

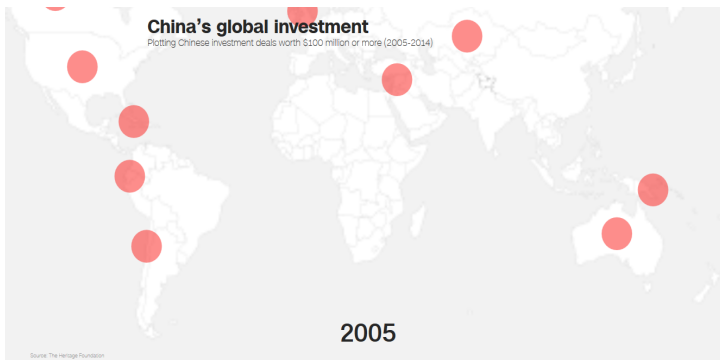
# Does Bank FDI Promote Firm FDI? Evidence from China's Outbound Multinational Activity

Davin Chor Tomoo Kikuchi Li Jie

20-21 Jun 2017  
Nottingham

## Preamble

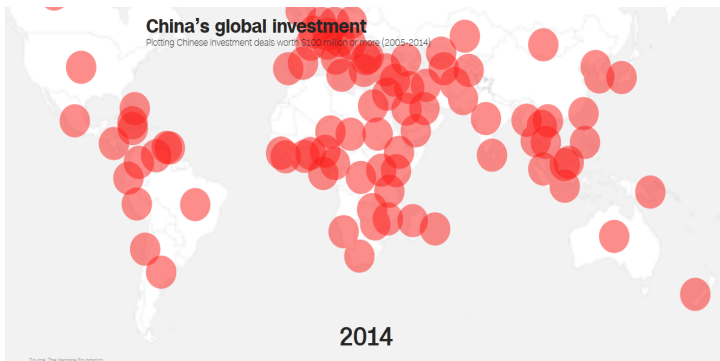
- ▶ Foreign direct investment (FDI) a key mode through which firms expand their global footprint.
- ▶ On the rise over the last two decades, particularly outward FDI from developing countries such as China.



(Source: <http://edition.cnn.com/interactive/2017/05/world/chinas-new-world-order/>)

## Preamble

- ▶ Foreign direct investment (FDI) a key mode through which firms expand their global footprint.
- ▶ On the rise over the last two decades, particularly outward FDI from developing countries such as China.



(Source: <http://edition.cnn.com/interactive/2017/05/world/chinas-new-world-order/>)

## Motivation

- ▶ FDI by manufacturing firms seen at the forefront of this rise
  - ⇒ An extensive literature seeking to understand the determinants of manufacturing FDI; see Yeaple (2013), Antràs and Yeaple (2014).

## Motivation

- ▶ FDI by manufacturing firms seen at the forefront of this rise
  - ⇒ An extensive literature seeking to understand the determinants of manufacturing FDI; see Yeaple (2013), Antràs and Yeaple (2014).
- ▶ *At the same time*: FDI in the banking sector has led to the emergence of many global banks and promoted financial globalization.
  - ▶ In 2000: Big-5 Chinese banks had 52 branches/subsidiaries in 17 foreign countries.
  - ▶ In 2014: 263 branches/subsidiaries in 49 foreign countries.
- ▶ Oft-cited motivation for Bank FDI:
  - ▶ Seeking growth opportunities in larger markets
  - ▶ Risk diversification
  - ▶ Facilitating the overseas banking/financing needs of home-country clients.

## Motivation

- ▶ FDI by manufacturing firms seen at the forefront of this rise
  - ⇒ An extensive literature seeking to understand the determinants of manufacturing FDI; see Yeaple (2013), Antràs and Yeaple (2014).
- ▶ *At the same time*: FDI in the banking sector has led to the emergence of many global banks and promoted financial globalization.
  - ▶ In 2000: Big-5 Chinese banks had 52 branches/subsidiaries in 17 foreign countries.
  - ▶ In 2014: 263 branches/subsidiaries in 49 foreign countries.
- ▶ Oft-cited motivation for Bank FDI:
  - ▶ Seeking growth opportunities in larger markets
  - ▶ Risk diversification
  - ▶ Facilitating the overseas banking/financing needs of home-country clients.
- ▶ **Raises the question**: Are the rise of bank FDI and firm FDI inter-related?

## An illustrative example

*“ICBC (Europe) SA Amsterdam Branch was officially open to public on 20 January 2011. Leveraging on the leading market position, quality customer base, diversified business structure, robust innovative capability and excellent brand value of ICBC, ICBC (Europe) SA Amsterdam Branch can satisfy financial requirements of customers in such aspects as account opening, deposit, remittance, settlement, corporate finance, trade finance and wealth management. Therefore, it is the best choice for Chinese enterprises willing to expand their businesses into the Netherlands and for Dutch enterprises with investments in and trade with China.”*

## What we do in this paper

- ▶ Use data on Chinese banks' and manufacturing firms' outward FDI activity from 1990 to 2014...  
... to study whether CHN bank presence in a host country influences CHN firm FDI into that country.



