Capital Flight with Intra-firm Lending

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Intra-firm Lending

- What is intra-firm lending?
  - Internal capital structure of multinational firms
  - Short- or long-term borrowing and lending of funds between direct investors (parent enterprises) and affiliate enterprises
  - Part of FDI (FDI = Equity Components + Reinvested Earnings + Other short term and long term borrowings)

- Accounting for almost 30% of overall FDI flows in 2015 and 2016 in China's capital account

Intra-firm Lending

- What drives internal lending across borders?
  - Imperfect capital markets
    - 'Less external debt in countries with underdeveloped capital markets or weak creditor rights, reflecting significantly higher local borrowing costs'
  - Profit shifting
    - 'Ten percent higher local tax rates are associated with 2.8% higher debt/asset ratios, with internal borrowing being particularly sensitive to taxes'
- What drives China's net intra-firm-loan outflows?
  - there was USD 180 billion overall in net outflows due to internal lending by Chinese multinationals between 2015 and 2016.

This Paper

- exploits an exogenous policy change on the RMB exchange rate;
- provides evidence that the expectation of the RMB exchange rate has a significant impact on capital outflows through intra-firm loans;
- examines the heterogeneous effects of the offshore premium by different types of counterparty countries and by different types of firms; and
- provides evidence that suggests Chinese MNEs could use internal lending to bypass regulations and transfer capital out of China.

Related Literature

- Motivations for internal debt for MNEs.
  - Debt-shifting behavior: Altshuler & Grubert (2003); Buettner & Wamser (2013); Desai et al. (2004); Schindler et al. (2013)
  - Imperfect capital markets: Desai et al. (2004)
- Determinants of China's FDI
  - Chen & Tang (2014), Tian & Yu (2015), Chen et al. (2019), and Cheng and Kwan (2000)
- Regulation evasion in China
  - Trade misinvoicing: Fisman & Wei (2004), Fisman et al. (2008) and Kar & Freitas (2013)
  - Interest rate arbitrage: Hu & Yuan (2021)
  - Phantom FDI: Damgaard et al. (2024)

A Simple Conceptual Framework

The total expected profits (in RMB) for the firms are:

$$E(\Pi) = \underbrace{\pi_A + \mu_A y}_{\text{PnL in China}} + \underbrace{E(s)\pi_B - \mu_B y}_{\text{PnL in Country B}}$$
$$+ \underbrace{\frac{E(s)}{s} y(1 + r_B) - y(1 + r_A)}_{\text{Carry trade PnL}} - \underbrace{\alpha y^2}_{\text{Cost of Transfers}}$$

Optimal Internal Lending

The first-order condition:

$$(\mu_A - \mu_B) + \frac{E(s)}{s}(1 + r_B) - (1 + r_A) - 2\alpha y = 0$$

$$\Rightarrow y^* = \frac{1}{2\alpha}\left[\frac{E(s)}{s}(1 + r_B) - (1 + r_A) - (\mu_B - \mu_A)\right]$$

Hypothesis and Empirical Challenges

- We propose a new explanation for internal lending by Chinese multinational firms: to bypass China's capital controls.
- At least two challenges in testing this explanation empirically
  - measuring cross-border internal lending and exchange rate expectations
  - causally identifying what motivates MNEs to move their capital across borders

Data Description

- Main dataset: Cross-border transactions
  - transaction types
    - 107 categories under current accounts
    - 88 categories under capital accounts
  - A coastal province with a large economy
  - 2012 – 2016
  - Date, value, counterparty country, currency, firm identifier, firm industry type, bank identifier, etc
- Other data:
  - Onshore and offshore exchange rates for the Chinese yuan against the USD
  - US Dollar LIBOR and RMB SHIBOR

International Trade and Capital Flows

Inflow (Billion USD)						
Year	Overall	Export	Inward FDI	Intrafirm Loan	Tax Haven	Others
2012	255.8	175.04	4.76	0.77	0.57	0.20
		(68.44%)	(1.86%)	(0.30%)	(0.22%)	(0.08%)
2013	295.7	187.23	5.38	1.62	1.23	0.39
		(63.31%)	(1.82%)	(0.55%)	(0.42%)	(0.13%)
2014	313.0	195.84	3.06	4.49	4.01	0.47
		(62.56%)	(0.98%)	(1.43%)	(1.28%)	(0.15%)
2015	269.6	176.15	2.47	1.81	1.31	0.50
		(65.35%)	(0.92%)	(0.67%)	(0.49%)	(0.18%)
2016	257.9	178.18	1.71	1.96	1.61	0.35
		(69.09%)	(0.66%)	(0.76%)	(0.62%)	(0.14%)
Total	1391.9	912.43	17.37	10.65	8.73	1.91
		(65.55%)	(1.25%)	(0.77%)	(0.63%)	(0.14%)

