BANK FOR INTERNATIONAL SETTLEMENTS

Session Discussion
Currencies and International Asset Prices

Fan Dora Xia
Bank for International Settlements

ABFER
Singapore, 2019 May 28

The views expressed in this presentation are my own and do not necessarily reflect those of the BIS.

Outline

- CIP deviation
  - what
  - why
- Relation with other asset pricing
  - FX hedging
  - local currency credit spreads
  - shadow cost of balance sheet

CIP deviation

Covered interest rate parity

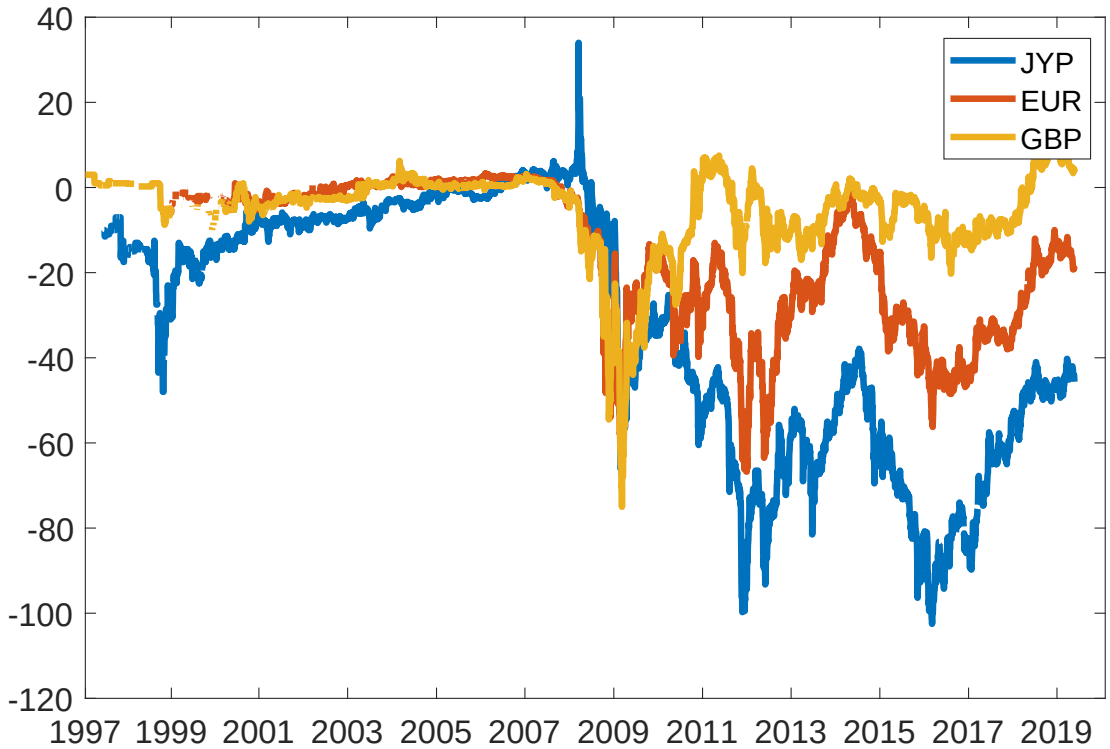
$$e^{ny^{\$}_{t,t+n}} = e^{ny_{t,t+n}} \frac{S_t}{F_{t,t+n}}$$

- $y^{\$}_{t,t+n}/y_{t,t+n}$: n-period risk-free rate in US/foreign country
- S_t: spot exchange rate in unit of foreign currency per dollar
- $F_{t,t+n}$: n-period forward rate in unit of foreign currency per dollar

Cross-currency basis

$$x_{t,n} = y^{\$}_{t,t+n} - (y_{t,t+n} - \underbrace{\log \frac{F_{t,t+n}}{S_t}}_{\text{forward premium } \rho_{t,t+n}})$$

