CHINESE OUTWARDS MERCANTILISM – THE ART AND PRACTICE OF BUNDLING

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ABSTRACT

The Global Financial Crisis (GFC) brought to the fore the limits of the Chinese export led-growth strategy and the need for Chinese rebalancing. The Chinese export-led growth strategy of the 2000s coincided with the country becoming one of the largest net global creditors. Intriguingly, the Chinese net income from its global creditor position was negative, reflecting the large share of its low-yielding assets (mostly international reserves), and its high share of high-yielding liabilities (mostly foreign direct investment in China). Our paper takes stock of what may be the next new chapter of Chinese outward-mercantilism, which aims at securing a higher rate of returns on its net foreign asset position, leveraging its success in becoming the global manufacturing hub and the supplier of swap-lines. The emerging new trend has been manifested by Chinese outward-oriented FDI in natural resources, commodities and mining, and providing a wide spectrum of infrastructure and construction services to developing countries. These activities are frequently bundled with access to finance and the export of Chinese capital products and labor services. We trace and analyze these trends, identifying the positive associations between Chinese outward FDI, trade, and finance. The positive association between Chinese outward FDI and commodities imports increases with the provision of RMB swap-lines to China's trading partners. The association between Chinese FDI outflows in the natural resources sector and commodities imports has become stronger since the GFC. The association of RMB swap-lines with the Chinese outward FDI in the natural resources sector is especially large, thus supporting the conjecture that in the aftermath of the GFC Chinese outward FDI is bundled with trade and financial linkages.

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1. **Introduction**

   China has been a prime example of export-led growth that has benefited from learning by doing, and by adopting foreign know-how, supported by a complex industrial policy. Arguably, a modern version of mercantilism has been at work (Aizenman and Lee 2008). The rapid growth, growing trade, and current account/GDP surpluses in the 2000s had occurred in tandem with massive hoarding of international reserves (IR) combined with massive sterilization of expending trade surpluses and financial inflows. These policies were aimed at delaying and slowing the real appreciation associated with successful rapid growth. Following the Asian crisis of 1997-98, which mitigated Chinese competitiveness in the late 1990s, as well as Chinese accession to the World Trade Organization (WTO) in the early 2000s, the country intensified its drive toward export-led growth, racking up current-account surpluses and growing stockpiles of international reserves. On the eve of the financial crisis, China's real GDP growth had reached 14%, its current-account surplus had grown to 10% of GDP, and its international reserves had reached about 50% in 2010 [Aizenman, Jinjarak and Marion (2014)].

   The global financial crisis (GFC) of the late 2000s put an abrupt end to the Chinese export-led, growth-cum-large current-account surplus trajectory. In the U.S., the private sector was forced to de-leverage and lower demands for imports. Other crisis-hit developed countries also cut back on imports. Consequently, the GFC and its aftermath induced rapid Chinese internal balancing, reducing the scope of future reserve hoarding. Since the crisis, China's current-account surplus fell from 10% of GDP (2007) to 2% in 2013. A legacy cost of Chinese policies during the 2000s has been its skewed external balance — long on low-yielding foreign assets [mostly international reserves], and short on high-yielding assets [mostly large liabilities associated with past net FDI inflows to China]. While China's net external financial assets in 2013 was about 20% of China's GDP, the real net return on these assets was negative.[1] This reflects two fundamental factors -- the low real return on Chinese international reserves (two-third of its gross external assets), and the high return on past FDI inflows to China, which accounts for about 60% of Chinese external liabilities.[2] The low return on Chinese foreign

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[1] See http://rhg.com/notes/chinas-international-investment-position-2014-update

[2] According to the State Administration of Foreign Exchange (SAFE), China's external financial assets were about U.S.$ 6 trillion at the end of 2013, of which international reserves were about

assets is bad news, especially considering the rapid aging of China's population. This is in contrast to Japan, where the sizable return on Japan's foreign asset position helps in buffering the future income of its rapidly graying population.

A way of mitigating the adverse consequences of Chinese legacy external balance sheet exposure is external rebalancing, that is "swapping" overtime some of its international reserves with higher yielding foreign equities and outward Chinese FDI. Indeed, China embarked on diversifying its holdings of dollar IR by channeling surpluses into a sovereign wealth fund (SWF), encouraging outward foreign direct investment in tangible assets, and offering much higher expected returns.[3] The outcome has been growing FDI in the global resource sectors and infrastructure services, especially in commodity and mineral exporting countries, which includes developing countries and emerging markets in Africa and Latin America. In a way, China has joined the trend of other Emerging Markets (EMs).[4]

After the financial crisis in 2008, China embarked on large bilateral currency-swap agreements with other countries. This was done in tandem with the unprecedented provisions of swap-lines among the Organization for Economic Co-operation and Development (OECD) countries and the more selective provision of four swap-lines by the U.S. Federal Reserve (FED) to selected emerging market economies (Table 1). Comparing the bilateral swap-lines offered by the U.S. FED and the People's Bank of China (PBOC) reveals key differences. Most of the swap-lines offered by China have been to commodity countries, developing and emerging market economies, whereas most of the bilateral swap-lines offered by the U.S. FED are between

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two-third (U.S. $3.9 trillion), the outbound direct investment about 10%, securities investment about 4%, and other investment at about 20%. The country's external liability position was 4 trillion U.S. $, out of which FDI in China was $2.35 trillion, 60% of the total liability. The investment in securities and other aspects took up 10% and 30%, respectively.

[3] On December 19, 2013, the WSJ reported "Beijing will ease the approval process for all but the largest Chinese investments in overseas companies and projects, a major relaxation of regulatory oversight that analysts say is aimed at encouraging Chinese firms to expand abroad."

[4] Aizenman and Pasricha (2013) noted that EMs eased outflows of capital more in response to higher stock price appreciation, higher appreciation pressures in the exchange market, higher IR/GDP, and higher real exchange rate volatility.

the OECD countries, and four emerging markets: Brazil, South Korea, Mexico, and Singapore. Aizenman and Pasricha (2010) pointed out that the selection criteria explaining the U.S. FED supply of bilateral swap-lines to emerging markets were close financial and trade ties, a high degree of financial openness, and a relatively good sovereign credit history. Chances are that similar factors account for the Chinese supply of Renminbi (RMB) bilateral swap-lines to a growing list of developing and emerging markets, as has been vividly illustrated by Garcia-Herrero and Xia (2015).[5] This strategy blends very well with the trade internationalization of the RMB in the context of the broader outward FDI strategy of China, and is consistent with the channeling of China's net foreign-asset position into an outward FDI-cum-credit strategy.

Against this background, our paper takes stock of what may be the new chapter of Chinese-outward mercantilism, which is aimed at securing a higher rate of returns on its net foreign asset position, leveraging its success in becoming the global manufacturing hub. We conjecture that in the aftermath of the GFC, China has bundled outward FDI with its finance dealing (lending, swap-lines, trade credit), its trade and foreign investment (including exports of Chinese capital products and labor services), and leveraging its growing market clout. This bundling strategy has been mostly applied to developing and emerging market economies, and to "commodity-countries." During the GFC and its aftermath, China increased rapidly and in tandem its outward FDI, swap-lines, imports and exports to the selected countries. Such a bundling strategy is consistent with Adams and Yellen (1976): bundling as a manifestation of market clout in which the bundling party leverages its market powers aimed at increasing its surplus. Accordingly, China may use its market power in the provision of "swap and lender of last resort," supplying capital goods, and infrastructure services to its trading partners.

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[5] Garcia-Herrero and Xia (2015) concluded the choice of countries signing an RMB-denominated bilateral swap agreement with China was predominantly by "gravity motifs"; that is, by country size and distance from China, as well the trade motif in terms of both exports to China and the existence of the Free Trade Agreement (FTA) with China. Institutional soundness also matters, since countries with better government and less corruption are more likely to sign an RMB-denominated bilateral swap agreement.