## What we do in this paper

- ▶ Use data on Chinese banks' and manufacturing firms' outward FDI activity from 1990 to 2014...  
... to study whether CHN bank presence in a host country influences CHN firm FDI into that country.
- ▶ Why might bank presence matter for the foreign entry decisions of MNCs?
  - ▶ FDI entails high sunk and operating costs, and hence larger financing needs, making functional bank access an important factor.
  - ▶ Compared with engaging with foreign banks, working with home-country banks incurs lower transactions cost.  
(E.g.: Language barriers; Cultural differences; Familiarity with home-country banking institutions.)
  - ▶ Firms can leverage on pre-existing relationships with home-country banks.  
(E.g.: Less need to re-establish credit worthiness; Easier to engage in financial transactions back to the home country; Easier to post collateralizable assets; Lowering information barriers for market entry.)

## What we do in this paper (cont.)

- ▶ Assemble:
  - ▶ A *firm*-country-year level dataset of CHN manufacturing firms and their overseas subsidiaries
  - ▶ Information on the timing of Big-5 banks' overseas expansion.

## What we do in this paper (cont.)

- ▶ Assemble:
  - ▶ A *firm*-country-year level dataset of CHN manufacturing firms and their overseas subsidiaries
  - ▶ Information on the timing of Big-5 banks' overseas expansion.
- ▶ **Find that:** Big-5 bank presence in a host country at year  $t - 1$  raises the likelihood of observing a firm subsidiary in that same country at year  $t$ .
  - ▶ Importantly: Identify this effect from variation *within firm-country* . . .
  - ▶ . . . while also including fixed effects to control for time-varying firm characteristics. . .
  - ▶ . . . and a large set of time-varying country variables as competing explanations for inward FDI.

## What we do in this paper (cont.)

- ▶ Assemble:
  - ▶ A *firm*-country-year level dataset of CHN manufacturing firms and their overseas subsidiaries
  - ▶ Information on the timing of Big-5 banks' overseas expansion.
- ▶ Event-study nature of the evidence points to a causal interpretation (at least in a Granger sense)
- ▶ Results also hold under an instrumental variables strategy:
  - ▶ Use information on JPN and KOR bank presence to construct a proxy for the attractiveness of each host-country for bank FDI from East Asia.
  - ▶ Validity rests on the IV capturing the host-country's attractiveness for bank FDI, but not for firm FDI more generally (more on this later)

## What we do not do in this paper

Some caveats:

- ▶ Purpose here is not to provide a complete taxonomy of the determinants of firm FDI.

Rather: to show that bank FDI matters for subsequent firm FDI into the same host country

- ▶ The alternative story – firm FDI leads, and then draws in bank FDI – could still be relevant in contexts beyond CHN

But: the CHN experience remains instructive for policy, e.g., for countries keen to promote outbound FDI

## Related Literature

### 1. Determinants of FDI and its location:

Brainard (1997); Blonigen (1997); Yeaple (2003); Helpman et al. (2004); Du et al. (2008); Kang and Jiang (2012); Davies and Killeen (2015)

### 2. Access to finance and FDI:

Alfaro et al. (2004); Desai et al. (2004); Feinberg and Phillips (2004); di Giovanni (2005); Buch et al. (2014); Bilir et al. (2016)

### 3. Banking sector globalization (and firm FDI):

Yamori (1997); Buch (2000); He and Gray (2001); Claessens et al. (2001); Focarelli and Pozzolo (2001, 2005); Cerutti et al. (2007); Lehner (2009); De Bonis et al. (2015); Ongena et al. (2015); Poelhekke (2015); Bronzini and D'Ignazio (2016)

### 4. China's outward FDI:

Zhang and Daly (2011); Chen et al. (2016)

## Dataset

## Data on Chinese Firm and Bank FDI

### ▶ Firm FDI: Oriana

- ▶ Sample comprises: Chinese manufacturing firms with at least one majority-owned overseas subsidiary during 1990-2014; includes both publicly-listed and private firms.
- ▶ Information on foreign subsidiary ownership traced back to 1980.
- ▶ Year of establishment of subsidiary: Pieced together from Orbis, Amadeus, Zephyr, firm financial reports etc.



## Data on Chinese Firm and Bank FDI

- ▶ **Firm FDI:** Oriana
  - ▶ Sample comprises: Chinese manufacturing firms with at least one majority-owned overseas subsidiary during 1990-2014; includes both publicly-listed and private firms.
  - ▶ Information on foreign subsidiary ownership traced back to 1980.
  - ▶ Year of establishment of subsidiary: Pieced together from Orbis, Amadeus, Zephyr, firm financial reports etc.
- ▶ **Bank FDI:** Information on subsidiaries and first-level branches from the Big-5 banks' websites.
  - ▶ Industrial and Commercial Bank of China; China Construction Bank; Bank of China; Agricultural Bank of China; Bank of Communications  
(+ China Merchant Bank; China CITIC Bank)

## Data on Chinese Firm and Bank FDI

### ▶ Firm FDI: Oriana

- ▶ Sample comprises: Chinese manufacturing firms with at least one majority-owned overseas subsidiary during 1990-2014; includes both publicly-listed and private firms.
- ▶ Information on foreign subsidiary ownership traced back to 1980.
- ▶ Year of establishment of subsidiary: Pieced together from Orbis, Amadeus, Zephyr, firm financial reports etc.