Figure: 5y cross-currency basis



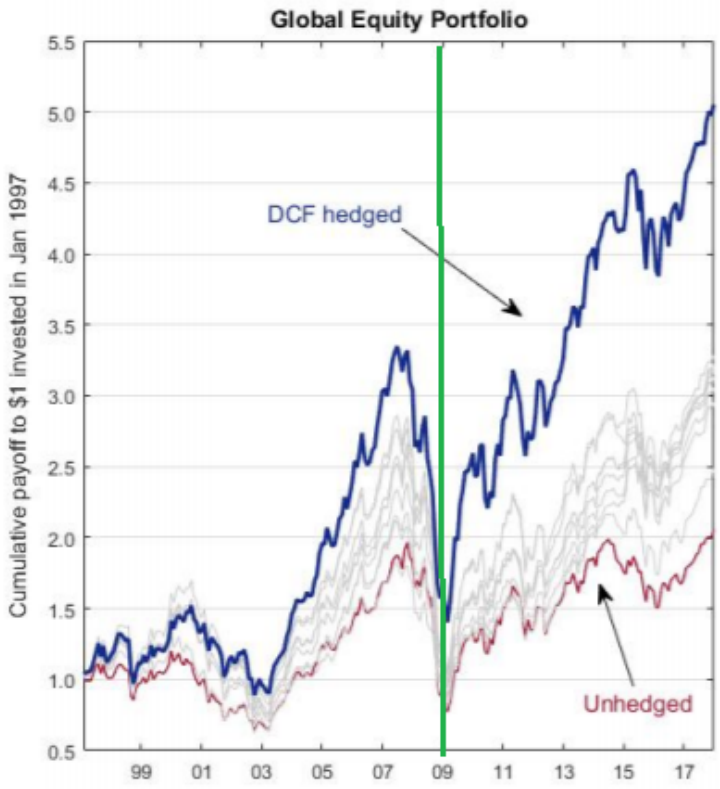
Possible factors underlying the deviation

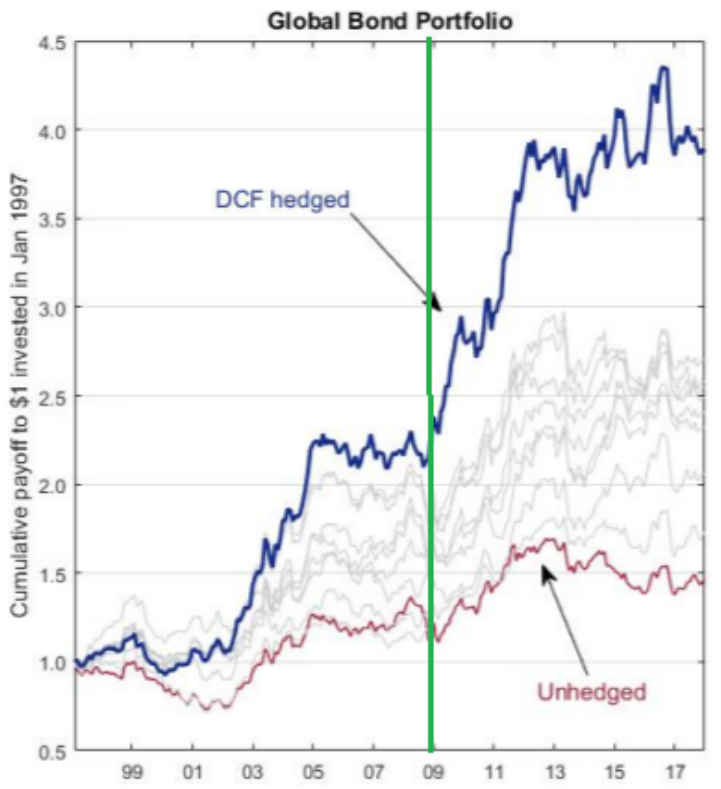
- Du et. al. (2017), Borio et. al. (2018), Avdjiev et. al. (2018), etc.
- increase in FX hedging demand
  - banks and institutional investors: swap out of home currencies to fund long-term US dollar assets
  - corporates: swap out of cheap foreign currency funding
- limits to arbitrage
  - regulation: cost of balance sheet
  - dollar: risk-taking capacity

FX hedging

$$
\begin{aligned}
\mathbb{E}_t(R_{i,t+1}) &= \frac{\mathbb{E}_t(S_{i,t+1}) - F_{i,t}}{S_{i,t}} \\
&= \underbrace{\left(\frac{\mathbb{E}_t(S_{i,t+1})}{S_{t-1}} - \frac{1+r_{\$,t}}{1+r_{i,t}}\right)}_{\text{UIP deviation}} - \underbrace{\left(\frac{F_{i,t}}{S_{t-1}} - \frac{1+r_{\$,t}}{1+r_{i,t}}\right)}_{\text{CIP deviation}} \\
&= \beta'_{i,t} \begin{bmatrix} \text{carry}_t \\ \text{dollar}_t \end{bmatrix} = g_{i,t}(X_t)
\end{aligned}
$$

- focus on the first term?