The shortness of the sample, and the lack of more detailed data do not allow us to evaluate the success of the bundling strategy in delivering higher returns to the Chinese net foreign asset position. The willingness of China to extend credit lines and invest in countries with histories of default [including Argentina, Venezuela, Zimbabwe] raises concerns about the growing exposure of China to sovereign defaults, and the risk of partial nationalization of its outward FDI assets. One should keep in mind, however, that some Chinese lending to commodity countries is secured by "in kind" long-run payment in the form of oil flows and other commodities to China.[6] Arguably, Chinese outside exposure may be also partially hedged by the growing dependence of some developing countries on Chinese infrastructure services needed to maintain their upgraded rail system, and the growing importance of China as the prime destination of their imports (and for some, their dependence on China as their only "lender of last resort").[7]

In the following sections we summarizes several regressions analyzing the association between trade, FDI, and finance. We find that Chinese exports of manufactures and imports of commodities to its trading partners are positively associated with the outflows of FDI to the

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[6] The Financial Times commented on March 17, 2015 "Credit risks (of Venezuela) are soaring, with the economy set to shrink by as much as 7 per cent this year. The slump in crude prices is clobbering Caracas's ability to finance its debt. The markets are pricing in about a 90 per cent probability that Venezuela will default on its debt over the next five years. Chinese lending may, in effect, be senior to that of international bond holders, secured as it is against 450,000 barrels a day of oil." "Russia's financial arrangements with China are shrouded in mystery, which is reinforced by western sanctions imposed on Moscow since the Ukraine crisis began. However, several analysts put Chinese state-backed lending to Russian corporations at well over $30bn, much of it secured by oil shipments to China."

[7] Our conjecture is in line with recent case studies - three out of the largest five industry activities of China's-outward Greenfield FDI are in the natural resources sector, before and after the global financial crisis of 2008–09 [see Table A in the Appendix]. Seven out of ten largest capital investments abroad by Chinese companies have operated in host countries that receive RMB swap-lines in the aftermath of the GFC.

recipient countries. The provision of the RMB swap-line is positively associated with the size of Chinese bilateral trade with the swap-line recipient countries. In addition, small countries tend to be the recipients of the RMB swap-line. Focusing on Chinese Greenfield FDI abroad and distinguishing between the FDI outflows into tradable sectors, nontradables sector, and natural resources we find that Chinese trade influences the natural resources sector FDI. Exports of manufactures are negatively associated with FDI outflows while the effects of commodities imports are positive. The association between Chinese FDI outflows in the natural-resources sector and commodities imports has become stronger since the GFC. The positive association between Chinese-outward FDI and commodities imports increases with the provision of RMB swap-lines to China's trading partners. The influence of RMB swap-lines is especially large on the Chinese-outward FDI in the natural resources sector. The overall findings are supportive to the conjecture that in the aftermath of the GFC, Chinese-outward FDI is bundled with trade and financial linkages, thereby increasing the country's influence in the international markets, and securing its long-run access to a stable supply of commodities.

2. Data

We use two sources of Chinese-outward-oriented FDI data. The first is aggregate Chinese FDI flows abroad from the UNCTAD FDI/TNC database, which is based on data from the Chinese Ministry of Commerce. The aggregate outflows lump together Brownfield (mergers and acquisitions) and Greenfield (new plants and production) types of FDI. The data are available up to 2012 and include on annual basis for 144 host countries (in USD millions). Appendix Table B provides a list of countries covered by both datasets.

The second source of FDI data is Greenfield-type Chinese FDI projects abroad from fDi Intelligence of the Financial Times Ltd. This micro-level, project-based data report not only capital investment (in USD millions) of new plants and production in a host country, but also employment created and industry sector of the FDI projects. The data cover 137 host countries from 2003 to 2014. We group the sectors into tradables, nontradables, and natural resources (see Appendix Table C for the list of sectors in each category).

The two FDI data sources have in common 118 host countries from 2003 to 2012 with 582 country-year observations. Given the overlapped sample, we combine the two FDI data with

Chinese bilateral trade, RMB swap-lines, host-country GDP, and gravity controls of geographical and cultural similarities.

Chinese bilateral trade data are drawn from two sources. The first is aggregate imports and exports by country of origin/destination from the China Statistical Yearbook, National Bureau of Statistics of China. This aggregate data cover, on an annual basis, the period of 2003-2012.

The second source of bilateral trade data is sectoral trade flows between China and its trading partners, drawn from UN Comtrade. The micro trade flows are reported on annual basis (USD millions) from 2003–2012. We follow the UN classification and group the tradable products into commodities[8] and manufactures

The period and amount of bilateral currency swap-line established by People's Bank of China (PBOC) with other central banks is from Aizenman, Jinjarak and Park (2014) and Garcia-Herrero and Xia (2015) and PBOC website. We then convert the amount of swap-line measured in RMB into USD using an annual RMB/USD conversion from Bloomberg.

To measure geographical and cultural similarities between China and its trading partners, we use the gravity controls on distance, common language, and legal origin from GeoDist of CEPII, and host-country GDP data from World Development Indicators [9]. Combing all the variables together results in 114 host countries and 571 country-year observations for the period of 2003–2012.

To verify the robustness of our baseline explanatory variables, we also control for host country's real effective exchange rate index (REER), international reserve in US$, population in persons, business investment costs measured by the number of start-up procedures to register a new business and CPI from World Development Indicators. Also included in the list of control variable are host-country skill of labor as measured by Barro-Lee average years of total

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[8] The category of commodities includes the primary commodities, precious stones, and non-monetary gold (STIC 0 +1+2+3+4+68+667+971). The manufactured goods include STIC 5-8 less 667, and 68.

[9] The GDP data of Taiwan Province of China is from the World Economic Outlook (WEO), IMF.

schooling of population above 25 years old from Education Attainment database, and political stability as measured by the percentile rank of political stability and absence of violence/terrorism from Worldwide Governance Indicators.

As an overview of the sample, Table 1 provides a summary statistics on variables of interest and Table 2 presents a tabulation of RMB swap-lines in relation to other swap arrangements in the aftermath of GFC. Figure 1 then shows a heat map of average Chinese bilateral trade, outward FDI, and RMB swap-lines as a ratio of a recipient country's GDP in the sample. Figure 2 overviews the relationship between Chinese FDI, trade, and swap-lines. The diamond chart plots, based on bilateral data, of Chinese FDI, exports, imports, and swap-lines, all measured as a ratio of recipient country's GDP and weighted by the sample means. The dotted, dashed and solid lines plot, respectively, the statistics before, during and after the 2008–09 Global Financial Crisis. The diamond charts indicate concurrent and significant surges in Chinese-outward FDI, swap-lines, imports and exports to the selected countries.

3. Empirical Analysis

We start with baseline gravity estimation (Eq. 1) in the first two columns of Table 3.

$$\text{China FDI}_j = \delta_{1j} + \gamma_1 \text{Trade}_j + \theta_1 \text{Gravity}_j + \varepsilon_{1j} \qquad , \qquad (1)$$

where all non-discrete variables are measured in logs; Trade_j is the bilateral trade (imports plus exports) between China and country j, the gravity term includes host-country j GDP_j, Distance_j, Common Language_j, and Legal Origin_j. Outward-oriented Chinese FDI is negatively associated with the GDP of host countries, and positively associated with bilateral trade. Replacing China's FDI with China's bilateral trade in the gravity estimation, we also find, as expected, that trade is negatively associate with distance, and positively associated with the GDP of host countries and having a common language.[10]

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[10] Consistent with our findings, Ramasamy et al. (2012) found that during 2006–2008 state-controlled firms were attracted to countries with large sources of natural resources and risky political environments, whereas private firms were more market seekers. Kolstad and Wiig (2012) estimated a gravity model of outward Chinese FDI 2003–2006 on host country GDP,

As our focus is on the determinants of Chinese-outward FDI, we instrument Chinese trade with the gravity variables; i.e. column 2 (Eq. 2), and apply the estimated trade in the FDI equation.[11]

$$\text{China Trade}_j = \delta_{2j} + \theta_2 \text{Gravity}_j + \varepsilon_{2j} \tag{2}$$

The results are reported in columns 3 and 4 of Table 3, highlighting the effects of China's trade (column 3), as well as disaggregating China's trade in the estimation into exports and imports (column 4). The baseline results continue to hold: China's bilateral trade has a positive net effect on Chinese-outward FDI; exports have a positive effect, while imports have a negative effect.

Our estimation continues with additional tests, examining the effects of disaggregated trade, the determinants of Greenfield FDI, and the association before and after the Global Financial Crisis of 2008–09.

Table 4 provides the gravity estimation of Chinese-outward FDI using as determinants the Chinese bilateral trade, disaggregated into exports and imports of commodities and manufactures. The estimation results suggest that Chinese exports of manufactures and imports of commodities to its trading partners are positively associated with the outflows of FDI to the recipient countries.