### ▶ Bank FDI: Information on subsidiaries and first-level branches from the Big-5 banks' websites.

- ▶ Industrial and Commercial Bank of China; China Construction Bank; Bank of China; Agricultural Bank of China; Bank of Communications  
(+ China Merchant Bank; China CITIC Bank)

### ▶ Other country-level variables from standard sources

(e.g.: Penn World Tables, World Development Indicators, Beck et al. Global Financial Development Database, World Governance Indicators; Polity IV)

## An illustrative example

**ICBC**  **中国工商银行** 阿姆斯特丹分行

简体中文 | English | Nederlands

Home About Us Personal Banking Corporate Banking Career Customer Service Global Site Select a Country/Region

User Login

 Personal Banking

 Corporate Banking

 Online Saving Package

ICBC Worldwide [More >](#)



You Are Here: ICBC (Europe) S.A. Amsterdam Branch >About Us >Introduction

### Introduction

Industrial and Commercial Bank of China Limited (ICBC), formerly known as Industrial and Commercial Bank of China, was established on January 1<sup>st</sup>, 1984. On October 28<sup>th</sup>, 2005, ICBC has been restructured as a limited company. On October 27<sup>th</sup>, 2008, it was listed on both the Shanghai Stock Exchange (SSE) and the Stock Exchange of Hong Kong (SEHK).

Through its continuous endeavor and stable development, the Bank has developed into the top of largest listed banks in the world. At the end of the first half of 2013, ICBC ranked at the top of the global financial industry in terms of indicators such as deposits, loans, total assets, tier-one capital, market capitalization and profit. The Bank has established a global network by expanding to 42 countries and regions spreading over six continents.

The Bank provides comprehensive financial products and services to 5.42 million corporate customers and 480 million private customers by virtue of its distribution network consisting of 17,122 domestic institutions, 399 overseas institutions and over 2007 correspondent banks worldwide, as well as through its E-banking network comprising a range of internet and telephone banking services and self-services banking centers, basically forming an internationalized trans-market operating structure focusing on commercial banking business and maintaining a leading position in the domestic market in commercial banking areas.

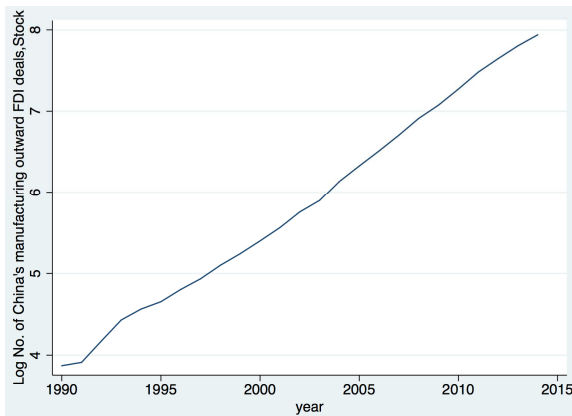
ICBC established a presence in the Netherlands via its wholly-owned subsidiary bank in Luxembourg, ICBC (Europe) SA. Upon approval by Dutch Central Bank, ICBC (Europe) SA obtained its banking license in September 2010, marking that ICBC, the largest commercial bank in China, entered the Netherlands formally and became the largest Chinese bank in this country.

ICBC (Europe) SA Amsterdam Branch provides comprehensive and professional financial services to personal and corporate customers and serves as a bridge between the economy and trade of China and the Netherlands based on sustained friendly relations between these two countries.

ICBC (Europe) SA Amsterdam Branch was officially open to public on 20 January 2011. Leveraging on the leading market position, quality customer base, diversified business structure, robust innovative capability and excellent brand value of ICBC, ICBC (Europe) SA Amsterdam Branch can satisfy financial

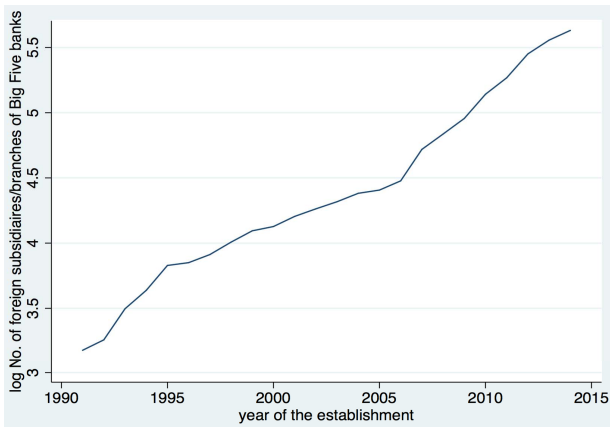
## Data Descriptives: Manufacturing Firm FDI

- ▶ Sample: 773 head companies from 98 SIC 3-digit manufacturing industries.  
With 2,806 foreign subsidiaries in 116 host countries.



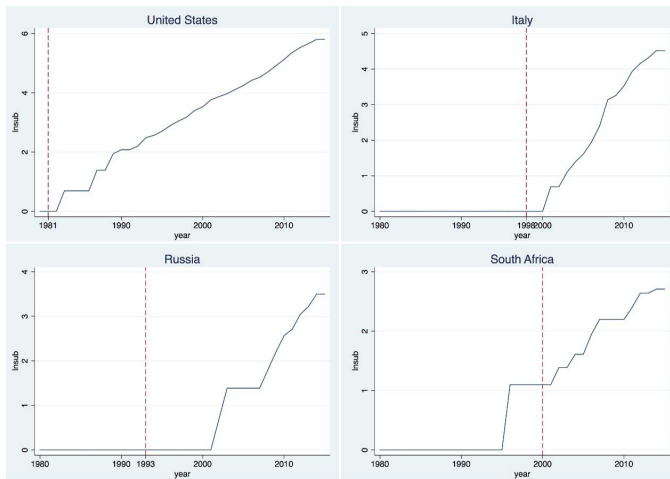
## Data Descriptives: Bank FDI

- ▶ At the end of 2014, the Big-5 banks had in total 263 subsidiaries and branches in 49 countries.