Outflow (Billion USD)						
Year	Overall	Import	Outward FDI	Intrafirm Loan	Tax Haven	Others
2012	119.1	63.74	1.26	2.45	1.65	0.80
		(53.53%)	(1.06%)	(2.06%)	(1.39%)	(0.67%)
2013	133.5	60.58	1.05	1.65	0.97	0.68
		(45.36%)	(0.78%)	(1.24%)	(0.73%)	(0.51%)
2014	140.2	53.54	0.71	3.44	2.49	0.95
		(38.18%)	(0.50%)	(2.45%)	(1.78%)	(0.68%)
2015	128.2	46.49	3.45	4.42	3.59	0.82
		(36.28%)	(2.69%)	(3.45%)	(2.80%)	(0.64%)
2016	109.3	42.81	5.12	4.82	4.37	0.44
		(39.18%)	(4.68%)	(4.41%)	(4.00%)	(0.41%)
Total	630.3	267.15	11.58	16.77	13.08	3.69
		(42.39%)	(1.84%)	(2.66%)	(2.08%)	(0.58%)

RMB Internationalization

- Cross-border Settlements of Trades in RMB
- Capital Accounts
  - RMB convertibility; FDI; ODI; RMB QFII; RMB-denominated securities etc.
- Financial Infrastructure
  - PBC established RMB payment and info management systems, offshore RMB clearing houses, and swap lines with other central banks.
- IMF Special Drawing Rights basket
  - USD, Euro, GBP, JPY, & RMB

The Role of Hong Kong

- The main RMB offshore market
  - Interest rate differentials
  - CNH premium: CNH-CNY
    - The premium of the offshore RMB/USD exchange rate over the onshore rate, where RMB/USD represents USD per Chinese Yuan
  - RMB offshore premium: CNH premium/CNY
- Intermediates a large portion of China's trades
- The hub for foreign affiliates from China's multinationals