The motives of Chinese-outward-oriented FDI become even more apparent when we look at its Greenfield FDI abroad and distinguish between FDI outflows into tradable sector, nontradables sector, and natural resources sector in Table 5. The estimation suggests that

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trade, inflation, distance, institutions, and natural resources. They found positive associations of Chinese FDI with GDP size and natural resources. While we found a negative association between the aggregate Chinese FDI and GDP of the host country, our sample covers 2003–2012, and before and after the GFC. During the latter part of the GFC, shift occurred in China's outward policy as discussed earlier.

[11] Our instrumental variable approach can be viewed as complementary to the standard gravity models – i.e. Blonigen et al. (2007) – in which a set of gravity variables covers host GDP, population, trade costs (e.g. .inverse trade openness), human capital/skill, investment costs, surrounding-market potential, and distance.

Chinese trade influences the natural resources sector FDI. Exports of manufactures are negatively associated with FDI outflows, while the effects of commodities imports are positive.

We also observe that the association between Chinese FDI outflows in natural-resources sector and commodities imports has remained robust after the GFC as shown in Table 6. To verify the extent to which the Chinese-outward-oriented FDI could be associated with both its trade and financial dealing with its partner, we add as another determinant of Chinese FDI the existence of RMB swap-line into the estimation.

$$\text{Prob}(\text{Swap}_j) = \delta_{3j} + \gamma_3\text{Trade}_j + \theta_3\text{Gravity}_j + \varepsilon_{3j} \tag{3}$$

where j denotes the recipient country or China's trading partner, and Swap_j is 1 if there is an established RMB swap-line between PBOC and the central bank of trading partner j.

Since trade linkages with China may influence the RMB swap-line, our first-stage estimation is to estimate the probability of the swap-line as a function of bilateral trade and gravity variables (Eq. 3), treating total bilateral trade as an instrument variable defined by (Eq. 2) The results are in column 1 of Table 7 and suggest that the provision of the RMB swap-line is positively associated with the size of Chinese bilateral trade with the swap-line recipients. In addition, small countries tend to be the recipients of the RMB swap-line.

Our second-stage estimation uses the instrumented probability of the RMB swap-line to host country j (Eq. 3), and the instrumented China's manufactures exports to country j (Eq. 4), and the instrumented China's commodities imports from country j (Eq. 5) as the controls in the gravity model of China's FDI to host country j (Eq. 6), where *italic* fonts denote instrumented control variables.

$$\text{Manufactures Exports}_j = \delta_{4j} + \theta_4\text{Gravity}_j + \varepsilon_{4j} \tag{4}$$

$$\text{Commodities Imports}_j = \delta_{5j} + \theta_5\text{Gravity}_j + \varepsilon_{5j} \tag{5}$$

$$\text{China FDI}_j = \delta_{6j} + \gamma_6\mathit{Trade}_j + \rho\mathit{Trade}_j*\mathit{Swap}_j + \phi\mathit{Swap}_j + \theta_6\text{Gravity}_j + \varepsilon_{6j} \tag{6}$$

Columns 5 and 6 of Table 7 provide the second-stage estimation, using as key determinants the instrumented probability of the swap-line (from column 1, based on Eq. 4), instrumented manufactures exports (column 2, based on Eq. 5), and commodities imports (column 3, based on Eq. 6). The results suggest that the positive association between Chinese-

outward FDI and commodities imports has intensified with the provision of RMB swap-lines to China's trading partners.

The effects of RMB swap-lines are especially large and statistically significant on the Chinese-outward FDI in the natural resources sector. Therefore, the baseline findings are supportive to the conjecture that in the aftermath of the GFC, Chinese-outward FDI is bundled with trade and financial linkages, thereby increasing the influence of China in the international markets.

In Tables 8 to 10, we examine the robustness of the estimations by using alternative econometric specifications and additional controls. The first-stage estimation regresses the probability of swap-line as a function of bilateral trade and gravity variables (trade, distance, GDP) [to save space, these estimates are available upon request]. We then conduct the second-stage OLS estimation in Table 8 and the second-stage Tobit estimation in Table 9 using the instrumented Probability of RMB swap-line to host country j and the corresponding instrumented China's manufactures exports to country j, and the instrumented China's commodities imports from country j, together with host-country real effective exchange rate, international reserve, population, skill, business investment costs, CPI, and political stability as additional controls in the gravity model of China's FDI to host country j. To account for potential heteroskedasticity, we also conduct the Poisson pseudo-maximum-likelihood (PPML) following Silva and Tenreyro (2006) in the first-stage estimation for trade variables and the second-stage estimation. The results of PPML estimation are reported in Table 10.

The robustness checks indicate that the individual effects of RMB swap-line and the interaction effects of RMB swap-line with China's commodities imports remain statistically significant across alternative econometric specifications and additional sets of control variables. Overall, the battery of empirical tests done in Tables 3 to 10, support the benchmark estimation. Based on the probit regression of RMB swap-line and Tobit regression of China's manufactures exports and China's commodities imports in the first-stage estimation, we report in Table 11 the results of the second-stage regressions of China's outward FDI on the set of persistently significant control variables across various estimation techniques. As a summary of empirical analysis, we provide in Table 12 the economic significance of the coefficient estimates, calculating a product of one standard deviation change of each control variable and the corresponding control variable's coefficient estimate. The calculation suggests that the effects of

China's commodities imports from host country combined with the presence of RMB swap-lines extended to the host country have the largest economic significance on China's FDI outbound towards the host country, and is associated with 13-24% increase of the FDI in the natural resources sector.

4.   Concluding remarks

The results of our paper are in line with the conjecture that China has bundled outward FDI with its finance dealing and trade and foreign investment, thus leveraging its growing market clout. This outward mercantilism has been mostly applied to developing and emerging market economies, and to "commodity countries." This conjecture is consistent with the emerging tighter relationships of China's imports, FDI and swap-lines. While it is pre-mature to estimate the returns on this bundling strategy, the outcome has been increased access of emerging Africa, Asia and Latin America to improved infrastructure services, co-financed and constructed with the help of Chinese capital goods and knowhow, and co-paid by the growing exports of commodities and minerals to China. The proposed formation of the Asian Infrastructure Investment Bank, in which China would be the main shareholder may be viewed as a follow up of this bundling strategy.

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Figure 1. Chinese Outward FDI, Bilateral Trade, and RMB Swap-lines.
The heat maps plot sample means of greenfield FDI, aggregate FDI, bilateral trade and RMB swap-lines as a ratio of recipient country's GDP; darker colour corresponds to higher intensity.

A. China's Greenfield FDI
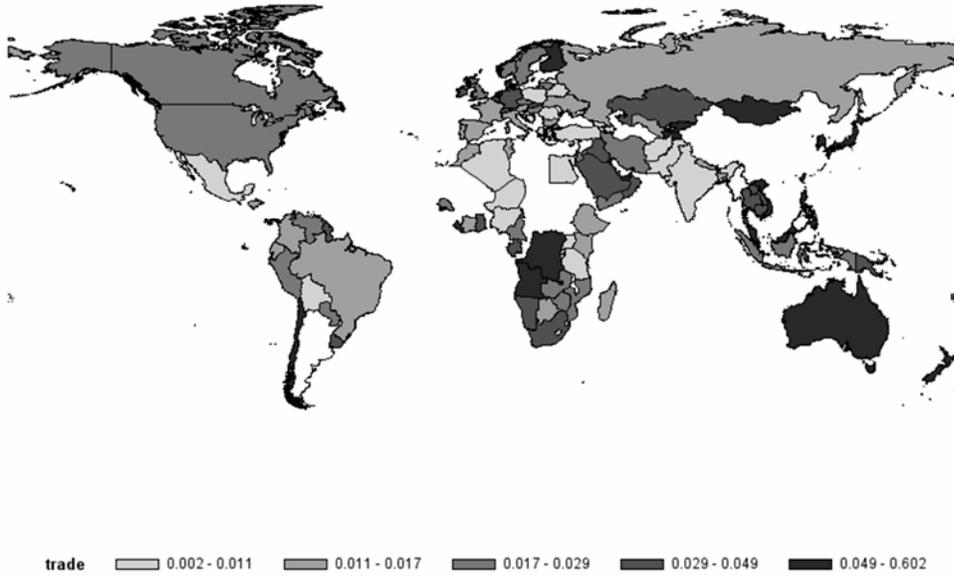

fdift   0.001 - 0.013   0.013 - 0.034   0.034 - 0.105   0.107 - 0.408   0.416 - 120.370

