Pension Fund Flows, Exchange Rates, and Covered Interest Rate Parity

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A Quick Summary

- The paper studies the impact of uninformed flows on exchange rates

- Exploits a neat setting of the Chilean pension system
  - collectively own 175billion USD, 65% of Chilean GDP
  - invest in funds A-E (from equity to fixed income)
  - equity funds invest heavily in foreign (US) equity
  - fixed income funds invest domestically

- Chilean pension savers allocate capital across equity vs. fixed income funds following the advice of FyF
  - high frequency changes in allocation + mostly uninformed
  - fund flows induce trading in equity and bonds, but also trading in spot currencies (focus of this paper)

A Quick Summary

- Flow-induced trading affects equity and bond prices (well-known)

- Flow-induced trading also impacts foreign exchange rates
  - local banks provide liquidity by selling spot dollars
  - a modest demand elasticity: 0.49-0.83 (interesting)

- banks hedge negative spot exposure by buying dollar forward
  - propagates shocks from the spot to forward markets
  - forward price moves less than spot rate, cross-currency basis
  - banks' balance-sheet constraints create limits to arbitrage

- A well-written paper with a clean setting and rich results!

CIP Deviations

- Gross violation of covered interest parity (CIP) in recent years (BIS)
- Du, Tepper, and Vedelhan (DTV 2018) propose a simple explanation based on two institutional features
  - imbalances in investment demand and funding supply across currencies
    - for example, investors in low-interest-rate countries have a reach-for-yield motive
    - large demand for high-interest-rate currencies (e.g., JPY-USD)
    - buy dollar in the spot market, sell dollar in the forward market
    - dollar interest rate lower than the synthetic dollar rate (CIP violation)
  - banks face balance sheet constraints (the leverage ratio rule), so are unable to fully absorb the mispricing (a classic example of limits to arbitrage)

Relative to Existing Papers

- This paper exploits a unique setting to examine the relation between capital flows, exchange rates, and CIP violations

- Earlier studies: capital flows across countries hard to pin down
    - this paper: capital flows across currencies are observable at high frequency, in both directions
    - moreover, (uninformed) trading in spot currencies can be quantified (with some assumptions)
    - allows the authors to calculate the demand elasticity

1. Risk Premium or Monopolistic Power

- Chilean peso is a non-deliverable currency
  - ▸ in other words, only local banks can buy/sell spot pesos

- Local banks then offload the risk to foreign investors through the forward market (buy dollar forward)
  - ▸ the forward market is deeper, more liquid

- Does the CIP violation reflect a risk premium or monopolistic power?
  - ▸ a small number of Chilean banks dealing in the spot currency market
  - ▸ may "collude" to overcharge in the spot market (hard to prove tho!)

2. The Shadow Cost of Balance Sheet Constraints

- Local banks sell dollar in the spot market which gives them negative exposures to dollar

- They hedge negative exposures through buying dollar forward

- Local banks effectively put on a currency swap trade, creating pressure on their balance sheet size
    - an interesting trade-off between currency risk and balance-sheet constraints (forward contracts increase balance sheet size)
    - can perhaps quantify the shadow cost of balance-sheet constraints

2a. A Related Comment on Interpretation

- From the introduction: "Due to the banks' hedging activities, demand fluctuations in the spot market then propagate to the forward currency market, which results in deviations from covered interest rate parity (CIP)"

- Banks' hedging activity pushes up F relative to S, so alleviates the CIP violation
  - ▶ DTV: investors buy spot dollar short forward dollar, CIP violations
  - ▶ Chilean setting: banks' hedging pushes up F, so reduces CIP violations

- (Relatedly, why don't pension funds sell dollar forward to hedge?)

3a. Timing Inconsistency?