- Related question: why does Out-performance seem to manifest after GFC?

Local currency credit spread

$$\begin{aligned} \text{LCCS}_{i,n,t} &\equiv y^{\text{LC}}_{t,t+n} - y^{*LC}_{t,t+n} \\ &= y^{LC}_{t,t+n} - (y^{\$}_{t,t+n} + \rho_{i,t,t+n}) \\ &= -x_{i,t,n} \end{aligned}$$

- $y^{\text{LC}}_{t,t+n}$: local currency n-period sovereign yield
- $y^{*\text{LC}}_{t,t+n}$: synthetic risk-free local currency n-period yield

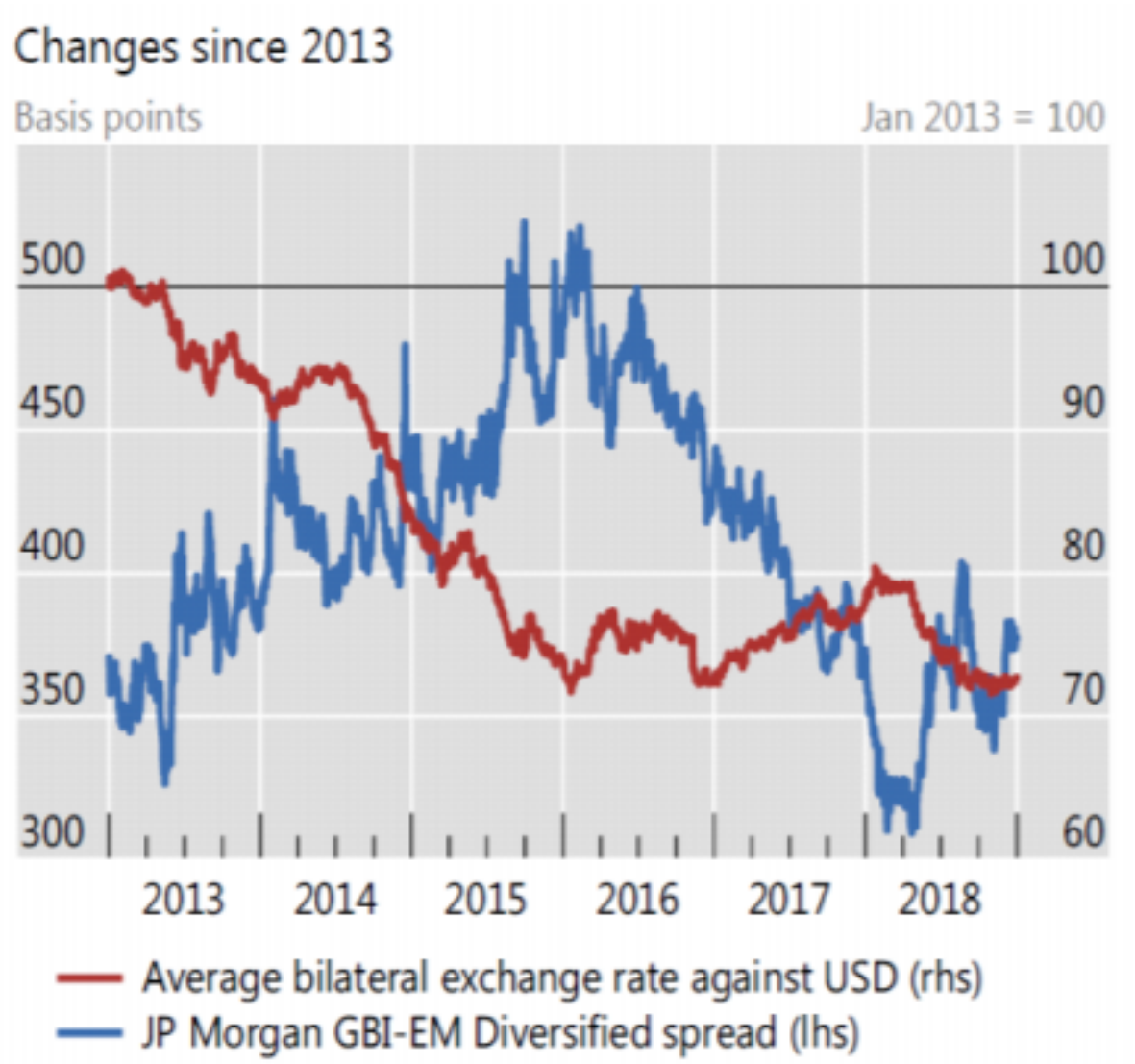
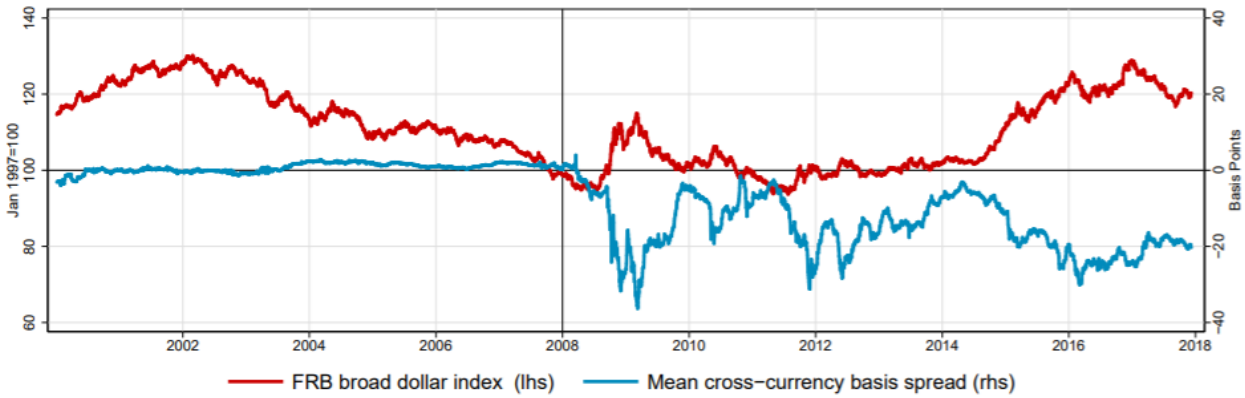