## A Preliminary “Event-Study” Look at the Data

Big-5 bank presence and the number of firm subsidiaries:



Red vertical line indicates the start of Big-5 bank presence.

## Regression Specification

$$IndSub_{ict} = \beta_0 IndSub_{ic,t-1} + \beta_1 IndBig5_{c,t-1} + \Gamma X_{c,t-1} + f_{ic} + f_{it} + \epsilon_{ict} \quad (1)$$

- ▶  $IndSub_{ict}$ : Indicator variable for whether firm  $i$  has a subsidiary in country  $c$  in year  $t$
- ▶  $IndBig5_{c,t-1}$ : Indicator variable for Big-5 banks' presence in year  $t - 1$  in country  $c$  (Similar results using Big-7)
- ▶  $X_{c,t-1}$ : Vector of country controls that could affect inward MNC activity (Economic variables, e.g., real GDP, real GDP per capita, population growth, factor endowments, exchange rate, etc. Institutional variables, e.g., private credit over GDP, rule of law, constraints on executive, etc.)
- ▶ Run this on a balanced panel of 773 firms, 110 host countries, and (up to) 25 years  
(Note: Drop offshore financial centers – HK, BM, CY, KY, LU, MO, PA, VG – from the list of potential host countries.)

## Regression Specification

$$IndSub_{ict} = \beta_0 IndSub_{ic,t-1} + \beta_1 IndBig5_{c,t-1} + \Gamma X_{c,t-1} + f_{ic} + f_{it} + \epsilon_{ict} \quad (1)$$

- ▶  $f_{ic}$ : *firm-country* fixed effects  
(Soaks up all country characteristics that are non-time-varying; Isolates within-firm, within-host-country variation over time)
- ▶  $f_{it}$ : *firm-year* fixed effects  
(Soaks up all time-varying firm characteristics)
- ▶ Standard errors: Two-way clustering by *country-year* and by *firm*  
(Results similar under alternative clustering by country-year and by firm-year)



## Findings: The Relationship between Bank FDI and Firm FDI

## OLS Baseline Results: Lagged Big-5 bank presence and firm FDI

	No controls	With controls		Number of banks	
	(1)	(2)	(3)	(4)	(5)
Big 5 bank presence, t-1	0.00108*** (0.00027)	0.00109*** (0.00028)	0.00114** (0.00045)		
No. Big 5 banks, t-1				0.00096*** (0.00013)	
Log (1 + No. Big 5 banks), t-1					0.00370*** (0.00053)
Firm subsidiary presence, t-1	0.93039*** (0.00326)	0.92915*** (0.00336)	0.86579*** (0.00722)	0.86326*** (0.00709)	0.86451*** (0.00718)
Log per capita real GDP, t-1		0.00260*** (0.00048)	0.00326*** (0.00112)	0.00286*** (0.00098)	0.00435*** (0.00111)
Log real GDP, t-1		-0.00325*** (0.00049)	-0.00567*** (0.00103)	-0.00451*** (0.00088)	-0.00606*** (0.00102)
Real GDP growth rate, t-1		-0.00142*** (0.00035)	-0.00120 (0.00075)	-0.00190** (0.00074)	-0.00155** (0.00072)
Population growth rate, t-1		0.00658** (0.00322)	0.01081** (0.00483)	0.00921* (0.00472)	0.01373** (0.00565)
Log exchange rate, t-1		-0.00013*** (0.00002)	-0.00088*** (0.00029)	-0.00067*** (0.00025)	-0.00066*** (0.00025)
Log per capita physical capital, t-1		-0.00044** (0.00017)	-0.00056 (0.00038)	-0.00085** (0.00037)	-0.00077** (0.00037)
Human capital index, t-1		-0.00049 (0.00107)	0.00058 (0.00233)	0.00086 (0.00221)	-0.00075 (0.00244)
Log private credit to GDP, t-1			-0.00143*** (0.00026)	-0.00099*** (0.00022)	-0.00122*** (0.00025)
Rule of law, t-1			0.00119*** (0.00045)	0.00108** (0.00046)	0.00124*** (0.00046)
Democracy, t-1			-0.00024*** (0.00009)	-0.00035*** (0.00009)	-0.00028*** (0.00009)
Constraints on executive, t-1			0.00011 (0.00016)	0.00026* (0.00015)	0.00011 (0.00016)
Firm-Year FE	Yes	Yes	Yes	Yes	Yes
Country-Firm FE	Yes	Yes	Yes	Yes	Yes
Observations	2125750	1893077	1045869	1045869	1045869
R <sup>2</sup>	0.852	0.853	0.860	0.860	0.860