B. China's Aggregate FDI

fdi   -0.004 - 0.001   0.001 - 0.006   0.006 - 0.020   0.022 - 0.069   0.096 - 7.218

C. China's Bilateral Trade

trade ☐ 0.002 - 0.011 ▨ 0.011 - 0.017 ▨ 0.017 - 0.029 ▨ 0.029 - 0.049 ■ 0.049 - 0.602

D. RMB Swap-lines

swap ☐ 0.001 - 0.001 ▨ 0.003 - 0.011 ▨ 0.012 - 0.021 ▨ 0.024 - 0.028 ■ 0.033 - 0.113
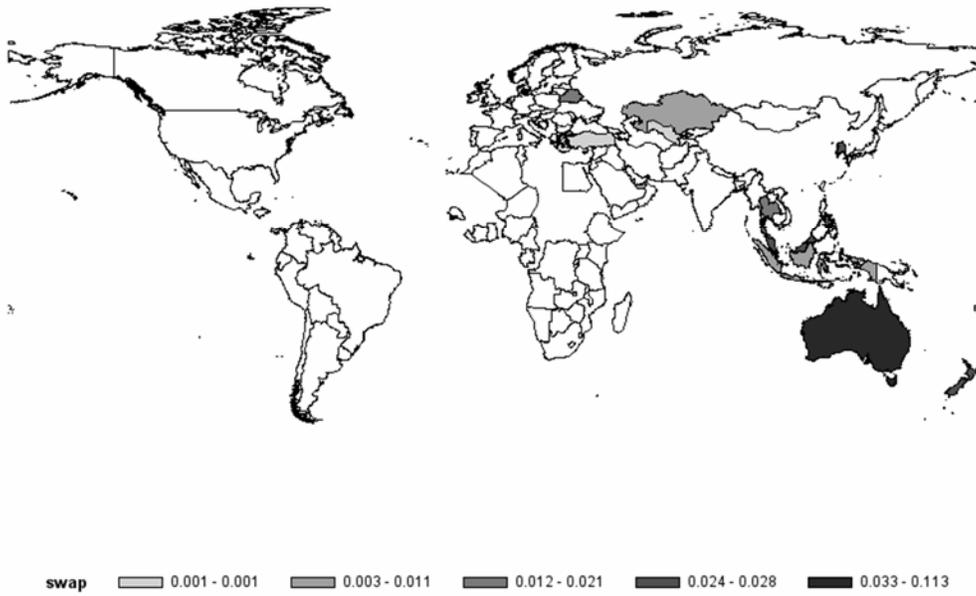
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Figure 2. Relationship between Chinese FDI, Trade, and Swap-lines.
The diamond chart plots, based on bilateral data, of Chinese FDI, exports, imports, and swap-lines, all measured as a ratio of recipient country's GDP, weighted by the sample means. The dotted, dashed and solid lines plot, respectively, the statistics before, during and after the Global Financial Crisis. The recipient countries are listed in Appendix Table B.

A. Chinese FDI: Greenfield
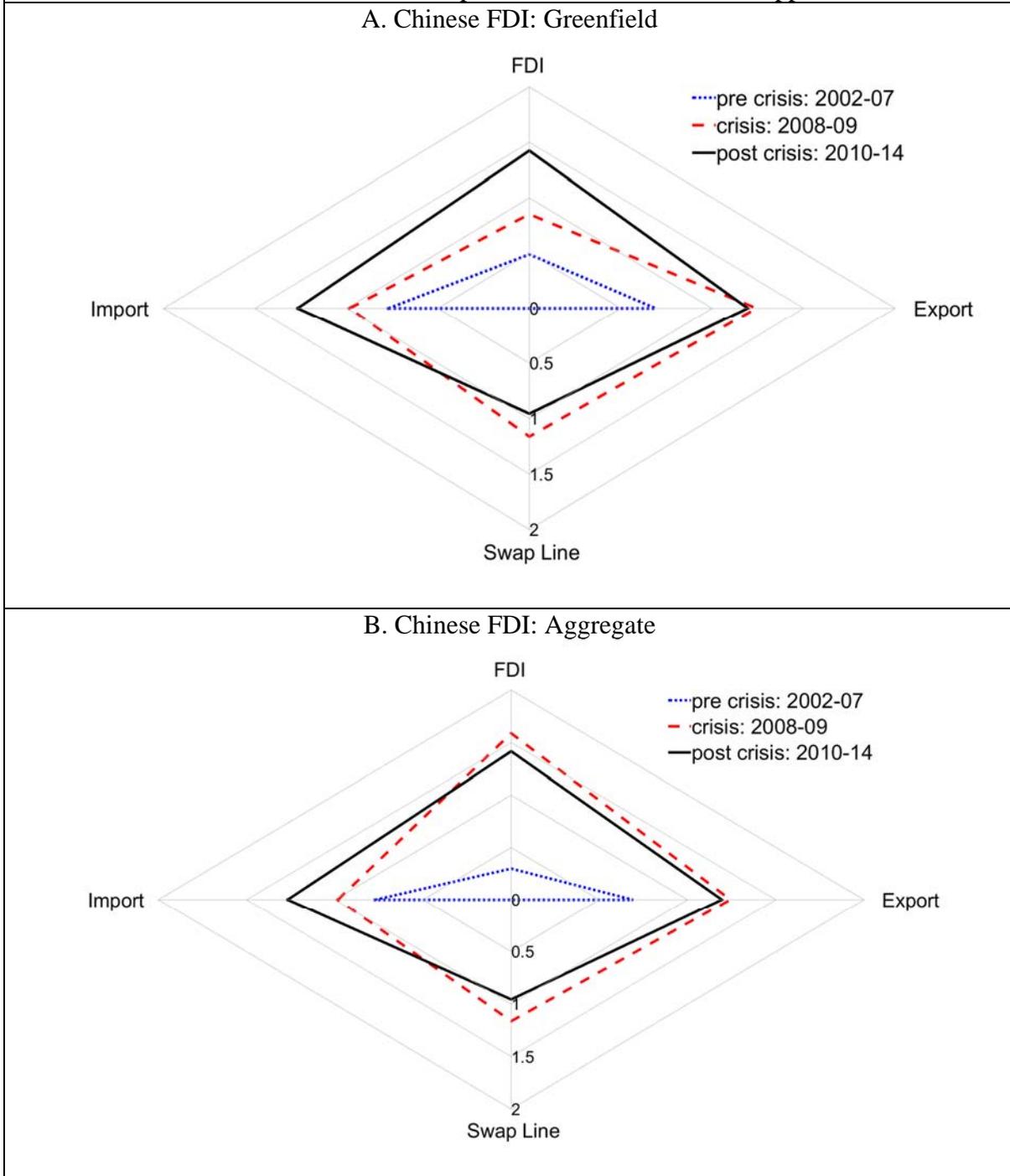

B. Chinese FDI: Aggregate

Table 1. Summary Statistics.
China's Outward Aggregate FDI is from the UNCTAD FDI/TNC database. China's Outward Greenfield FDI covers tradable sector FDI, nontradable sector FDI and natural resources FDI from fDi Intelligence. China's Total trade is the sum of its bilateral exports and imports from China Statistical Year Book. RMB swap-line is the amount of currency swap between Peoples' Bank of China and the central bank of recipient country. Host GDP, REER, International Reserve, Population, Business Investment Costs, CPI are the GDP, real effective exchange rate index, international reserve, total population, the number of start-up procedures to register a new business, consumer price index from World Development Indicators, respectively. Host skill is measured by Barro-Lee average years of total schooling of population above 25 years old from Education Attainment database, and political stability is the percentile rank of Political Stability and Absence of Violence/Terrorism from Worldwide Governance Indicators. Employment data is the number of jobs created from fDi Intelligence. China's commodity export/import and manufactures export/import are from UN Comtrade. All statistics are reported in million US$ except for the Host REER (index), Host Population (in million persons), Host Skills (in years), Host Business Investment Costs (in units), Host CPI (index), Host Political Stability (in percentile rank), and the employment data (in persons).

