Breakdown of CIP: Mystery or myth?
by A.Wong & J. Zhang

Discussant: Dagfinn Rime

BI Norwegian Business School
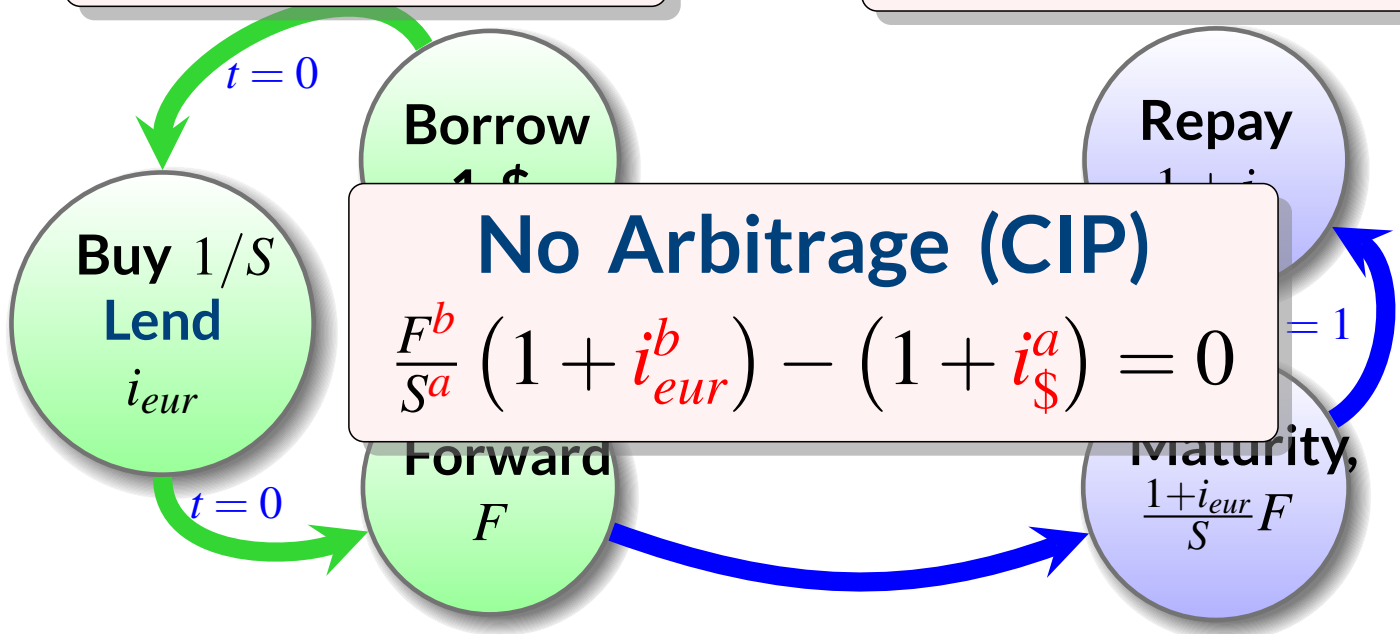
ECB/Fed-GRF

BI

Overiew

- Apparently deviations from CIP!

  Du, Tepper, and Verdelhan (2018)

- Very important topic
  Arbitrage suggest malfunctioning markets

- Nice paper studying long dated relations
  - ▶ Lots of details on Cross-currency Basis Swaps
  - ▶ Conceptually similar to FX swaps

- Decompose deviations into …
  - ▶ **credit risk premium**
  - ▶ **liquidity premium**