Changes since 2013
Basis points
Jan 2013 = 100
500
450
400
350
300
100
90
80
70
60
2013
2014
2015
2016
2017
2018
Average bilateral exchange rate against USD (rhs)
JP Morgan GBI-EM Diversified spread (lhs)

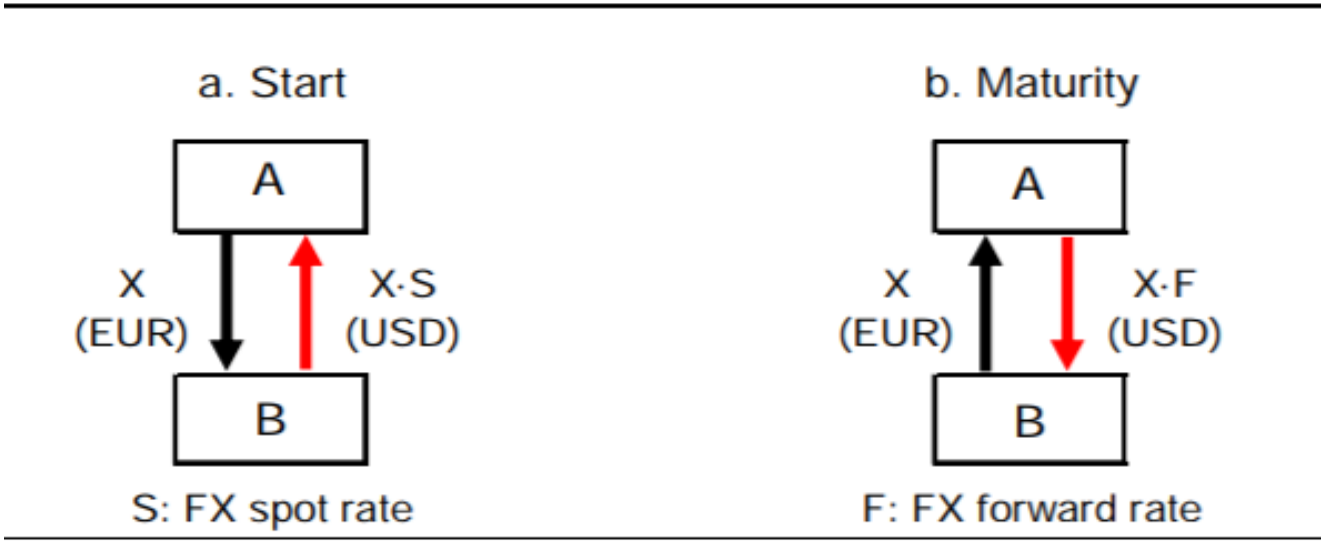
Figure 1: U.S. dollar broad index and the cross-currency basis (2000-2017)