	obs.	Mean	Std. Dev.	Min	Max
Country level data					
China's Outward Aggregate FDI	571	628.42	4101.04	-814.91	51238.44
China's Outward Greenfield FDI	571	378.32	776.39	0.20	5660.65
China's Exports	571	18764.74	42653.82	0.43	351776.80
China's Imports	567	13947.11	27629.41	0.03	194563.50
China's Total Trade	571	32614.15	62654.09	0.46	484674.30
RMB Swap Line	28	18490.68	16107.95	111.02	64188.97
Host GDP	571	1053484.00	2139965.00	2160.00	15900000.00
Host REER	345	97.01	10.94	10.40	126.00
Host International Reserve	554	72017.23	147760.90	75.50	1260000.00
Host Population	570	68.19	158.63	0.06	1240.00
Host Skill	530	8.68	2.84	1.10	13.42
Host Business Investment Costs	558	8.15	3.58	1.00	18.00
Host CPI	548	92.73	17.81	37.30	244.00
Host Political Stability	570	47.31	29.04	0.47	99.04
Sectoral Data					
Tradable Sector FDI	384	176.98	373.67	0.37	3450.76
NonTradable Sector FDI	349	105.56	305.91	0.20	3542.00
Natural Resources FDI	211	527.12	917.00	0.10	4589.20
Employment Generated by Tradable Sector FDI	384	678.91	1150.58	5	8000
Employment Generated by NonTradable Sector FD	349	323.11	842.50	1	9926
Employment Generated by Natural Resources FDI	211	640.36	1055.24	1	6008
China's Commodities Exports	571	1293.49	2735.37	0.03	17572.50
China's Manufactures Exports	571	17586.61	40329.33	10.12	341134.50
China's Commodities Imports	571	4536.13	9066.48	0.00	78861.91
China's Manufactures Imports	571	9130.01	23865.40	0.00	180135.20

Table 2. Swap-lines extended by US Federal Reserve (billion US$), European Central Bank (billion Euro), and People's Bank of China (billion Yuan), December 2007 – October 2014. Source: Aizenman, Jinjarak and Park (2014) and Garcia-Herrero and Xia (2015).

Recipient Country	US Federal Reserve	European Central Bank	People's Bank of China
Albania			2
Argentina			70
Australia	30		200
Brazil	30		190
Belarus			20
Canada	30, standing	standing	
Denmark	15	15	
ECB	300, standing		350
Hong Kong			400
Hungary		5	10
Iceland		1.5	3.5
Indonesia			100
Japan	120, standing	standing	20
Kazakhstan			7
Korea	30		360
Mexico	30		
Malaysia			180
Mongolia			10
Norway	15		
New Zealand	15		25
Pakistan			10
Poland		10	
Russia			standing
Sweden	30		
Singapore	30		300
Switzerland	60, standing	standing	
Thailand			70
Turkey			1.6
Ukraine			15
United Arab Emirates			35
United Kingdom	100, standing	standing	200
Uzbekistan			0.7

Table 3. Baseline Results.
This table provides the gravity estimation of China's FDI and bilateral trade. All non-discrete variables are measured in logs; the gravity term includes host-country j's GDP$_j$, Distance$_j$, Common Language$_j$, and Legal Origin$_j$; French (FR), German (GR), Scandinavian (SC), Socialist (SO). Standard errors in parentheses, with *** (**, *) signifies statistical significance at 1 (5, 10) % level.

Estimation Model with Aggregate FDI Data	Gravity Models		Gravity Models with Instrumented Trade Variables	
	log(FDI)	log(Total Trade)	log(FDI)	log(FDI)
Independent Variable:				
log(distance)	-.20	-.48	.02	.16
	(.14)	(.10)***	(.19)	(.23)
log(Host GDP)	-.50	.90	-.75	-.77
	(.08)***	(.03)***	(.18)***	(.22)***
log(Total Trade)	.88		1.15	
	(.07)***		(.18)***	
Legal origin - FR		-.30		
		(.12)**		
Legal origin - GE		.34		
		(.20)*		
Legal origin - SC		-.85		
		(.26)***		
Legal origin - SO		-.67		
		(.15)***		
Common language		1.40		
		(.21)***		
Log(Exports)				1.79
				(.37)***
Log(Imports)				-.48
				(.28)*
Constant	3.93	1.79	2.76	.72
	(1.33)***	(1.02)*	(1.53)*	(2.02)
R-sq.	.32	.70	.83	.79
Observations	472	570	472	470

Table 4. Aggregate FDI and Disaggregated Trade.
This table provides the gravity estimation of China's aggregate outward FDI. All non-discrete variables are measured in logs; the gravity term includes host-country j's GDP$_j$, Distance$_j$, Common Language$_j$, and Legal Origin$_j$; French (FR), German (GR), Scandinavian (SC), Socialist (SO). The first column uses actual exports and imports, while columns 2 to 6 use instrumented exports and instrumented imports from the gravity estimation of China's bilateral trade. Standard errors in parentheses, with *** (**, *) signifies statistical significance at 1 (5, 10) % level.

Estimation Model with Aggregate FDI Data	Gravity Model log(FDI)	Gravity Models with Instrumented Disaggregated Trade Variables				
		log(FDI)	log(FDI)	log(FDI)	log(FDI)	log(FDI)
Independent Variable:						
log(Commodities Export)	-.37	.81				
	(.10)***	(.17)***				
log(Manufactures Export)	1.18		1.31			.56
	(.12)***		(.21)***			(.32)*
log(Commodities Import)	.41			1.59		1.19
	(.05)***			(.31)***		(.34)***
log(Manufactures Import)	-.14				.17	
	(.04)***				(.11)	
log(Distance)	-.60	.25	.07	-.47	-.58	-.17
	(.17)***	(.28)	(.20)	(.20)**	(.24)**	(.24)
log(Host GDP)	-.55	-.54	-.90	-1.18	.02	-1.32
	(.11)***	(.19)***	(.20)***	(.30)***	(.19)	(.26)***
Legal origin - FR	-.55					
	(.19)***					
Legal origin - GE	-.59					
	(.32)*					
Legal origin - SC	-1.27					
	(.42)***					
Legal origin - SO	-.53					
	(.23)**					
Common language	.36					
	(.36)					
Constant	-1.03	-1.63	-5.65	1.16	6.39	-2.89
	(1.63)	(2.44)	(2.47)**	(2.22)	(1.69)***	(2.96)
R-sq.		.80	.83	.67	.78	.78
Observations	472	472	472	472	472	472

Table 5. Sectoral Greenfield FDI.
This table provides the gravity estimation of China's sectoral Greenfield FDI. All non-discrete variables are measured in logs; the gravity term includes host-country j's GDP_j and $Distance_j$. The estimation use instrumented exports and instrumented imports from the gravity estimation of China's bilateral trade; the trade gravity term includes host-country j's GDP_j, $Distance_j$, Common $Language_j$, and Legal $Origin_j$. Standard errors in parentheses, with *** (**, *) signifies statistical significance at 1 (5, 10) % level.

Estimation Model with Greenfield FDI Data	log(Tradable Sector FDI)		log(Nontradable Sector FDI)		log(Natural Resources FDI)	
	Capital Investment	Employment	Capital Investment	Employment	Capital Investment	Employment
Independent Variable:						
log(Manufactures Export)	-.19	-.44	.03	.28	-1.76	-1.20
	(.45)	(.41)	(.33)	(.35)	(.61)***	(.49)**
log(Commodities Imports)	-.06	.17	.06	-.28	2.07	1.58
	(.40)	(.37)	(.27)	(.29)	(.65)***	(.52)***
log(Distance)	-.36	-.42	-.47	-.14	-.65	-.34
	(.26)	(.24)*	(.24)*	(.26)	(.52)	(.42)
log(Host GDP)	.40	.44	.17	.27	-.47	-.42
	(.20)**	(.19)**	(.18)	(.19)	(.50)	(.40)
Constant	5.46	7.83	3.87	1.57	13.86	9.45
	(3.81)	(3.46)**	(3.19)	(3.43)	(5.73)**	(4.55)**
R-sq.	.81	.91	.84	.89	.55	.76
Observations	384	384	349	349	210	210

Table 6. Before and After the Global Financial Crisis.
This table provides the gravity estimation of China's sectoral Greenfield FDI before and after the GFC of 2008-09. All non-discrete variables are measured in logs; the gravity term includes host-country j's GDP_j and $Distance_j$. The estimation use instrumented exports and instrumented imports from the gravity estimation of China's bilateral trade; the trade gravity term includes host-country j's GDP_j, $Distance_j$, Common $Language_j$, and Legal $Origin_j$. Standard errors in parentheses, with *** (**, *) signifies statistical significance at 1 (5, 10) % level.