## Further Host-country controls

► Details

	FDI		Trade		Policy		All
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Big 5 bank presence, t-1	0.00103** (0.00048)	0.00115** (0.00046)	0.00095** (0.00047)	0.00085* (0.00049)	0.00115** (0.00046)	0.00143*** (0.00054)	0.00106* (0.00060)
Firm subsidiary presence, t-1	0.86480*** (0.00727)	0.86515*** (0.00727)	0.86523*** (0.00724)	0.86435*** (0.00735)	0.86577*** (0.00722)	0.83667*** (0.00889)	0.83454*** (0.00899)
Log inward FDI stock over GDP, t-1	-0.00058*** (0.00022)						-0.00128*** (0.00030)
Log exports over GDP, t-1		0.00096** (0.00046)					0.00075 (0.00074)
Log imports over GDP, t-1		-0.00006 (0.00054)					0.00310*** (0.00088)
Log exports to CHN over GDP, t-1			-0.00115*** (0.00021)				-0.00218*** (0.00039)
Log imports from CHN over GDP, t-1			-0.00027*** (0.00007)				-0.00026*** (0.00009)
Food export share, t-1				0.00002 (0.00001)			0.00002 (0.00002)
Fuel export share, t-1				0.00005*** (0.00001)			0.00006*** (0.00002)
Ores export share, t-1				0.00002 (0.00001)			0.00002 (0.00001)
Preferential trade agreement, t-1					-0.00038 (0.00041)		-0.00076 (0.00052)
Bilateral investment treaty, t-1					-0.00042 (0.00039)		0.00039 (0.00061)
CHN's president ever visited, t-1						0.00177*** (0.00053)	0.00151*** (0.00052)
Log (1e-9 + Aid stock from CHN over GDP), t-1						-0.00007*** (0.00002)	-0.00006*** (0.00002)
Economic controls?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Institutional controls?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1023452	1030409	1031955	944606	1045869	902091	804693
R <sup>2</sup>	0.860	0.860	0.860	0.860	0.860	0.864	0.864

## Further checks (cont.)

Results driven by CHN firm FDI in non-OECD countries:

	OECD	Non-OECD	Emerging	Non-Emerging
	(1)	(2)	(3)	(4)
Big 5 bank presence, t-1	-0.00112 (0.00076)	0.00131*** (0.00046)	0.00081** (0.00040)	0.00155** (0.00060)
Firm subsidiary presence, t-1	0.86171*** (0.00928)	0.85837*** (0.00865)	0.85290*** (0.00982)	0.86944*** (0.00833)
Economic controls?	Yes	Yes	Yes	Yes
Endowment controls?	Yes	Yes	Yes	Yes
Institutional controls?	Yes	Yes	Yes	Yes
Firm-Year FE	Yes	Yes	Yes	Yes
Country-Firm FE	Yes	Yes	Yes	Yes
Observations	317703	752902	333163	737442
$R^2$	0.860	0.869	0.875	0.856

## Effect Heterogeneity

Effects stronger for larger firms; for SOEs; more financially-leveraged firms.

	(1)	(2)	(3)	(4)	(5)
Big 5 bank presence, t-1	-0.01490*** (0.00292)	-0.02703*** (0.00423)	-0.03665*** (0.00504)	0.00097* (0.00058)	0.00442*** (0.00097)
Big 5 bank presence, t-1 × Log Employment	0.00214*** (0.00037)				
Big 5 bank presence, t-1 × Log Revenue		0.00227*** (0.00034)			
Big 5 bank presence, t-1 × Log Assets			0.00293*** (0.00039)		
Big 5 bank presence, t-1 × SOE				0.00404** (0.00167)	
Big 5 bank presence, t-1 × Log Debt to Assets					0.00048*** (0.00010)
Firm subsidiary presence, t-1	0.70410*** (0.01459)	0.71645*** (0.01386)	0.71632*** (0.01385)	0.74100*** (0.01353)	0.71838*** (0.01387)
Economic controls?	Yes	Yes	Yes	Yes	Yes
Institutional controls?	Yes	Yes	Yes	Yes	Yes
Firm-Year FE	Yes	Yes	Yes	Yes	Yes
Country-Firm FE	Yes	Yes	Yes	Yes	Yes
Observations	463393	521351	524026	622265	503088
$R^2$	0.883	0.879	0.879	0.877	0.879
Point estimate: 10th percentile	-0.0024	-0.0039	-0.0057		-0.0000
p-value: 10th percentile	0.0157	0.0002	0.0000		0.9722
Point estimate: Median	0.0017	0.0013	0.0010		0.0025
p-value: Median	0.0287	0.0732	0.1773		0.0013
Point estimate: 90th percentile	0.0057	0.0064	0.0074		0.0036
p-value: 90th percentile	0.0000	0.0000	0.0000		0.0000

## Timing of Big-5 Bank Presence

No effect of Big-5 bank presence on *lagged* firm subsidiary presence

	Lagged		Current	Lead	
	(1)	(2)	(3)	(4)	(5)
Big 5 bank presence, t-2	0.00130*** (0.00046)				
Big 5 bank presence, t-1		0.00114** (0.00045)			
Big 5 bank presence, t			0.00079** (0.00040)		
Big 5 bank presence, t+1				0.00041 (0.00034)	
Big 5 bank presence, t+2					0.00025 (0.00033)
Firm subsidiary presence, t-1	0.86578*** (0.00722)	0.86579*** (0.00722)	0.86582*** (0.00721)	0.86583*** (0.00721)	0.85559*** (0.00788)
Economic controls?	Yes	Yes	Yes	Yes	Yes
Institutional controls?	Yes	Yes	Yes	Yes	Yes
Firm-Year FE	Yes	Yes	Yes	Yes	Yes
Country-Firm FE	Yes	Yes	Yes	Yes	Yes
Observations	1045869	1045869	1045869	1045869	978618
R <sup>2</sup>	0.860	0.860	0.860	0.860	0.852