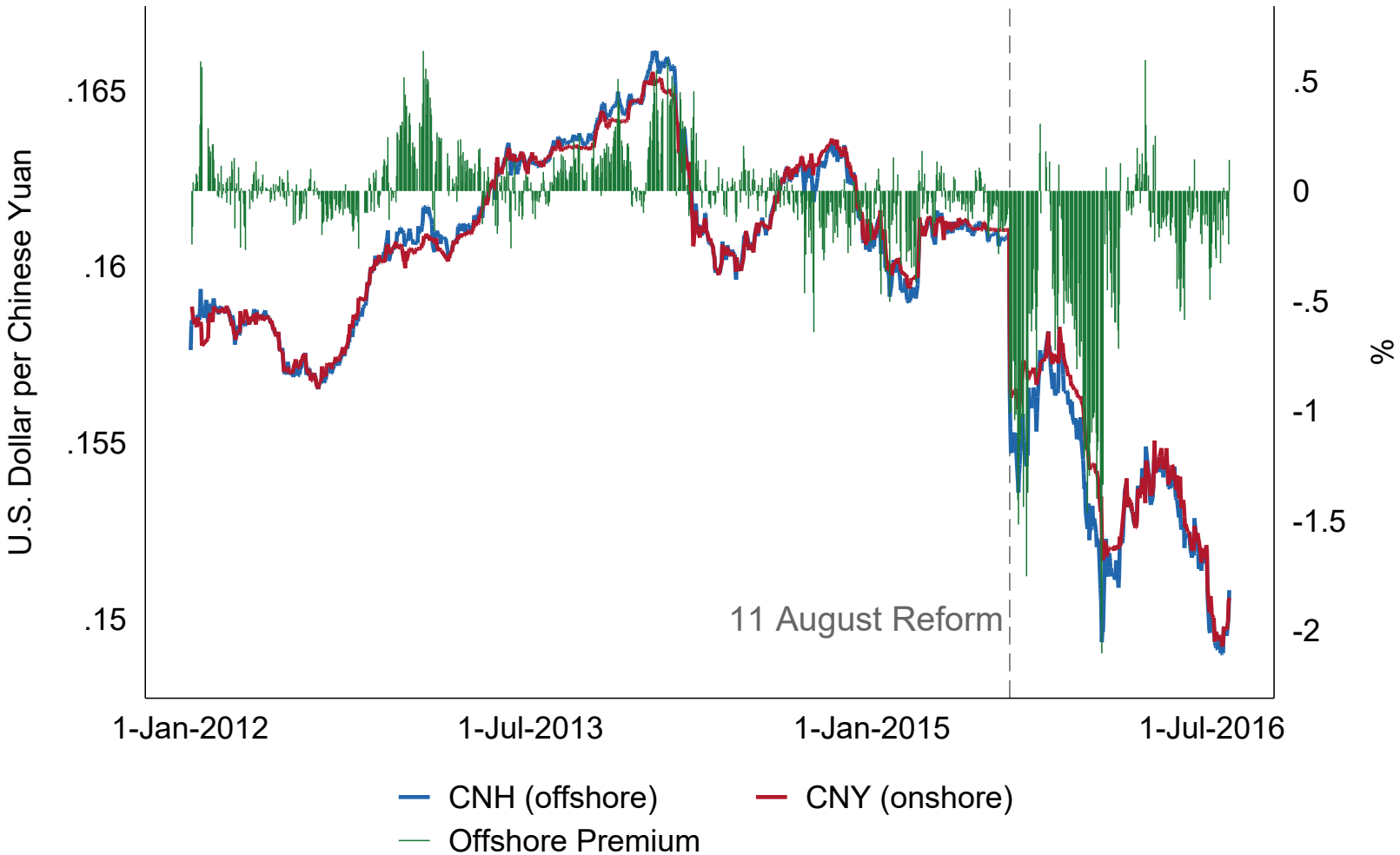
Identification Strategy

We define the offshore premium as:

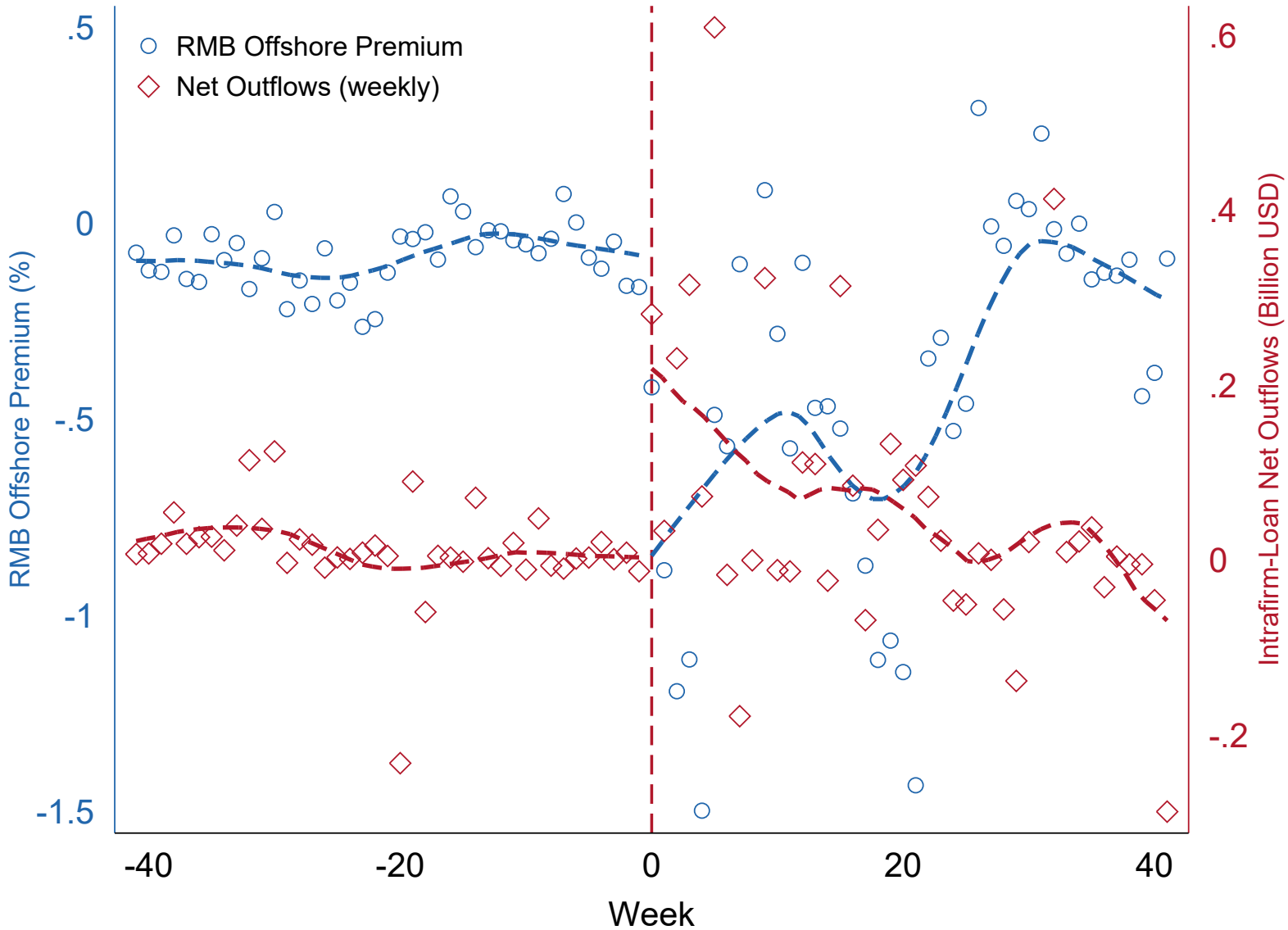
$$\text{premium} = \frac{S_{\text{off}} - S_{\text{on}}}{S_{\text{on}}}$$