Estimation Model with Greenfield FDI Data	log(Tradable Sector FDI)		log(Nontradable Sector FDI)		log(Natural Resources FDI)	
	Pre 08-09 Crisis	Post 08-09 Crisis	Pre 08-09 Crisis	Post 08-09 Crisis	Pre 08-09 Crisis	Post 08-09 Crisis
Independent Variable:						
log(Manufactures Export)	-.95	.95	-.57	.59	-.62	-2.08
	(.48)*	(1.09)	(.43)	(.44)	(.71)	(.86)**
log(Commodities Imports)	.21	-.48	.23	.01	2.09	1.88
	(.51)	(.76)	(.44)	(.25)	(1.05)**	(.75)**
log(Distance)	-.79	.25	-.98	-.16	.06	-1.52
	(.41)*	(.81)	(.37)***	(.31)	(.90)	(.84)*
log(Host GDP)	.73	-.03	.44	-.19	-.95	-.08
	(.35)**	(.37)	(.30)	(.28)	(.90)	(.58)
Constant	12.33	-5.96	11.63	-2.19	-3.78	24.61
	(4.32)***	(11.58)	(4.17)***	(4.48)	(11.80)	(9.90)**
R-sq.	.79	.82	.79	.88	.68	.72
Observations	142	151	131	143	84	63

Table 7. Swap-line, Trade, and FDI.
This table reports two-stage estimation. The first-stage estimation is the probability of swap as a function of bilateral trade and gravity variables (trade, distance, GDP); the results are in column 1. The second-stage estimation uses the instrumented Probability of RMB swap-line to host country j (column 1), and the instrumented China's manufactures exports to country j (column 2), and the instrumented China's commodities imports from country j (column 3) as the controls in the gravity model of China's FDI to host country j (columns 4 and 5). Standard errors in parentheses, with *** (**, *) signifies statistical significance at 1 (5, 10) % level.

Estimation Model with Greenfield FDI Data	First-Stage Estimation: Instrumenting Swap Line and Trade Variables			Second-Stage Estimation: Determining Sectoral FDI	
	Probit(Swap = 1)	Tobit log(Manufactures Exports)	Tobit log(Commodities Imports)	log(Tradable Sector FDI)	log(Natural Resources FDI)
Independent Variable:					
log(Total Trade)	.42				
	(.15)***				
log(Distance)	-.21	-.42	-.35	-.20	-.42
	(.22)	(.08)***	(.15)**	(.25)	(.43)
log(Host GDP)	-.31	.94	.94	.34	-1.05
	(.15)**	(.03)***	(.05)***	(.27)	(.57)*
Legal origin - FR		-.25	-.31		
		(.09)***	(.17)*		
Legal origin - GE		-.20	-.75		
		(.16)	(.29)**		
Legal origin - SC		.05	-.65		
		(.21)	(.38)*		
Legal origin - SO		-.28	-1.11		
		(.12)**	(.21)***		
Common language		1.45	.57		
		(.17)***	(.31)*		
i.v. log(Manufactures Export)				-1.34	-3.62
				(.67)**	(1.32)***
i.v. log(Commodities Imports)				1.44	4.01
				(.77)*	(1.57)**
i.v. log(Manufactures Export) * Swap				-.70	-1.66
				(.39)*	(.81)**
i.v. log(Commodities Imports) * Swap				.86	1.47
				(.39)**	(.84)*
i.v. Instrumented Swap				.48	3.79
				(1.24)	(1.76)**
Constant	.16	.13	-1.86	3.35	24.86
	(1.81)	(.81)	(1.48)	(3.62)	(5.45)***
Impact of Manufactures Exports with sw				-2.04	-5.28
p-value				.05	.01
Impact of Commodities Imports with sv				2.30	5.48
p-value				.04	.02
R-sq.				.82	.79
Observations	571	571	570	384	211

23

Table 8. Robustness I – Additional Control Variables with OLS Estimation of China's Outward FDI on Instrumented Trade Variable.

This table reports results of the two-stage estimation. The first-stage estimation is the probability of swap-line as a function of bilateral trade and gravity variables (trade, distance, GDP); estimates not reported. The second-stage OLS estimation uses the instrumented Probability of RMB swap-line to host country j and the Tobit instrumented China's manufactures exports to country j, and the Tobit instrumented China's commodities imports from country j, together with host-country real effective exchange rate, international reserve, population, skill, business investment costs, CPI, and political stability as additional controls in the gravity model of China's FDI to host country j. Standard errors in parentheses, with *** (**, *) signifies statistical significance at 1 (5, 10) % level.

Estimation Model with Greenfield FDI Data	Second-Stage OLS Estimation: Determining Sectoral FDI							
	log(Tradable Sector FDI)				log(Natural Resources FDI)			
log(Distance)	-.21	.43	.16	.54	-.09	.39	.15	1.59
	(.39)	(.26)	(.26)	(.40)	(.58)	(.46)	(.44)	(.67)**
log(Host GDP)	.09	-.50	.29	-.61	-2.36	-1.92	-1.09	-3.14
	(.35)	(.38)	(.28)	(.51)	(.64)***	(.70)***	(.58)*	(.84)***
i.v. log(Manufactures Exports)	-.83	-.93	-.69	-.62	-4.60	-2.36	-2.43	-4.36
	(.86)	(.57)	(.58)	(.91)	(1.25)***	(1.01)**	(1.00)**	(1.22)***
i.v. log(Commodities Imports)	1.25	1.57	1.00	1.30	6.08	3.56	3.18	6.38
	(.96)	(.70)**	(.70)	(.99)	(1.64)***	(1.32)***	(1.26)**	(1.61)***
i.v. log(Manufactures Exports) * Swap	-.34	-1.05	-.67	-.88	-2.05	-1.69	-1.29	-2.49
	(.51)	(.38)***	(.37)*	(.55)	(.90)**	(.75)**	(.71)*	(.92)***
i.v. log(Commodities Imports) * Swap	.60	1.26	.89	1.19	2.04	1.62	1.25	2.62
	(.49)	(.38)***	(.37)**	(.53)**	(.90)**	(.78)**	(.73)*	(.96)***
i.v. Instrumented Swap	-.95	1.07	.30	.18	3.59	3.74	2.97	4.72
	(1.61)	(1.16)	(1.11)	(1.64)	(2.21)	(1.62)**	(1.57)*	(2.11)**
log(Host REER)	1.49			3.94	-2.06			-.45
	(1.26)			(1.42)***	(.81)**			(.91)
log(Host International Reserve)	.16			.08	.78			.84
	(.13)			(.12)	(.23)***			(.25)***
log(Host Population)		.71		.81		.58		.64
		(.18)***		(.29)***		(.27)**		(.38)*
log(Host Skill)		-.45		.65		-.58		1.00
		(.49)		(.89)		(.62)		(1.32)
log(Host Business Investment Costs)		-.29		-.51		.18		-.23
		(.23)		(.29)*		(.38)		(.49)
log(Host CPI)			-.21	-1.67			-1.67	-3.61
			(.54)	(.93)*			(.81)**	(1.31)***
log(Host Political Stability)			-.58	-.45			-.52	-.86
			(.12)***	(.22)**			(.20)***	(.41)**
Constant	-5.12	-5.72	1.78	-19.34	34.81	13.27	26.65	26.92
	(8.22)	(3.88)	(4.03)	(9.08)**	(7.28)***	(5.84)**	(5.42)***	(9.30)***
Impact of Manufactures Exports with swap	-1.17	-1.98	-1.37	-1.50	-6.66	-4.05	-3.72	-6.85
p-value	.38	.03	.13	.29	.00	.02	.02	.00
Impact of Commodities Imports with swap	1.85	2.84	1.89	2.50	8.12	5.18	4.43	8.99
p-value	.19	.01	.07	.09	.00	.01	.02	.00
R-sq.	.81	.84	.83	.84	.82	.80	.80	.85
Observations	242	354	371	237	115	197	204	112

Table 9. Robustness II – Additional Control Variables with Tobit Estimation of China's Outward FDI on Instrumented Trade Variables.

This table reports results of the two-stage estimation. The first-stage estimation is the probability of swap-line as a function of bilateral trade and gravity variables (trade, distance, GDP); estimates not reported. The second-stage Tobit estimation uses the instrumented Probability of RMB swap-line to host country j and the Tobit instrumented China's manufactures exports to country j, and the instrumented China's commodities imports from country j, together with host-country real effective exchange rate, international reserve, population, skill, business investment costs, CPI, and political stability as additional controls in the gravity model of China's FDI to host country j. Standard errors in parentheses, with *** (**, *) signifies statistical significance at 1 (5, 10) % level.