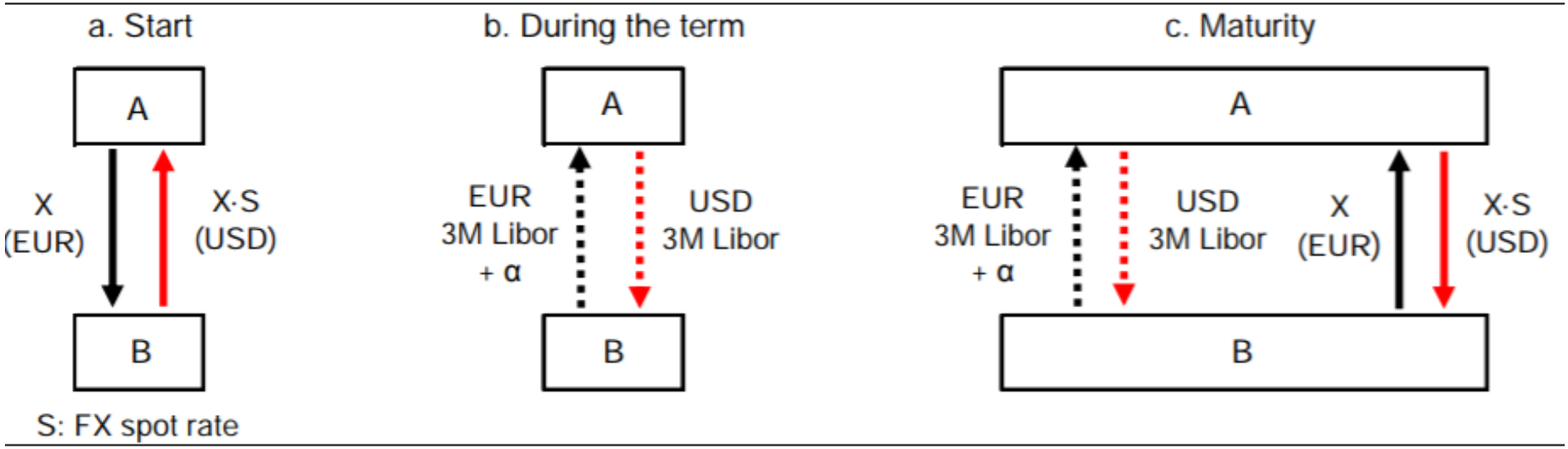


- EMEs: Appreciation of dollar $\Rightarrow$ larger spread
- G10: Appreication of dollar $\Rightarrow$ more negative cross-currency basis
- EMEs vs G10: similarity and difference?
- "original sin redux" or "new dollar sin"?

shadow price of balance sheet

- Anomalies in swap markets (and other markets) may also relate to balance sheet constrain.
- Joint analysis may better pin down shadow price of balance sheet?


a. Start
A
X
(EUR)
X·S
(USD)
B
S: FX spot rate
b. Maturity
A
X
(EUR)
X·F
(USD)
B
F: FX forward rate


a. Start
A
X
(EUR)
X·S
(USD)
B
b. During the term
A
EUR
3M Libor
+ α
USD
3M Libor
B
c. Maturity
A
EUR
3M Libor
+ α
USD
3M Libor
X
(EUR)
X·S
(USD)
B
S: FX spot rate