## Event-Study Specification

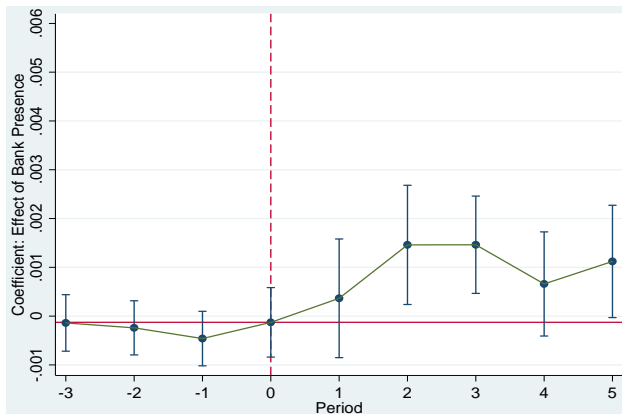
$$IndSub_{ict} = \beta_0 IndSub_{ic,t-1} + \sum_{\tau=-3}^5 \beta_{\tau} DBig5_{c,t+\tau} + \Gamma X_{c,t-1} + f_{ic} + f_{it} + \epsilon_{ict} \quad (2)$$

where:

- ▶  $DBig5_{c,t+\tau}$ : Indicator variable for whether Big-5 bank presence commenced  $\tau$  years before subsidiary entry at time  $t$   
 ( $\tau = 5$  dummy combines all lagged years with  $\tau \geq 5$  for Big-5 bank entry)
- ▶  $\beta_{\tau}$ 's trace out the lead and lag effects of Big-5 bank entry (relative to the omitted category,  $\tau \leq -4$ )

## Event-Study Specification

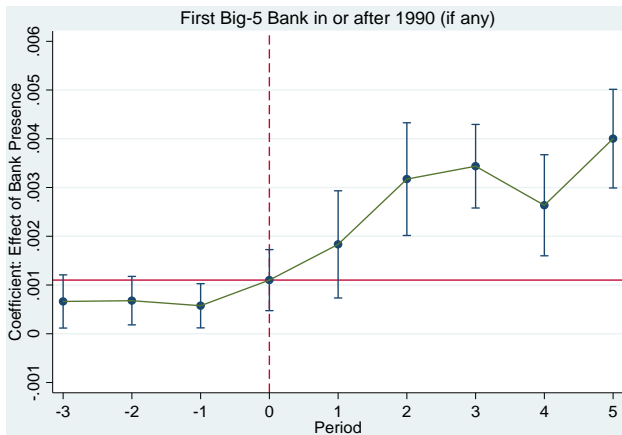
$$IndSub_{ict} = \beta_0 IndSub_{ic,t-1} + \sum_{\tau=-3}^5 \beta_{\tau} DBig5_{c,t+\tau} + \Gamma X_{c,t-1} + f_{ic} + f_{it} + \epsilon_{ict} \quad (2)$$





## Event-Study Specification

$$IndSub_{ict} = \beta_0 IndSub_{ic,t-1} + \sum_{\tau=-3}^5 \beta_{\tau} DBig5_{c,t+\tau} + \Gamma X_{c,t-1} + f_{ic} + f_{it} + \epsilon_{ict} \quad (2)$$



## Event-Study Specification

$$IndSub_{ict} = \beta_0 IndSub_{ic,t-1} + \sum_{\tau=-3}^5 \beta_{\tau} DBig5_{c,t+\tau} + \Gamma X_{c,t-1} + f_{ic} + f_{it} + \epsilon_{ict} \quad (2)$$

- ▶ Obtain even larger effects when restricting to host-countries where the first big-5 bank arrival was in 1990 or after

(For comparison: Mean of dependent variable for this subsample is 0.00418.)

- ▶ Also: Some evidence in this later time period of anticipation effects.

(Leading  $\beta_{\tau}$ 's already significantly different from zero.)

## Further checks: Effects on Firm FDI to other destinations

- ▶ Falsification: No effect of Big-5 bank presence on subsidiary presence in the rest of the world (broadly defined)
- ▶ But geographic proximity matters: Effect found on subsidiary presence in other countries in the same region

	Baseline	Subs. in rest of world		Subs. in same region	
	(1) In Host	(2) In Host	(3) In ROW	(4) In Host	(5) In Region
Big 5 bank presence, t-1	0.00114** (0.00045)	0.00114** (0.00046)	-0.00010 (0.00022)	0.00108** (0.00046)	0.00722*** (0.00109)
Firm subsidiary presence, t-1	0.86579*** (0.00722)	0.86413*** (0.00773)	0.01452*** (0.00191)	0.86577*** (0.00722)	0.00777** (0.00322)
Subsidiary presence in rest of world, t-1			-0.00519 (0.00605)		
Subsidiary presence in region, t-1				0.00266*** (0.00101)	0.84840*** (0.00587)
Economic controls?	Yes	Yes	Yes	Yes	Yes
Institutional controls?	Yes	Yes	Yes	Yes	Yes
Firm-Year FE	Yes	Yes	Yes	Yes	Yes
Country-Firm FE	Yes	Yes	Yes	Yes	Yes
Observations	1045869	1045869	1045869	1045869	1045869
$R^2$	0.860	0.860	0.998	0.860	0.868

## Further checks: Host-country banking sector controls

Controlling for number of domestic banks and number of non-CHN foreign banks, from Bankscope (Claessens and van Horen (2015)):

