z_{jt} + \tau_t + \varepsilon_{ijt}$$

i : source country, j : host country, t : year

CR: commitment ratio

W: bilateral time-varying characteristics (e.g., uncertainty) – exchange rate volatility, depreciation

X: bilateral fixed characteristics – bilateral distance

Y: source's time-varying characteristics – population, government stability

Z: host's time-varying characteristics – population, government stability, financial openness

Motivations

- Gravity model (W, X, Y, Z) – trade theory (e.g., Blonigen and Piger, 2014)
- Uncertainty/real options (W) – finance and economics (e.g., Baker et al. (many); Block, 2007)
- Financial development (Y, Z) – Chinn and Ito (2016), Wurgler (2000)
- Institutional quality (Y, Z) – La Porta et al. (1997, 1998), Acemoglu et al. (2003)

Data Sources

- Approved (Contracted) FDI:** Government agencies in China, Indonesia, Philippines, and Thailand; retrieved from CEIC database
- Utilized (Actual) FDI:** FDI outflows from OECD FDI database
- Financial openness:** Chinn and Ito (2016)
- Government stability:** WGI Database
- Macroeconomic data:** World Bank
- Independent Investment Agreements (IIA) & Preferential Trade Accords (PTA):** UNCTAD Database, Bergstrand's Database
- Economic expectations:** World Economic Outlook
- Events:** multiple sources
- Cultural characteristics:** CEPII, Hofstede et al. (2006), Schwartz (2010)

Baseline Results: Ex Ante Uncertainty

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Exchange rate volatility	13.354*** (1.642)	13.771*** (1.907)	15.063*** (1.102)	-13.051 (7.748)	9.813** (2.186)	2.505 (4.185)	4.491 (4.793)	5.101 (7.616)
Source's pol stability	2.648 (1.256)	2.660 (1.290)	2.660 (1.290)					2.304 (1.138)
Host's pol stability			1.311* (0.504)	1.331** (0.536)				1.674* (0.570)
Host's fin. openness	0.974** (0.199)	1.900** (0.528)	1.801** (0.531)	1.751** (0.376)	1.181*** (0.156)	3.437** (0.877)	3.399** (0.942)	2.428** (0.589)
Source's population	0.829 (0.455)	0.355 (0.269)	0.851 (0.467)	-0.161* (0.063)	-0.309 (0.394)	0.286 (0.310)	-0.412 (0.463)	0.497 (0.289)
Host's population	1.475** (0.367)	1.781** (0.464)	1.861** (0.496)	1.644** (0.416)	1.607** (0.380)	0.347 (0.294)	0.367 (0.314)	1.999** (0.486)
Distance	0.331 (0.394)	0.371 (0.438)	0.316 (0.383)	0.407 (0.557)	0.006 (0.544)	0.424 (0.580)	-0.113 (0.489)	0.507 (0.542)
Source's tax rate				0.116 (0.081)				0.070 (0.045)
Source's market cap					0.954** (0.204)			0.941 (0.454)
Host's market cap						3.517* (1.221)	3.629* (1.322)	
Constant	-46.477* (18.320)	-38.439** (15.420)	-51.240** (19.782)	-31.746* (12.873)	-47.899** (20.233)	-109.602** (36.705)	-121.317** (38.397)	-49.500* (19.331)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-sq	0.163	0.139	0.171	0.134	0.174	0.186	0.198	0.165
Sample size	447	447	447	370	450	565	345	370

Note: Standard errors in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1

Baseline Results: Ex Post Uncertainty

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Depreciation	0.031*** (0.005)	0.031** (0.009)	0.031*** (0.005)	0.027 (0.021)	0.001 (0.011)	0.040 (0.030)	0.033 (0.016)	0.030 (0.018)
Host's fin. openness	1.021*** (0.099)	0.990** (0.221)	1.010** (0.184)	1.264*** (0.113)	1.175*** (0.101)	1.873*** (0.242)	1.879*** (0.245)	1.168** (0.205)
Source's pol stability	2.532 (1.139)		2.531 (1.132)					2.533 (1.398)
Host's pol stability		-0.089 (0.437)	-0.015 (0.378)					-0.019 (0.356)
Source's population	0.764 (0.533)	0.304 (0.384)	0.764 (0.528)	-0.419 (0.335)	-0.437 (0.334)	0.217 (0.501)	-0.790 (0.440)	0.670 (0.862)
Host's population	1.328** (0.259)	1.187*** (0.156)	1.323*** (0.156)	1.359*** (0.206)	1.523** (0.297)	1.025** (0.287)	1.299** (0.317)	1.490*** (0.205)
Distance	0.191 (0.245)	0.251 (0.274)	0.192 (0.249)	0.492 (0.439)	-0.909 (0.537)	0.303 (0.317)	-0.816** (0.145)	0.470 (0.393)
Source's tax rate				0.139 (0.082)				0.004 (0.097)
Source's market cap					1.225* (0.440)		1.302*** (0.207)	
Host's market cap						1.452* (0.494)	1.415* (0.539)	
Constant	-41.345* (16.541)	-28.497* (11.481)	-41.284* (15.066)	-24.789 (11.524)	-40.957 (18.256)	-61.689** (13.221)	-74.488** (13.820)	-45.038 (21.209)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-sq	0.217	0.156	0.217	0.178	0.211	0.209	0.271	0.224
Sample size	292	292	292	236	340	236	221	226

Note: Standard errors in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1

Extensions and Robustness Tests

- International investment agreements (IIA) and preferential trade agreements (PTA)
- Inflation and output growth surprises
- Past experience – FDI, trade
- Events
- Cultural frictions
- Sub-Sample

Conclusions

- Persistent variation in the FDI commitment ratio, and it consistently differs from 1
- Reconcile with FDI theory: Commitment ratio captures longer-term trends. Results consistent with prior work on utilized FDI (e.g., Siegel et al., 2011, 2012) and on the commitment ratio in China (Hornstein, 2017)
- Sheds light on how commitments are modified to reflect newly available information after controlling for uncertainty