Estimation Model with Greenfield FDI Data	Second-Stage Tobit Estimation: Determining Sectoral FDI							
	Tobit log(Tradable Sector FDI)				Tobit log(Natural Resources FDI)			
log(Distance)	-.22	.43	.16	.54	.09	.53	.25	2.11
	(.39)	(.27)	(.26)	(.40)	(.63)	(.47)	(.45)	(.74)***
log(Host GDP)	.09	-.50	.29	-.61	-2.56	-2.12	-1.18	-3.53
	(.35)	(.38)	(.28)	(.51)	(.70)***	(.72)***	(.60)*	(.92)***
i.v. log(Manufactures Exports)	-.83	-.93	-.70	-.64	-4.80	-2.43	-2.52	-4.56
	(.86)	(.57)	(.59)	(.91)	(1.35)***	(1.04)**	(1.03)**	(1.33)***
i.v. log(Commodities Imports)	1.25	1.59	1.01	1.32	6.44	3.78	3.36	6.89
	(.97)	(.70)**	(.70)	(1.00)	(1.78)***	(1.36)***	(1.30)**	(1.75)***
i.v. log(Manufactures Exports) * Swap	-.32	-1.06	-.68	-.88	-2.21	-1.83	-1.40	-2.79
	(.52)	(.38)***	(.37)*	(.55)	(.98)**	(.78)**	(.73)*	(1.01)***
i.v. log(Commodities Imports) * Swap	.59	1.27	.89	1.20	2.20	1.76	1.37	2.96
	(.50)	(.38)***	(.37)**	(.54)**	(.98)**	(.80)**	(.75)*	(1.06)***
i.v. Instrumented Swap	-1.01	1.05	.29	.17	3.79	4.02	3.21	5.15
	(1.62)	(1.17)	(1.12)	(1.65)	(2.41)	(1.67)**	(1.62)**	(2.31)**
log(Host REER)	1.54			4.04	-2.17			-.23
	(1.27)			(1.43)***	(.87)**			(.97)
log(Host International Reserve)	.16			.09	.83			.91
	(.13)			(.13)	(.25)***			(.28)***
log(Host Population)		.72		.82		.65		.80
		(.18)***		(.29)***		(.27)**		(.41)*
log(Host Skill)		-.45		.65		-.59		1.15
		(.49)		(.89)		(.64)		(1.43)
log(Host Business Investment Costs)		-.30		-.52		.20		-.31
		(.23)		(.29)*		(.39)		(.52)
log(Host CPI)			-.21	-1.77			-1.81	-4.19
			(.55)	(.94)*			(.83)**	(1.42)***
log(Host Political Stability)			-.58	-.45			-.57	-1.00
			(.12)***	(.22)**			(.20)***	(.45)**
Constant	-5.39	-5.91	1.71	-19.46	34.76	12.59	27.40	24.38
	(8.27)	(3.91)	(4.06)	(9.13)**	(7.82)***	(6.00)**	(5.58)***	(9.96)**
Impact of Manufactures Exports with swap	-1.15	-1.99	-1.38	-1.52	-7.01	-4.26	-3.92	-7.35
p-value	.39	.03	.14	.29	.00	.01	.02	.00
Impact of Commodities Imports with swap	1.84	2.86	1.90	2.51	8.65	5.53	4.73	9.85
p-value	.20	.01	.07	.10	.00	.01	.02	.00
log likelihood	-481.77	-685.53	-724.96	-452.78	-235.82	-432.33	-448.18	-218.04
Observations	242	354	371	237	115	197	204	112

Table 10. Robustness III – Additional Control Variables with Tobit Estimation of China's Outward FDI on Poisson pseudo-maximum-likelihood (PPML) Instrumented Trade Variables.

This table reports results of the second-stage estimation. The first-stage estimation is the probability of swap-line as a function of bilateral trade and gravity variables (trade, distance, GDP); estimates not reported. The second-stage PPML estimation uses the instrumented Probability of RMB swap-line to host country j and the PPML instrumented China's manufactures exports to country j, and the instrumented China's commodities imports from country j, together with host-country real effective exchange rate, international reserve, population, skill, business investment costs, CPI, and political stability as additional controls in the gravity model of China's FDI to host country j. Standard errors in parentheses, with *** (**, *) signifies statistical significance at 1 (5, 10) % level.

Estimation Model with Greenfield FDI Data	Second-Stage Tobit Estimation: Determining Sectoral FDI							
	Tradable Sector FDI				Natural Resources FDI			
log(Distance)	.33	.89	.48	1.02	-2.01	-.44	-.43	-.86
	(.38)	(.30)***	(.33)	(.31)***	(.63)***	(.37)	(.39)	(.58)
log(Host GDP)	-.30	-.42	.22	-1.06	-2.62	-.45	-.23	-1.30
	(.27)	(.22)*	(.26)	(.34)***	(.51)***	(.37)	(.42)	(.81)
i.v. log(Manufactures Exports)	.11	.12	.01	.47	-2.10	-1.62	-1.67	-2.03
	(.34)	(.23)	(.25)	(.29)	(.57)***	(.46)***	(.39)***	(.68)***
i.v. log(Commodities Imports)	1.21	.85	.86	.93	8.19	3.89	3.64	6.83
	(.62)*	(.47)*	(.46)*	(.66)	(1.65)***	(.99)***	(.84)***	(1.70)***
i.v. log(Manufactures Exports) * Swap	.09	-.20	-.09	.06	-.36	-.57	-.52	-.39
	(.15)	(.10)**	(.10)	(.12)	(.21)*	(.18)***	(.16)***	(.26)
i.v. log(Commodities Imports) * Swap	.16	.60	.38	.33	1.26	1.18	1.21	1.53
	(.22)	(.21)***	(.17)**	(.27)	(.40)***	(.27)***	(.25)***	(.42)***
i.v. Instrumented Swap	-1.92	-2.19	-1.77	-2.69	-6.56	-3.58	-3.94	-7.50
	(1.97)	(1.07)**	(1.03)*	(1.84)	(1.99)***	(1.33)***	(1.51)***	(1.96)***
log(Host REER)	.87			1.47	-2.22			-1.40
	(1.01)			(1.21)	(.38)***			(.47)***
log(Host International Reserve)	.29			.33	.54			.48
	(.11)***			(.12)***	(.20)***			(.17)***
log(Host Population)		.74		.72		.02		-.34
		(.17)***		(.30)**		(.27)		(.38)
log(Host Skill)		.24		2.28		-1.03		-1.28
		(.49)		(.79)***		(.32)***		(.91)
log(Host Business Investment Costs)		.08		-.06		.70		.15
		(.20)		(.22)		(.53)		(.50)
log(Host CPI)			.39	-.92			-1.85	-2.60
			(.43)	(.69)			(.58)***	(.99)***
log(Host Political Stability)			-.32	-.41			-.33	-.15
			(.08)***	(.15)***			(.13)***	(.23)
Constant	-12.04	-17.68	-9.27	-23.33	13.52	-.17	8.81	16.07
	(8.57)	(4.29)***	(4.04)**	(8.39)***	(6.47)**	(4.78)	(3.82)**	(8.18)**
Impact of Manufactures Exports with swap	.20	-.08	-.08	.53	-2.46	-2.19	-2.20	-2.42
p-value	.67	.77	.80	.18	.00	.00	.00	.01
Impact of Commodities Imports with swap	1.38	1.45	1.23	1.26	9.45	5.07	4.85	8.36
p-value	.09	.02	.04	.16	.00	.00	.00	.00
log likelihood	-41249.64	-67544.88	-75250.05	-35886.29	-57871.60	-168469.29	-182975.35	-52503.34
Observations	340	512	543	327	340	512	543	327

Table 11. Benchmark Results.

This table reports results of the second-stage estimation. The first-stage estimation is the probability of swap-line as a function of bilateral trade and gravity variables (trade, distance, GDP); estimates not reported. The second-stage OLS/Tobit/PPML estimation uses the instrumented Probability of RMB swap-line to host country j and the Tobit instrumented China's manufactures exports to country j, and the Tobit instrumented China's commodities imports from country j, together with host-country real effective exchange rate, international reserve, CPI, and political stability as additional controls in the gravity model of China's FDI to host country j. Standard errors in parentheses, with *** (**, *) signifies statistical significance at 1 (5, 10) % level.