where a negative value means that the offshore RMB is cheaper than the onshore RMB and a positive value means the opposite.

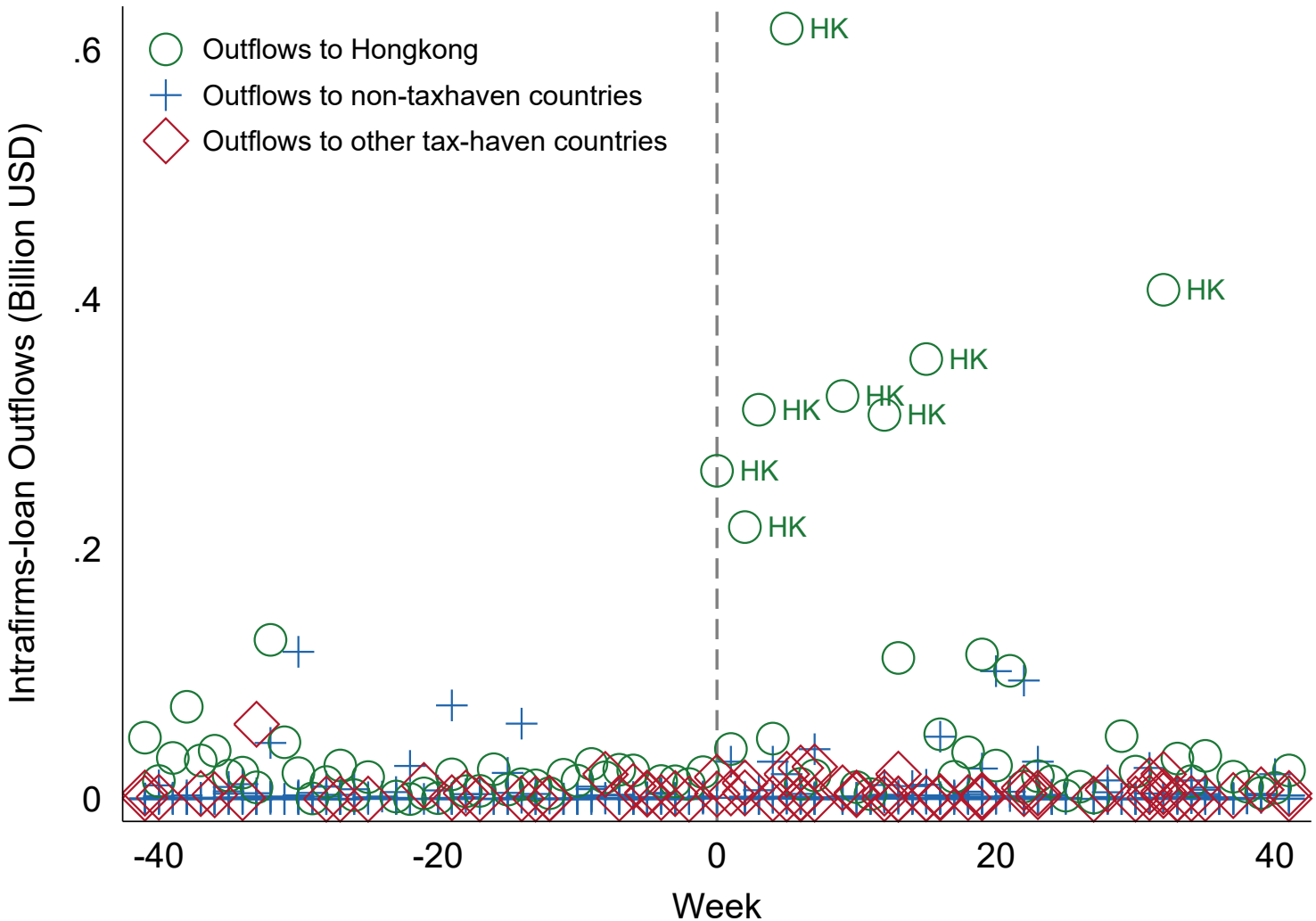
Onshore-offshore Exchange Rates of Chinese Yuan