Arbitrage is a powerful mechanism

arbitrage im

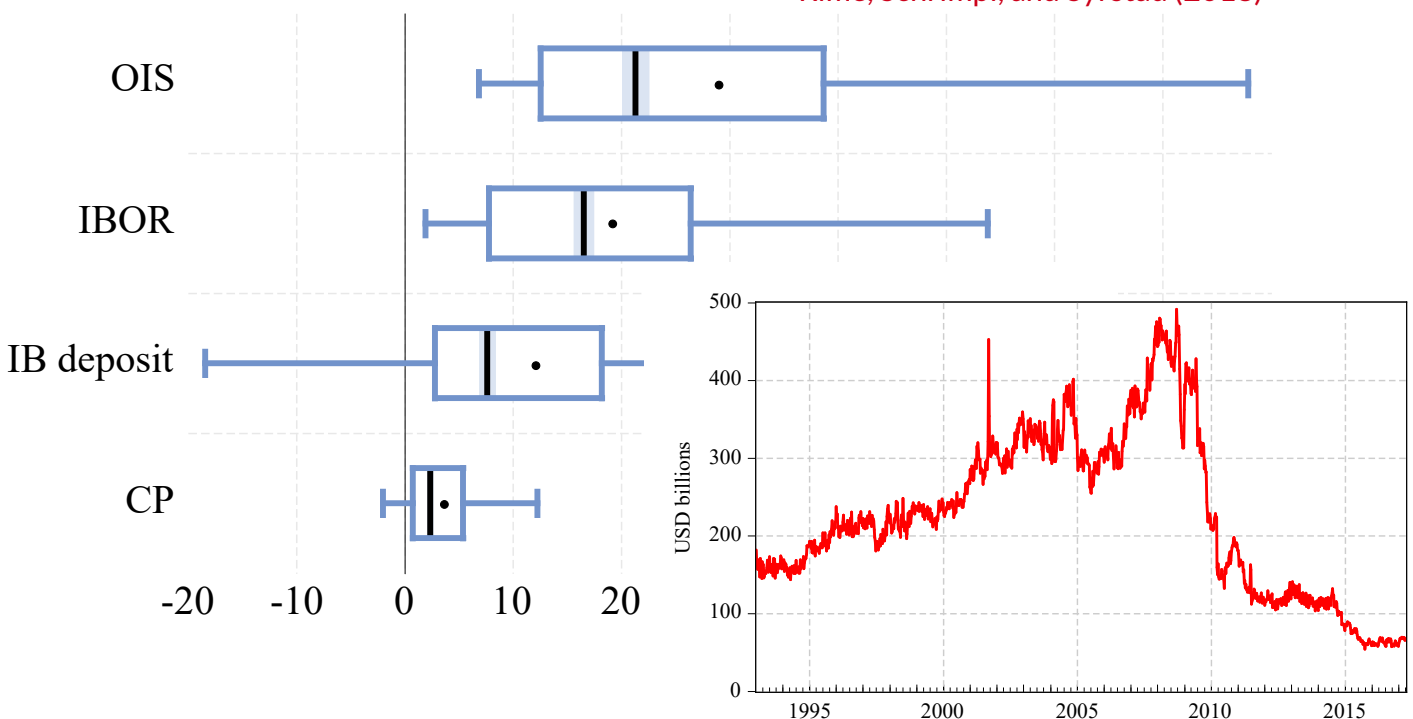**Lending leg must be Risk-free i_{eur}^b !**

What is Marginal borrowing cost $i_\$^a$?

$t = 0$

Borrow 1 \$

Repay

Buy $1/S$ Lend i_{eur}

No Arbitrage (CIP)

$$\frac{F^b}{S^a}\left(1 + i_{eur}^b\right) - \left(1 + i_\$^a\right) = 0$$

$= 1$

Forward F

Maturity, $\frac{1 + i_{eur}}{S} F$

$t = 0$

Importance of different interest rates

LOOP-deviation. Average across EUR, GBP, JPY.   (2013-2017q2)

Rime, Schrimpf, and Syrstad (2018)
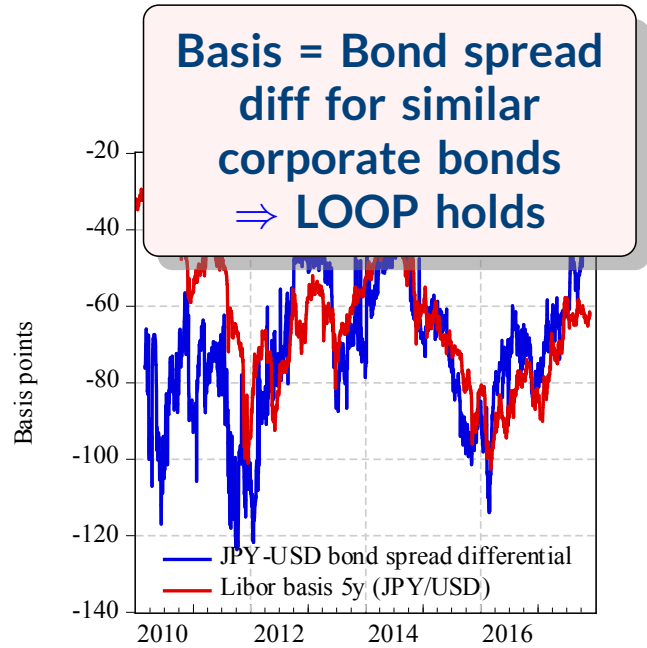

NORWEGIAN BUSINESS SCHOOL

LOOP using Corporate bonds

Syrstad (2018): "CIP in bond markets"