	Domestic banks		Other foreign banks	
	(1)	(2)	(3)	(4)
Big 5 bank presence, t-1	0.00135** (0.00055)	0.00136** (0.00055)	0.00136** (0.00055)	0.00175*** (0.00053)
Firm subsidiary presence, t-1	0.85530*** (0.00791)	0.85530*** (0.00791)	0.85530*** (0.00791)	0.85487*** (0.00810)
Log (1 + No. domestic banks), t-1	0.00111** (0.00043)	0.00114*** (0.00043)	0.00114*** (0.00043)	0.00075* (0.00039)
Log (1 + No. Non-CHN foreign banks), t-1		0.00026 (0.00027)	0.00026 (0.00027)	0.00046* (0.00027)
Log (1 + No. HKG banks), t-1			-0.00025 (0.00146)	
Log (1 + No. HKG/SGP/TWN banks), t-1				-0.00012 (0.00068)
Economic controls?	Yes	Yes	Yes	Yes
Institutional controls?	Yes	Yes	Yes	Yes
Firm-Year FE	Yes	Yes	Yes	Yes
Country-Firm FE	Yes	Yes	Yes	Yes
Observations	934557	934557	934557	923735
$R^2$	0.852	0.852	0.852	0.854

## Instrumental Variables Approach

- ▶ Potential threats to a causal interpretation:
  - ▶ Reverse causality: Firm FDI could be drawing in Bank FDI instead (though the results on timing of bank presence are reassuring)
  - ▶ Common unobserved forces could be driving both bank and firm FDI simultaneously.
- ▶ Seek a variable that can explain Big-5 CHN bank presence, that is nevertheless plausibly unrelated to the attractiveness of the host-country for firm FDI
- ▶ Natural candidate IV: Host-country restrictions that pertain to bank FDI, but not manufacturing firm FDI

**However:** Available measures of *de jure* restrictions on bank FDI exhibit little within-country variation. (E.g.: OECD FDI Restrictiveness Index.)

## Instrumental Variables Approach

- ▶ Potential threats to a causal interpretation:
  - ▶ Reverse causality: Firm FDI could be drawing in Bank FDI instead (though the results on timing of bank presence are reassuring)
  - ▶ Common unobserved forces could be driving both bank and firm FDI simultaneously.
- ▶ Seek a variable that can explain Big-5 CHN bank presence, that is nevertheless plausibly unrelated to the attractiveness of the host-country for firm FDI
- ▶ **Instead:** Use information on JPN and KOR bank subsidiary presence abroad, to infer the host-country's attractiveness to bank FDI originating from East Asian countries.

(Drawn from an independent data source: Bankscope (Claessens and van Horen (2015).)

## Constructing the IV

Consider the following regression:

$$IndBk_{cs,t} = D_{s,t} + D_{cs} + \Gamma X_{c,t-1} + v_{cs,t} \quad (3)$$

where  $IndBk_{cs,t}$  is an indicator variable for bank subsidiary presence from source-country  $s$  in host-country  $c$  and year  $t$ .

- ▶  $D_{s,t}$ : Source-country by year fixed effects
- ▶  $D_{cs}$ : Country-pair fixed effects
- ▶ Take the mean of  $v_{cs,t}$  across source countries  $s$ , to obtain the instrument,  $IndBkRes_{c,t}$

## Constructing the IV

Consider the following regression:

$$IndBk_{cs,t} = D_{s,t} + D_{cs} + \Gamma X_{c,t-1} + v_{cs,t} \quad (3)$$

where  $IndBk_{cs,t}$  is an indicator variable for bank subsidiary presence from source-country  $s$  in host-country  $c$  and year  $t$ .

- ▶  $D_{s,t}$ : Source-country by year fixed effects
  - ▶  $D_{cs}$ : Country-pair fixed effects
  - ▶ Take the mean of  $v_{cs,t}$  across source countries  $s$ , to obtain the instrument,  $IndBkRes_{c,t}$
- ⇒ This picks up determinants of bank FDI specific to host-country by year, after controlling for the host-country variables in  $X_{c,t-1}$
- ▶ In principle, captures unobserved host-country characteristics that affect the attractiveness of the market as a destination for bank FDI



## Constructing the IV

Consider the following regression:

$$IndBk_{cs,t} = D_{s,t} + D_{cs} + \Gamma X_{c,t-1} + v_{cs,t} \quad (3)$$

where  $IndBk_{cs,t}$  is an indicator variable for bank subsidiary presence from source-country  $s$  in host-country  $c$  and year  $t$ .

- ▶  $D_{s,t}$ : Source-country by year fixed effects
- ▶  $D_{cs}$ : Country-pair fixed effects
- ▶ Take the mean of  $v_{cs,t}$  across source countries  $s$ , to obtain the instrument,  $IndBkRes_{c,t}$
- ▶ Construct using  $s \in \{JPN, KOR\}$ .
- ▶ Identifying assumption: that JPN or KOR bank presence does not directly affect CHN firms' FDI decision. (in particular, absence of direct lending relationships)

## IV Findings

Using  $IndBkRes_{c,t-2}$  as an IV for  $IndBig5_{c,t-1}$ :