Estimation Model with Greenfield FDI Data	OLS log(Natural Resources FDI)	Tobit log(Natural Resources FDI)	PPML Natural Resources FDI>0	PPML Natural Resources FDI
log(Distance)	1.29	1.73	.09	.24
	(.63)**	(.70)**	(.36)	(.36)
log(Host GDP)	-2.33	-2.54	-1.50	-1.67
	(.62)***	(.68)***	(.50)***	(.50)***
i.v. log(Manufactures Exports)	-4.84	-5.17	-3.15	-4.33
	(1.17)***	(1.26)***	(1.02)***	(1.24)***
i.v. log(Commodities Imports)	6.67	7.26	4.42	6.19
	(1.57)***	(1.70)***	(1.37)***	(1.57)***
i.v. log(Manufactures Exports) * Swap	-2.65	-2.99	-1.05	-1.37
	(.87)***	(.95)***	(.68)	(.64)**
i.v. log(Commodities Imports) * Swap	2.82	3.20	1.30	1.81
	(.89)***	(.97)***	(.70)*	(.65)***
i.v. Instrumented Swap	4.77	5.25	.44	.49
	(2.10)**	(2.30)**	(1.70)	(1.78)
log(Host REER)	-.69	-.54	-.83	-1.55
	(.85)	(.92)	(.29)***	(.39)***
log(Host International Reserve)	.74	.78	.76	.73
	(.23)***	(.25)***	(.15)***	(.17)***
log(Host CPI)	-3.48	-3.98	-1.40	-3.88
	(1.26)***	(1.36)***	(.90)	(1.00)***
log(Host Political Stability)	-.84	-.98	-.28	-.11
	(.28)***	(.31)***	(.25)	(.21)
Constant	35.46	35.11	24.70	38.01
	(7.63)***	(8.15)***	(6.73)***	(10.22)***
Impact of Manufactures Exports with swap	-7.49	-8.16	-4.20	-5.71
p-value	.00	.00	.01	.00
Impact of Commodities Imports with swap	9.49	10.47	5.72	8.00
p-value	.00	.00	.00	.00
log likelihood	-227.21	-224.09	-27094.88	-55840.92
Observations	114	114	114	334

Table 12. Economic Significance.

This table provides economic significance of the benchmark results in Table 11. The effects of one standard deviation change of each explanatory variable on China's outward FDI (dependent variable) from OLS, Tobit, and Poisson pseudo-maximum-likelihood (PPML) second-stage regressions are all reported in order to provide the estimation bounds of the economic significance.

Effects of One Standard Deviation Change on China's Outward FDI	OLS log(Natural Resources FDI)	Tobit log(Natural Resources FDI)	PPML Natural Resources FDI>0	PPML Natural Resources FDI
log(Distance)	0.77	1.03	0.05	0.15
log(Host GDP)	-3.73	-4.05	-2.40	-2.67
log(Host REER)	-0.12	-0.09	-0.14	-0.26
log(Host International Reserve)	1.38	1.44	1.42	1.36
log(Host CPI)	-0.71	-0.81	-0.29	-0.79
log(Host Political Stability)	-0.81	-0.96	-0.27	-0.11
Individual Effects of Trade:				
log(Manufactures Exports)	-8.97	-9.57	-5.83	-8.03
log(Commodities Imports)	15.41	16.78	10.22	14.30
Total Effects of RMB Swap Line and its Interactions with China's Trade:				
Total Effects with Manufactures Exports	-13.88	-15.10	-7.78	-10.57
Total Effects with Commodities Imports	21.92	24.18	13.23	18.48
Individual Effect of RMB Swap Line	4.77	5.25	0.44	0.49

Appendix Table A. Top China's Industry Activities and Investing Companies in Outward Greenfield FDI Before and After the Global Financial Crisis.

This table reports largest capital investment by China in host countries from January 2003 to January 2015, based on fDi Intelligence database.

Top Industries

January 2003 - January 2015

Industry Activity	Capital Investment (million US$)	Employment (persons)	Projects (number)	Companies (number)
Metals	67,972	109,750	240	145
Coal, Oil and Natural Gas	66,794	22,734	101	51
Real Estate	30,523	87,217	61	41
Automotive	29,072	164,061	209	64
Renewable Energy	22,354	5,345	89	59

January 2010 - January 2015 (After the Global Financial Crisis)

Industry Activity	Capital Investment (million US$)	Employment (persons)	Projects (number)	Companies (number)
Metals	25,412	41,166	114	85
Real Estate	23,264	58,499	38	20
Coal, Oil and Natural Gas	20,258	8,837	39	26
Automotive	18,185	101,019	121	45
Renewable energy	16,927	3,748	65	46

Top Companies

January 2010 - January 2015 (After the Global Financial Crisis)

Investing Company	Capital Investment	Project Date	Industry Activity	Host Country	RMB Swap Line
Zhejiang Hengyi Group	4,300	Jul-2011	Petroleum refineries	Brunei	No
China Gezhouba (CGGC)	3,500	Mar-2014	Fossil fuel electric power	Pakistan	Yes
Shanghai Greenland Group	3,250	Mar-2014	Real Estate	Malaysia	Yes
Shanghai Greenland Group	3,200	Dec-2014	Commercial & institutional building construction	South Korea	Yes
MMG	3,000	Apr-2014	Copper, nickel, lead, & zinc mining	Peru	No
China Triumph International Engineering	3,000	Aug-2014	All other industrial machinery	Russia	Yes
China Petroleum and Chemical (Sinopec)	2,617	Mar-2011	Petroleum refineries	Saudi Arabia	No
Chongqing Grain Group	2,536	Apr-2011	Grains & oilseed	Brazil	Yes
Jinchuan	2,000	Sep-2010	Support Activities for Mining	Indonesia	Yes
Anshan Iron and Steel Group (Angang)	2,000	Oct-2011	Iron & steel mills & ferroalloy	India	No

Appendix Table B. Country List.
Countries that appear in both (Greenfield) fDi Intelligence (FT) and (Aggregate) UNCTAD FDI database.

Afghanistan	Ethiopia	Luxembourg	Senegal
Algeria	Fiji	Macau	Singapore
Angola	Finland	Madagascar	Slovakia
Argentina	France	Malaysia	South Africa
Australia	Gabon	Mexico	South Korea
Austria	Georgia	Mongolia	Spain
Azerbaijan	Germany	Morocco	Sudan
Bangladesh	Ghana	Mozambique	Sweden
Belarus	Greece	Myanmar (Burma)	Switzerland
Belgium	Guyana	Namibia	Syria
Bolivia	Honduras	Nepal	Taiwan
Bosnia-Herzegovina	Hong Kong	Netherlands	Tajikistan
Botswana	Hungary	New Zealand	Tanzania
Brazil	India	Niger	Thailand
Brunei	Indonesia	Nigeria	Tunisia
Bulgaria	Iran	Norway	Turkey
Cambodia	Iraq	Oman	UAE
Cameroon	Ireland	Pakistan	United Kingdom
Canada	Israel	Panama	Uganda
Cayman Islands	Italy	Papua New Guinea	Ukraine
Chile	Japan	Paraguay	United States
Colombia	Jordan	Peru	Uruguay
Congo (DRC)	Kazakhstan	Philippines	Uzbekistan
d'Ivoire (Ivory Coast)	Kenya	Poland	Venezuela
Croatia	Kuwait	Portugal	Vietnam
Cyprus	Kyrgyzstan	Qatar	Yemen
Czech Republic	Laos	Romania	Zambia
Denmark	Latvia	Russia	Zimbabwe
Ecuador	Liberia	Rwanda	
Egypt	Lithuania	Saudi Arabia	

Appendix Table C. Classifications of FDI Sectors in the Estimation based on Industry Groups in fDi Intelligence (Financial Times) database.

	Tradables		Nontradables	Natural Resources
	Aerospace	Electronic Components	Business Services	Coal, Oil and Natural Gas
	Alternative/Renewable energy	Engines & Turbines	Communications	Ceramics & Glass
	Automotive Components	Food & Tobacco	Financial Services	Metals
	Automotive OEM	Industrial Machinery, Equipment & Tools	Healthcare	Plastics
	Beverages	Medical Devices	Hotels & Tourism	Rubber
	Biotechnology	Non-Automotive Transport OEM	Leisure & Entertainment	Minerals
	Building & Construction Materials	Paper, Printing & Packaging	Real Estate	Wood Products
	Business Machines & Equipment	Pharmaceuticals	Software & IT services	
	Chemicals	Semiconductors	Transportation	
	Consumer Electronics	Textiles	Warehousing & Storage	
	Consumer Products			