

Discussion on  
Uncovering CIP Deviations in Emerging Markets:  
Distinctions, Determinants and Disconnect  
by Eugenio Cerutti and Haonan Zhou

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# Motivation

1. Covered interest rate parity (CIP) no longer holds post-GFC.  
(Ivashina et al. 2015; Du et al. 2018, 2021; Avdjiev et al. 2019; Cenedese et al. 2021; Cerutti et al. 2021 among others)
2. CIP deviation in emerging market (EM) currencies has important implications.  
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## Challenges:

- ▶ Capital controls and macroprudential regulations
- ▶ Central bank interventions
- ▶ Credit risk

## Research Question:

What are the empirical characteristics of CIP deviations in EM?

### ▶ Data:

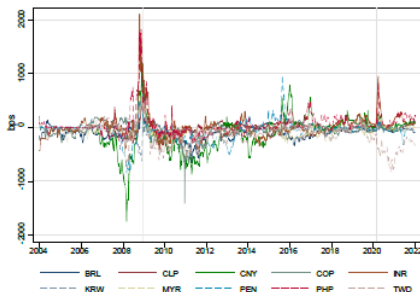
- ▶ Spot exchange rates, forward exchange rates (onshore and offshore), and interest rates
- ▶ EM currencies over 2002-2021
- ▶ Focus on short-term CIP deviations

### ▶ Research Design:

1. Examine time-series and cross-sectional variations in the EM CIP deviations
2. Examine how EM CIP deviations are related to “global factors,” including intermediary leverage ratio, interest rate differentials, FX market liquidity

# Main Findings

1. EM offshore CIP deviations are larger and more volatile than in advanced economies (AE).



2. EM offshore CIP deviations are more sensitive to intermediary leverage ratio than EM onshore CIP deviations.

## **Mechanism: Which assets do each type of investors have access to?**

- ▶ Due to the limited access of onshore investors to offshore forwards, the hedging demand mechanism may not be directly applicable to segmented markets.
  - ▶ Hedging demand mechanism (Liao and Zhang 2020):  
Onshore investors are net USD debtors and therefore buy USD forwards for hedging. Intermediaries sell USD forwards at higher prices when they are constrained.
  - ▶ Alternative mechanism:  
Offshore investors *speculate* on a higher USD during the stress period.
- ▶ **Suggestion:**  
Explore institutional details of market access.

### **Mechanism: Who are the intermediaries?**

- ▶ Depending on the type of intermediary, intermediary leverage can represent completely opposite states of the economy.
  - ▶ He et al. (2017) find that bank leverage is counter-cyclical.
  - ▶ Adrian et al. (2014) find that dealer (and hedge fund) leverage is pro-cyclical.
  
- ▶ **Suggestion:**  
Look for data on investor holdings or transactions by investor type.

## Questions and Suggestions (3)

### **Mechanism:**

**The link between the intermediary leverage and CIP deviation is not obvious.**

- ▶ Intermediaries in He et al. (2017) face a leverage constraint, and the model suggests that the intermediary leverage factor explains the variation in *expected returns*.
- ▶ EM intermediaries face many regulations, and the leverage constraint in fact may never bind.
- ▶ The specific form of constraint can yield a non-monotonic relationship between the performance of intermediaries and the CIP deviation.
- ▶ **Suggestion:**  
Develop testable hypotheses based on a robust model for enhanced analyses.



# Sketch of Model: Jung and Jung (2023)

Jung and Jung (2023): Deviations from the Law of One Price across Economies

- ▶ Global bank with two branches holds the following assets:

EM Branch (e)		US Branch (0)	
Assets:	Liabilities:	Assets:	Liabilities:
USD Asset ( $\theta^{\$}$ )	$\eta^{e\$} (< 0)$	USD Asset ( $\theta^{0\$}$ )	$\eta^{0\$} (< 0)$
EM Asset ( $\theta^{e\text{¥}}$ )			
	Capital in EM		Capital in US
	$= \theta^{e\$} + \theta^{e\text{¥}} + \eta^{e\$}$		
Onshore forward ( $\theta^{ef}$ )		Offshore forward ( $\theta^{0f}$ )	

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- ▶ Global bank solves portfolio allocation problem subject to FX position limit constraint:

The ratio of net USD position to capital **in EM** should not exceed  $1/\pi$ .

$$\frac{|\theta^{e\$} + \theta^{ef} + \eta^{e\$u}|}{\theta^{e\$} + \theta^{e\cancel{\$}} + \eta^{e\$u}} \leq \frac{1}{\pi} \quad (\text{e.g.} = 20\%)$$

## Model Implications: Jung and Jung (2023)

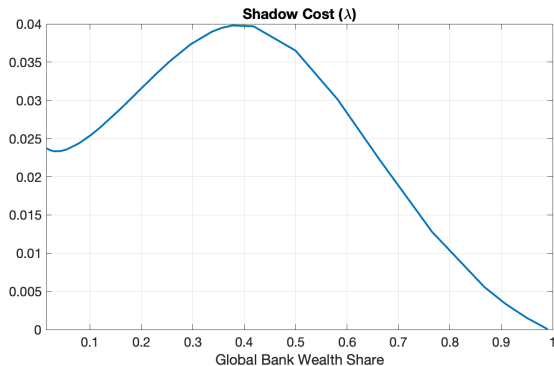
- ▶ First order conditions of global bank's problem determine the asset prices and the basis.
- ▶ If the global bank holds net positive USD position:

$$\begin{aligned}\mu^{e\$i} - r &= \beta^{e\$i} - \lambda(1 - \pi) \\ \mu^{e\text{¥}i} - r &= \beta^{e\text{¥}i} - \lambda \\ \mu^{ef} - \mu^{0f} &= \lambda\pi\end{aligned}$$

where  $\lambda$  is the shadow cost of the constraint.

## Model Implications: Jung and Jung (2023)

The shadow cost of the constraint, and thus the basis, can be non-monotonic with respect to the relative performance of intermediaries:



## Other Questions and Suggestions (1)

- ▶ Why are EM CIP deviations larger and more volatile than in AEs?
- ▶ **Suggestions:**
  1. It would be useful to decompose variance into credit risk, local regulations, and other factors.
  2. Consider using the “box CIP spread” from Diamond and Van Tassel (2023), which is free of the convenience yield of safe assets.

## Other Questions and Suggestions (2)

### ► Other considerations:

1. Some central banks actively intervene not only in the spot market but also in the forward market.
2. Some economies have additional local regulations that directly affect the onshore and offshore forward prices:

#### 1. Measures to Limit Thai Baht Liquidity

General rule : Domestic Financial Institutions are limited to provide Thai Baht Liquidity to Nonresident in the case of transaction undertaken without underlyings , the total outstanding balance executed by each financial institution shall not exceed 200 million Baht per group of Nonresident

#### 2. Measures to Curb Capital Inflows

General rule : Domestic Financial Institutions are limited to borrow Thai borrowing or undertake transactions comparable to Thai Baht borrowing from NRs in the case of transaction undertaken without underlyings , the total outstanding balance executed by each financial institution shall not exceed 10 million Baht per group of Nonresident

#### 3. Measures on NRBA account and NRBS account

General rule : NRBA account and NRBS account are subject to the end-of-day outstanding limit of 200 million Baht per NR, for each type of account. The end-of-day outstanding limit for each type of account includes balances across all NRBA or NRBS accounts opened with domestic financial institutions. In addition, the financial Institutions shall refrain from paying interests to each account except for the fixed NRBA account with maturities of 6 months or over.