	First stage	Second stage	First stage	Second stage	First stage	Second stage
	(1)	(2)	(3)	(4)	(5)	(6)
Big 5 bank presence, t-1		0.00804** (0.00352)		0.00717** (0.00331)		0.01090*** (0.00358)
Firm subsidiary presence, t-1	0.03655* (0.01942)	0.82449*** (0.01004)	0.03675* (0.01939)	0.82405*** (0.01012)	0.02410 (0.01930)	0.79818*** (0.01125)
Log (1 + No. domestic banks), t-1			-0.03037 (0.03522)	0.00103* (0.00059)	-0.01499 (0.03947)	-0.00050 (0.00093)
Log (1 + No. Non-CHN foreign banks), t-1			-0.05465* (0.03115)	0.00054 (0.00047)	-0.02596 (0.03743)	0.00146* (0.00074)
IV: Attractiveness to JPN/KOR banks, t-2	0.38901*** (0.12471)		0.40661*** (0.12634)		0.49726*** (0.10811)	
Economic controls?	Yes	Yes	Yes	Yes	Yes	Yes
Institutional controls?	Yes	Yes	Yes	Yes	Yes	Yes
Additional controls?	No	No	No	No	Yes	Yes
Firm-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country-Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	820153	820153	784595	784595	667099	667099
$R^2$	0.848	0.856	0.847	0.856	0.874	0.859
Kleibergen-Paap F-stat		9.73		10.36		21.16

## IV Findings (cont.)

Lingering concern: The instrument could be correlated with forces that make bank FDI from East Asia, as well as firm FDI, more attractive.

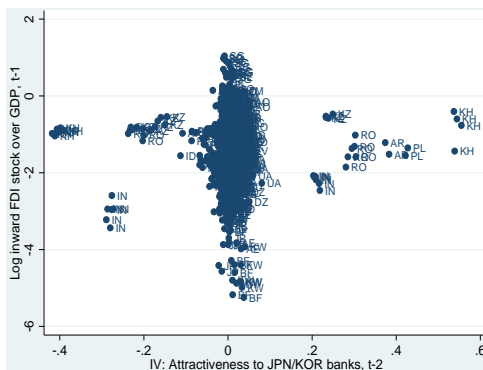
(Notwithstanding the extensive set of host-country controls,  $X_{c,t-1}$ .)

## IV Findings (cont.)

Lingering concern: The instrument could be correlated with forces that make bank FDI from East Asia, as well as firm FDI, more attractive.

(Notwithstanding the extensive set of host-country controls,  $X_{c,t-1}$ .)

On this count: Reassuring that  $IndBkRes_{c,t-2}$  does not exhibit a strong correlation with broader measures of aggregate inward FDI to country  $c$  (from UNCTAD).



## Alternative IV Constructions

- ▶ Attractiveness to JPN/KOR banks separately; to JPN/KOR/SGP/TWN banks.

	First stage	Second stage	First stage	Second stage	First stage	Second stage
	(1)	(2)	(3)	(4)	(5)	(6)
Big 5 bank presence, t-1		0.01060*** (0.00408)		0.00561* (0.00316)		0.00518* (0.00273)
Firm subsidiary presence, t-1	0.03219* (0.01863)	0.82438*** (0.01005)	0.03748* (0.01943)	0.82458*** (0.01003)	0.04071** (0.02043)	0.74196*** (0.01389)
IV: Attractiveness to JPN banks, t-2	0.36899*** (0.12173)					
IV: Attractiveness to KOR banks, t-2	0.08679 (0.05986)					
IV: Attractiveness to JPN/KOR/TWN/SGP banks, t-2			0.60676*** (0.22893)			
IV: Attractiveness to JPN/KOR banks, t-2					0.07255 (0.13466)	
IV: Attractiveness to JPN/KOR banks, t-3					0.52772*** (0.16054)	
Economic controls?	Yes	Yes	Yes	Yes	Yes	Yes
Institutional controls?	Yes	Yes	Yes	Yes	Yes	Yes
Firm-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country-Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	820153	820153	820153	820153	611443	611443
R <sup>2</sup>	0.849	0.855	0.847	0.856	0.875	0.866
Kleibergen-Paap F-stat		5.63		7.02		16.86
Over-id test p-value		0.0555				0.2619

## Concluding Remarks

## Conclusion

- ▶ Bank FDI from China appears to promote non-bank FDI into the same host country.
- ▶ Results are based on a firm-level analysis. Findings from lead-lag regressions and an IV strategy both point to a plausible causal interpretation.
- ▶ Policy implication: Bank FDI and manufacturing firm FDI should be viewed in tandem for countries designing policies to either promote outward investment or attract inward multinational activity.

## Conclusion

- ▶ Bank FDI from China appears to promote non-bank FDI into the same host country.
- ▶ Results are based on a firm-level analysis. Findings from lead-lag regressions and an IV strategy both point to a plausible causal interpretation.
- ▶ Policy implication: Bank FDI and manufacturing firm FDI should be viewed in tandem for countries designing policies to either promote outward investment or attract inward multinational activity.
- ▶ On the to-do list:
  - ▶ Continue refining the IV
  - ▶ Any direct information on *de facto* barriers to foreign bank entry?
  - ▶ Establishing the mechanism: Linking CHN firms to their main Big-5 lenders



## Supplementary Slides

## Further Host-country controls (Data sources)

▶ Return

1. Aggregate inward FDI: UNCTAD
2. Exports / Imports over GDP: WDI
3. Exports to / Imports from CHN: UN Comtrade
4. Food / Fuel / Ores export share: WDI
5. PTAs: Baier and Bergstrand NSF-Kellogg Institute Data Base on Economic Integration Agreements
6. BITs: ICSID, World Bank
7. CHN outward aid: Wolf, Wang, Warner (2013)
8. CHN president's visits: News reports