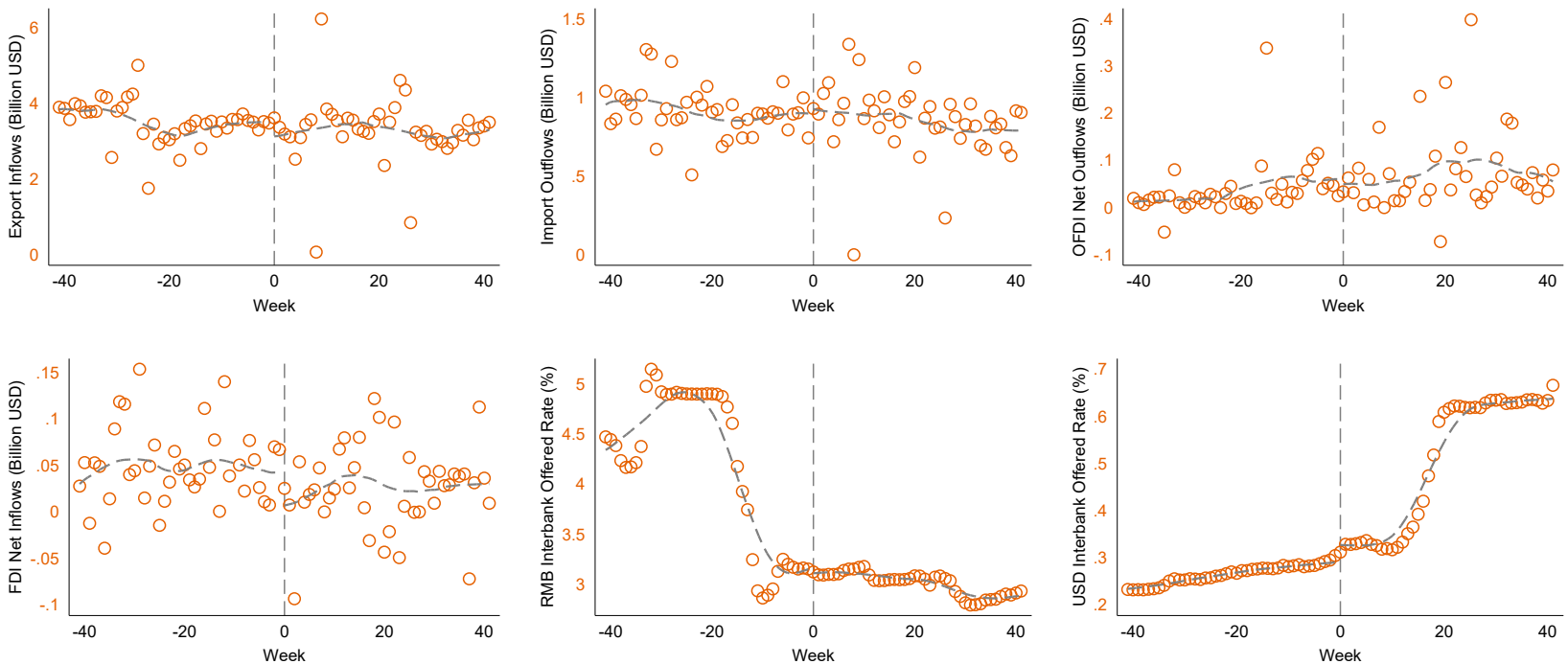
RMB Offshore Premium and Intra-firm Loan Net Outflows



Intra-firm Loan Outflows to Hong Kong



Tests of Continuity of Macroeconomic Variables



Empirical Specification

We consider the following specification using date as a running variable:

$$\ln(y_t) = \gamma \text{premium}_t + X_t'\beta + f(date_t) + \epsilon_t$$

In the first stage,

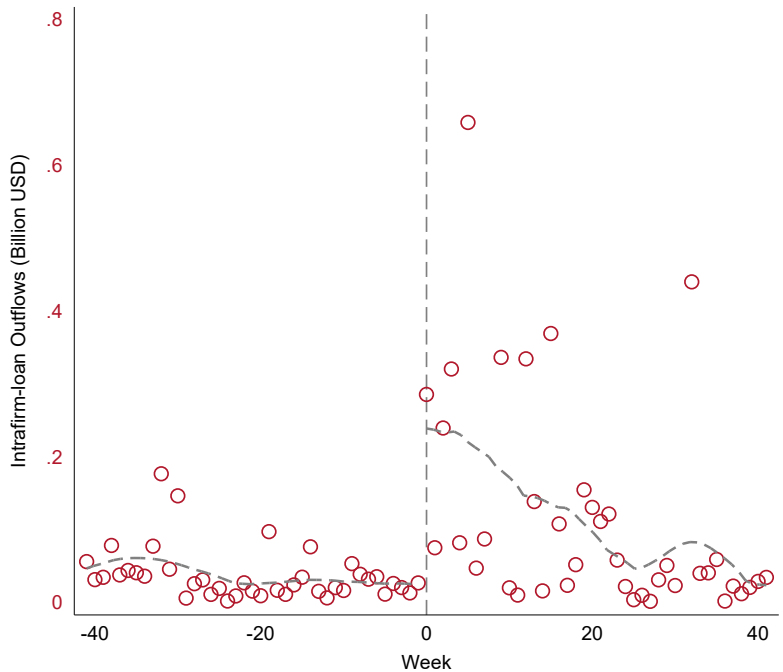
$$\text{premium}_t = \eta d_t + X_t'\varphi + g(date_t) + \varepsilon_t$$