Basis = Bond spread diff for similar corporate bonds ⇒ LOOP holds

(a) EU

(b) JP

NORWEGIAN
BUSINESS SCHOOL
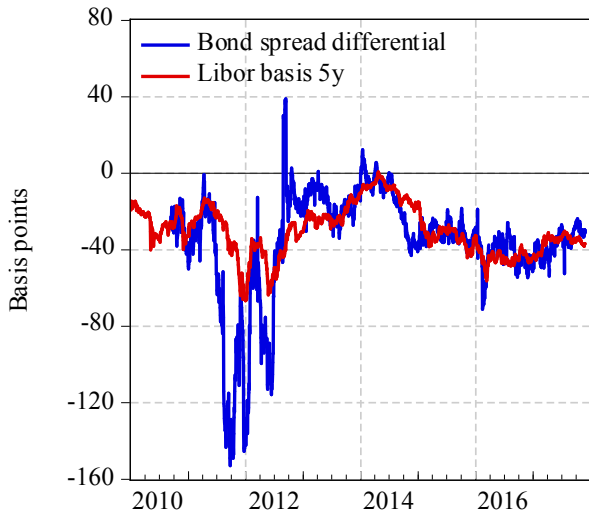
Regression analysis

$$c_1 + c_3 = 1$$

$$c_2 + c_4 = -1$$

$$\Delta FP_{\$\yen} = c_0 + c_1 \Delta OIS_{\yen} + c_2 \Delta OIS_{\$}$$
$$+ c_3 \Delta IBOR_{\yen} + c_4 \Delta IBOR_{\$}$$
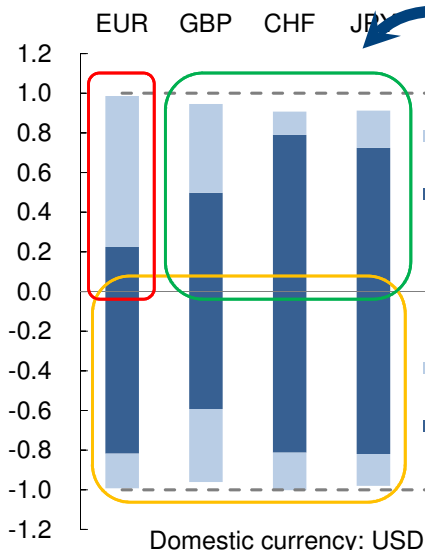
What does e.g. 0.98 mean? 2% deviation?

Arb: Each case important. Average not sufficient

NORWEGIAN
BUSINESS SCHOOL

Role of credit risk?

In LOOP-comparison

- Compare rates for same type of instrument/riskiness   (instrument i)

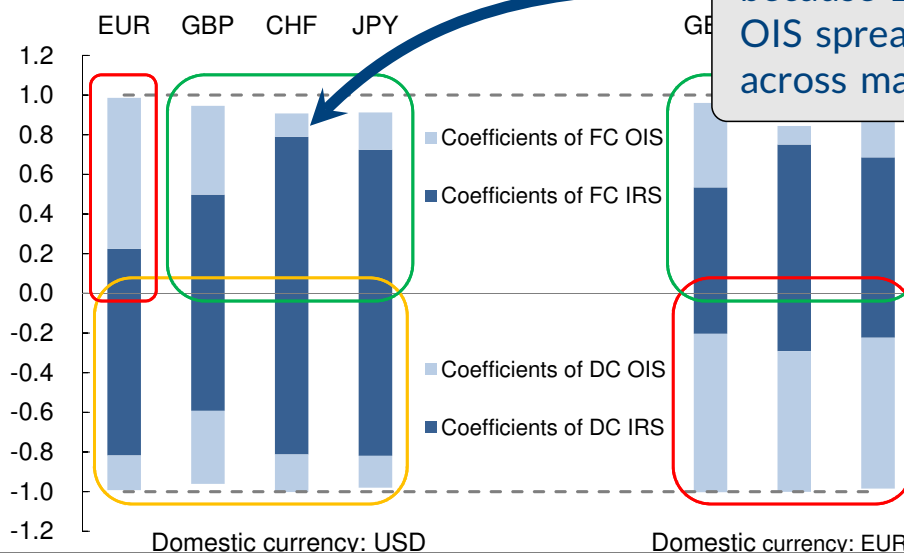$$\frac{F}{S} = \frac{1 + r_{\$}^{f} + \widetilde{cr}_{i,\$} + \widetilde{lp}_{\$}}{1 + r_{\star}^{f} + \widetilde{cr}_{i,\star} + \widetilde{lp}_{\star}}$$