	A (1)	C (2)	E (3)
RecDay 1	-0.11 (0.10)	-0.05** (0.02)	0.29* (0.15)
RecDay 2	0.03 (0.05)	0.01 (0.02)	0.05 (0.09)
RecDay 3	0.10** (0.05)	0.00 (0.02)	-0.05 (0.10)
RecDay 4	3.58*** (0.29)	0.22*** (0.07)	-6.19*** (0.42)
RecDay 5	2.95*** (0.24)	0.18*** (0.05)	-5.36*** (0.37)
RecDay 6	1.54*** (0.18)	0.10*** (0.03)	-2.90*** (0.37)
RecDay 7	0.94*** (0.16)	0.07*** (0.02)	-1.73*** (0.32)
RecDay 8	0.43*** (0.12)	0.03 (0.02)	-0.89*** (0.26)
RecDay 9	0.20*** (0.07)	0.02 (0.02)	-0.47*** (0.19)
RecDay 10	0.12** (0.06)	0.01 (0.03)	-0.37*** (0.16)
Controls	no	no	no
Observations	2277	2277	2277
R-squared	0.631	0.041	0.597

Flows

VARIABLES	ΔFX (1)	ΔFX (2)
RecDay 1	0.45** (0.21)	0.49*** (0.18)
RecDay 2	0.54*** (0.17)	0.50*** (0.17)
RecDay 3	-0.29 (0.17)	-0.28 (0.17)
RecDay 4	0.09 (0.18)	0.07 (0.16)
RecDay 5	0.06 (0.19)	0.17 (0.18)
Sample	All	All
Macro Controls	no	yes
Lagged DV	no	yes
Observations	2277	2181
R-squared	0.020	0.145

Spot Exchange Rate

VARIABLES	$\Delta CCB1m$ (1)	$\Delta CCB1m$ (2)
RecDay 1	-0.05 (0.09)	-0.07 (0.08)
RecDay 2	0.04 (0.06)	-0.02 (0.06)
RecDay 3	-0.03 (0.07)	-0.04 (0.08)
RecDay 4	-0.18** (0.08)	-0.18** (0.09)
RecDay 5	-0.12** (0.06)	-0.14** (0.06)
Sample	F 1m available	F 1m available
Controls	No	Yes
Observations	2041	2041
R-squared	0.056	0.131

CCB

3b. Persistent CIP deviations?
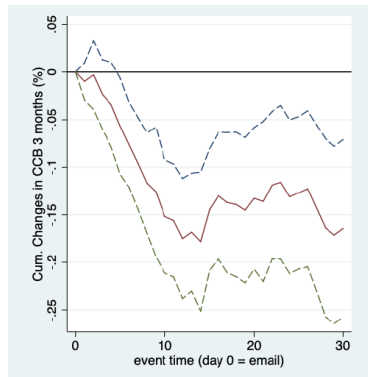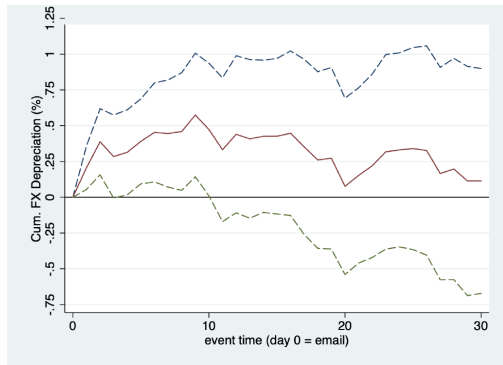
4. Other Comments

- More on the balance sheet constraints of banks
  - currently, capital slack at the banking sector level
  - is this a right measure for balance sheet constraints?
  - any cross-bank variation?
  - different local banks may engage in currency trading differently
  - may also have different maturity preferences (1m, 3m, 6m forward)

- Incentives of the financial advisor
  - a black-box so far, seems to add zero value
  - perhaps talk to FyF to get a sense of what they are doing?

Conclusions

- Interesting and important findings!
  - ▸ uninformed demand shocks affect foreign exchange rates

- Thoughts and comments
  - ▸ whether this is risk compensation or monopolistic power
  - ▸ quantify the shadow cost of balance sheet constraints
  - ▸ more measures of the balance-sheet constraint of banks