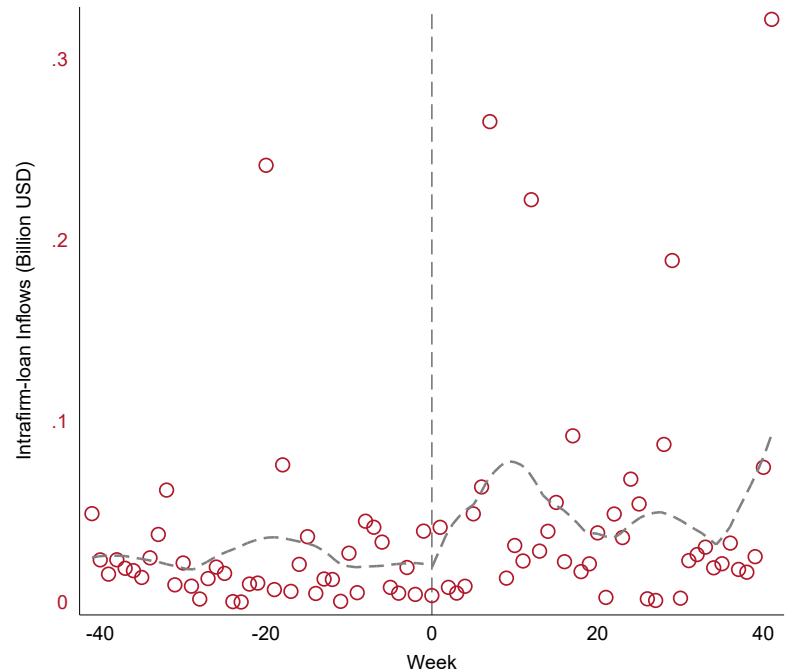
where the dependent variable is the log of intra-firm loan outflows relative to the corresponding inflows.

Exchange Rate Gap and Intra-firm Loan Transactions

Running Variable (Date)	Quadratic			Cubic		
	(1)	(2)	(3)	(4)	(5)	(6)
RMB Offshore Premium	-3.447***	-3.373***	-3.740***	-4.359**	-3.918**	-4.336***
	(0.964)	(0.941)	(0.829)	(2.039)	(1.688)	(1.466)
Daily Flow Controls	No	Yes	Yes	No	Yes	Yes
Interest-rate Controls	No	No	Yes	No	No	Yes
Number of Observations	269	269	269	269	269	269
F-stat. (First Stage)	88.55	98.19	207.97	25.68	38.37	104.05
RMB Offshore Premium	-1.837**	-1.862**	-1.886**	-3.454***	-3.418***	-2.943***
	(0.823)	(0.781)	(0.738)	(1.264)	(1.251)	(0.876)
Daily Flow Controls	No	Yes	Yes	No	Yes	Yes
Interest-rate Controls	No	No	Yes	No	No	Yes
Number of Observations	584	584	584	584	584	584
F-stat. (First Stage)	96.04	110.90	74.98	49.17	65.70	177.44

Intra-firm Loan Inflows and Outflows





Intra-firm Loan Outflows and Inflows

	Outflow		Inflow	
	(1)	(2)	(3)	(4)
RMB Offshore Premium	-2.906***	-2.721***	-1.020	0.222
	(0.723)	(0.787)	(0.743)	(0.616)
Running Variable	Quadratic	Cubic	Quadratic	Cubic
Daily Flow Controls	Yes	Yes	Yes	Yes
Interest-rate Controls	Yes	Yes	Yes	Yes
Number of Observations	584	584	584	584