"Normal" times (before GFC):

$$\left. \begin{array}{c} \widetilde{lp}_{\$} = \widetilde{lp}_{\star} \\ \widetilde{cr}_{i,\$} = \widetilde{cr}_{i,\star} \end{array} \right\} \Rightarrow LOOP \text{ holds}$$

Estimates: What do we learn?

$$LIBOR_{¥} = OIS_{¥}$$
$$+ \underbrace{\beta \left(LIBOR_{¥} - OIS_{¥}\right)}_{cr_{¥}} + (1 - \beta)\left(LIB\ldots\right)$$

> Shares are "equal"
> $\Rightarrow$ Non-zero basis because LIBOR-OIS spread differ across markets?!

Chart legend:
- Coefficients of FC OIS
- Coefficients of FC IRS
- Coefficients of DC OIS
- Coefficients of DC IRS

Categories: EUR, GBP, CHF, JPY ... GB...

Domestic currency: USD   Domestic currency: EUR

Can it be credit risk?

- Du et al (2018): Deviation using government bonds

   BUT: Arbitrageurs can't fund at gov.bond rates!
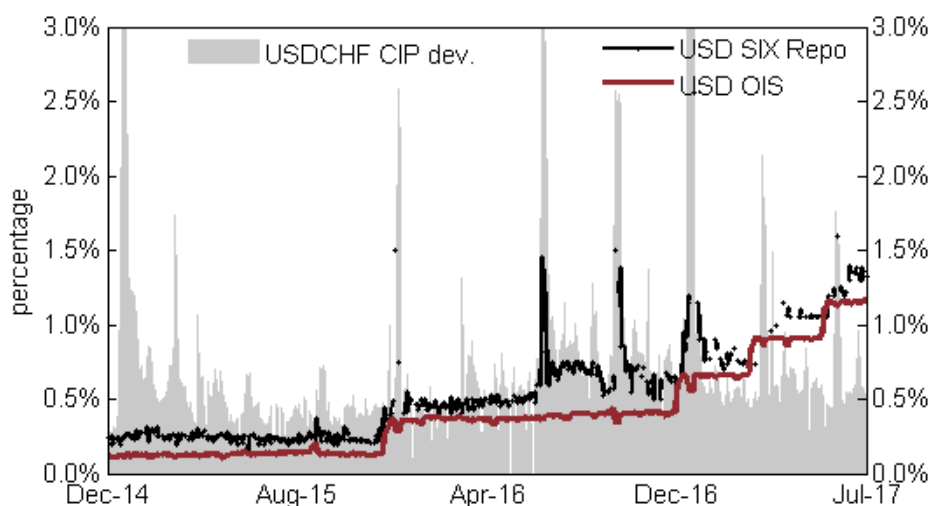
- LOOP holds for Interbank deposits

Suggest something else than Counterparty Risk

Liquidity premium

Kohler & Müller (2018): "CIP, relative funding liq., and cross-currency repos"

Repos that accept foreign paper as collateral
Shadow cost of using collateral equal in both currencies

Summary

- Very interesting paper on a hot topic

- Clarify economic interpretation of regression results

- What does the magnitudes imply?

- Do constrained panel regressions:
  Get consistent USD-premiums across currencies

- Triangular relation: Do Risk-shares add up?

NORWEGIAN
BUSINESS SCHOOL

Thank you!

home.bi.no/dagfinn.rime

dagfinn.rime@bi.no

References I

Wenxin Du, Alexander Tepper, and Adrien Verdelhan. Deviations from covered interest rate parity. *Journal of Finance*, 73(3):915–957, 2018.

Daniel Kohler and Benjamin Müller. Covered interest rate parity, relative funding liquidity and cross-currency repos. typescript, Swiss National Bank, 2018. URL `https://www.snb.ch/n/mmr/reference/sem_2018_09_21_mueller/source/sem_2018_09_21_mueller.n.pdf`.

Dagfinn Rime, Andreas Schrimpf, and Olav Syrstad. Covered interest parity arbitrage. Working Paper 15, Norges Bank, 2018.

Olav Syrstad. Covered interest rate parity in bond markets. typescript, Norges Bank, 2018.

NORWEGIAN
BUSINESS SCHOOL