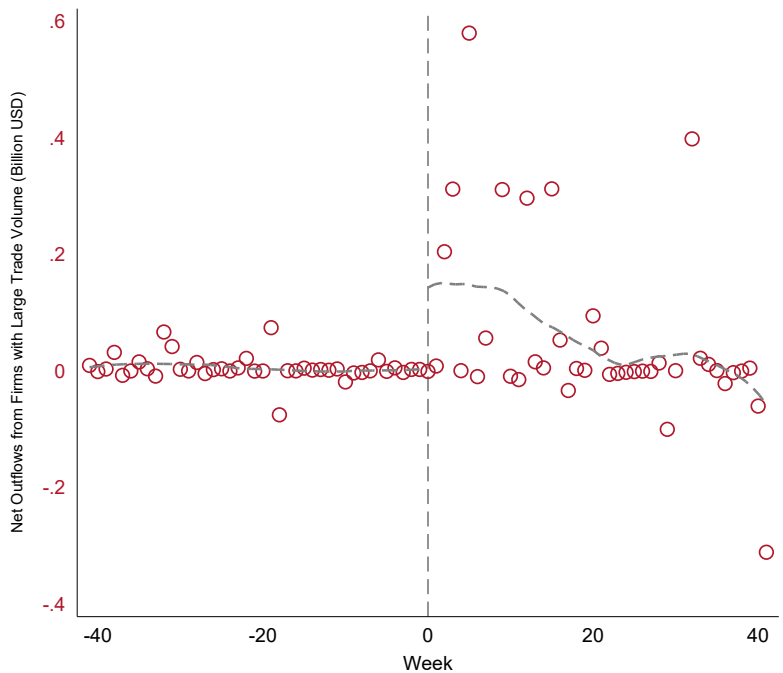
Capital Flight or Relocating Business

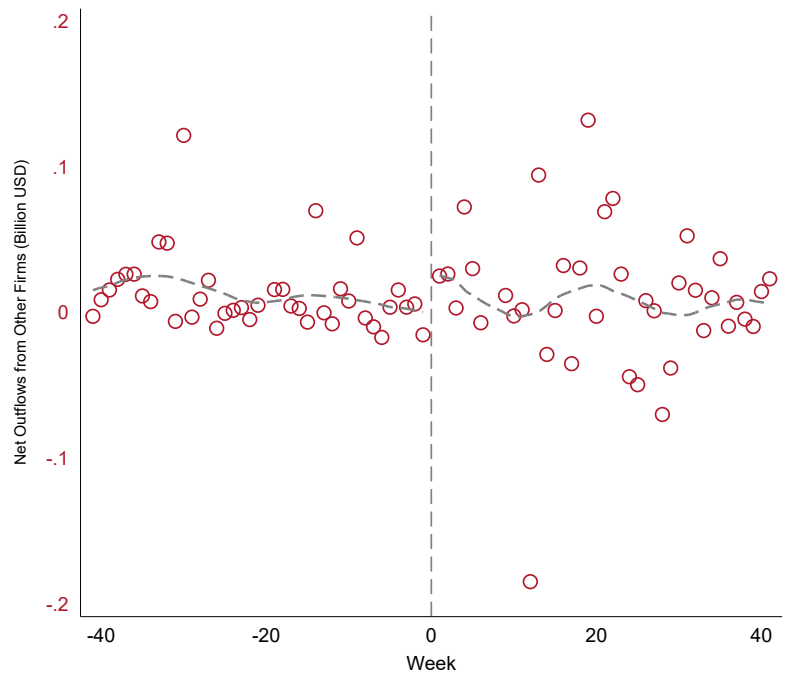
- Purpose of FDI
  - A relocation of value-adding activities
  - Vertical FDI to complement the existing production
  - Horizontal FDI to reallocate production internationally to substitute the current production
- Question: Can there be other reasons?

Results by Volume of International Trade

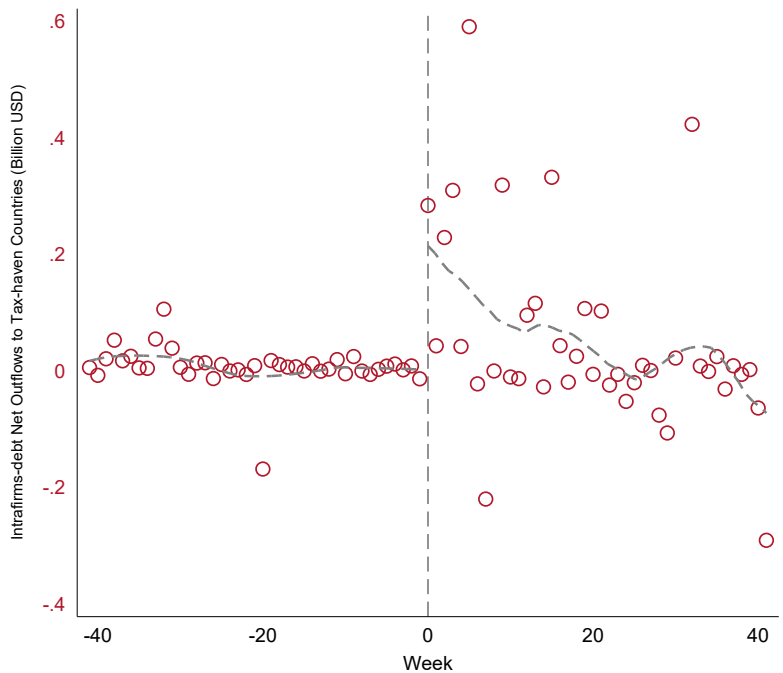
	By Export Volume (Above Median)		By Import Volume (Above Median)		By Export and Import Volume (Both Below Median)	
Dependent Variable	(1)	(2)	(3)	(4)	(5)	(6)
Intra-firm Loan Net Outflow	1.000	-0.777	0.131	-1.108	-3.715*	-5.216*
	(1.207)	(1.130)	(1.354)	(1.196)	(2.188)	(2.758)
Running Variable	Quadratic	Cubic	Quadratic	Cubic	Quadratic	Cubic
Daily Flow Controls	Yes	Yes	Yes	Yes	Yes	Yes
Interest-rate Controls	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	357	357	381	381	110	110
Intra-firm Loan Outflow	-0.204	0.458	-0.574	-0.326	-4.364***	-4.206**
	(0.629)	(0.585)	(0.476)	(0.558)	(1.495)	(1.871)
Running Variable	Quadratic	Cubic	Quadratic	Cubic	Quadratic	Cubic
Daily Flow Controls	Yes	Yes	Yes	Yes	Yes	Yes
Interest-rate Controls	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	689	689	669	669	348	348

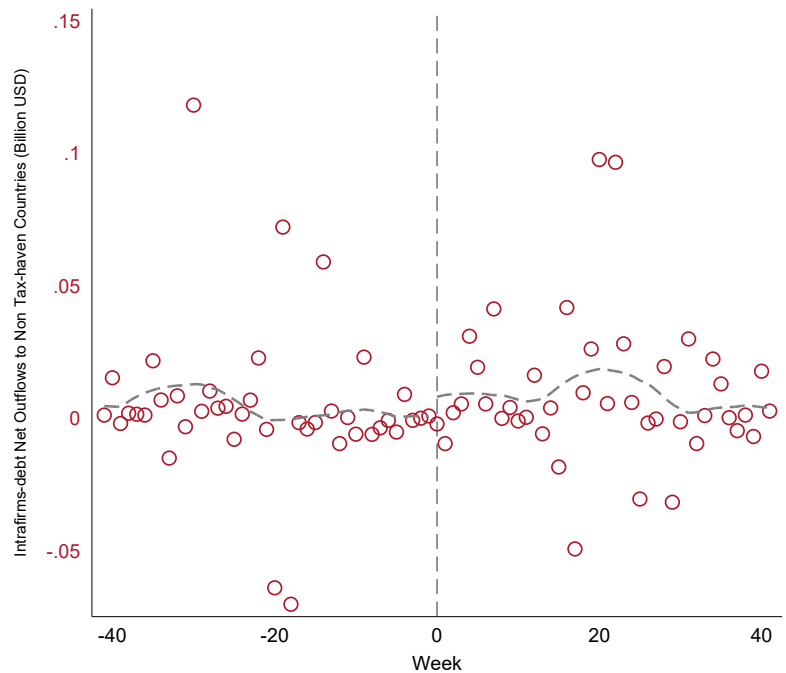
Intra-firm Loan Net Outflows by Firms' International-trade Volume





Intra-firm loan Net Outflows to Tax-haven and Non-tax-haven Jurisdictions





Tax-haven Regions and Non-tax-haven Jurisdictions

	Tax-haven Jurisdictions		Non-tax-haven Jurisdictions	
	(1)	(2)	(3)	(4)
RMB Offshore Premium	-2.775***	-3.582***	-0.876	-1.310
	(0.932)	(1.049)	(0.917)	(0.918)
Running Variable	Quadratic	Cubic	Quadratic	Cubic
Daily Flow Controls	Yes	Yes	Yes	Yes
Interest-rate Controls	Yes	Yes	Yes	Yes
Number of Observations	287	287	287	287

Concluding Remarks

- We exploit an exogenous policy change on the RMB exchange rate and provide evidence that the expectation of the RMB exchange rate has a significant impact on capital outflows through intra-firm loans.
- We find that the results are driven by the flows to tax havens and firms that are relatively less active in international trade.
- We provide the evidence for a new hypothesis that Chinese multinationals use intra-firm lending to facilitate capital flight under capital controls.