

A Dataset for Covered Interest Rate Parity Deviations Between Government Bond Yields

Wenxin Du, Ritt Keerati, and Jesse Schreger¹

Version 4.0, October 2025

1 Introduction

In this dataset, we measure the deviation from covered interest rate parity (CIP) between government bond yields in the United States and other countries. In particular, we define the n -year CIP deviations between government bond yields in the United States and country i as

$$x_{i,n,t}^{Govt} = y_{i,n,t}^{Govt} - \rho_{i,n,t} - y_{USD,n,t}^{Govt}, \quad (1)$$

where $y_{i,n,t}^{Govt}$ is the n -year local-currency government bond yield in country i , $\rho_{i,n,t}$ is the n -year market-implied forward premium for hedging currency i against the U.S. dollar, and $y_{USD,n,t}^{Govt}$ is the n -year U.S. Treasury bond yield.

The CIP deviation between government bonds measures the difference between the synthetic dollar borrowing cost of country i and the direct dollar borrowing cost of the United States. It allows us to compare sovereign borrowing costs after swapping the promised cash flows of local currency sovereign bonds into U.S. dollars. The main drivers of CIP deviations for government bond yields are (1) default risk differentials between U.S. and foreign government bonds; (2) convenience yield differentials between U.S. and foreign government bonds; and (3) market segmentation and other financial frictions. The relative importance of these drivers depend on the specific country and maturity under study.

In the context of emerging markets, Du and Schreger (2016) refer to government bond CIP deviations between an emerging market sovereign and the United States as the “local currency credit spread” of that emerging market sovereign. Local currency credit spreads are highly correlated with credit spreads on dollar-denominated debt issued by the same emerging market sovereigns, suggesting that credit risk plays a first-order role in determining CIP deviations for emerging markets. For developed markets such as Germany and safe havens outside the euro area, sovereign default risks are negligible and capital accounts are

¹Du: Harvard Business School wdu@hbs.edu. Keerati: Federal Reserve Board. Email: ritt.keerati@frb.gov. Schreger: Columbia Business School. Email: jesse.schreger@columbia.edu. We thank Hudson Hinshaw for outstanding research assistance. The opinions and conclusions expressed herein are those of the authors and do not necessarily represent the views of the Board of Governors of the Federal Reserve System or of any other person associated with the Federal Reserve System.

open. Du, Im and Schreger (2018) argue that CIP deviations for G10 countries provide a measure of the convenience yield differential between U.S. and foreign government bonds. As such, they refer to the average CIP deviation between Treasuries and the rest of the G10 government bonds as the "U.S. Treasury Premium." Du, Keerati and Schreger (2025) contrast the CIP deviations for government bonds and CIP deviations for risk-free interest rate benchmarks, and argue that the divergence in these two CIP deviations shed light on the divergence between the specialness of the U.S. Treasuries and the U.S. dollar.

This dataset provides an update of CIP deviations for government bonds used in Du and Schreger (2016), Du, Im and Schreger (2018), and Du, Keerati and Schreger (2025). We also provide a detailed spreadsheet documenting Bloomberg and Thomson Reuters tickers used in the calculation, together with a few data caveats. We note that this dataset is not identical to that used in either published paper as some Bloomberg tickers have been updated and we now integrate some series from Thomson Reuters. The current choice of data tickers represents best available data to our knowledge.

2 Our Sample

We provide our $x_{i,n,t}$ estimates for both developed and emerging markets across benchmark maturities at 3-month, 1-year, 2-year, 3-year, 5-year, 10-year, 20-year, and 30-year between 2000 and 2025. The sample period starts later for some emerging markets as their domestic bond markets and cross-currency swap markets became more developed, and good prices became available. Our sample countries cover 10 developed countries and 18 emerging markets as follows (currency abbreviations provided in parentheses).

- Developed markets (G10): Australia (AUD), Canada (CAD), Switzerland (CHF), Denmark (DKK), Germany (EUR), United Kingdom (GBP), Japan (JPY), Norway (NOK), New Zealand (NZD), Sweden (SEK);
- Emerging markets (EM): Brazil (BRL), Chile (CLP), China (CNH and CNY), Colombia (COP), Hungary (HUF), Indonesia (IDR), Israel (ILS), India (INR), Korea (KRW), Mexico (MXN), Malaysia (MYR), Peru (PEN), Philippines (PHP), Poland (PLN), Russia (RUB), Thailand (THB), Turkey (TRY), South Africa (ZAR).

We use estimated yield curves for government bonds from Bloomberg for most of the sample countries. Next, we discuss how to calculate the forward premium at various maturities.

3 Construction of the Forward Premium

In order to construct CIP deviations for government bond yields, the key is to calculate the market-implied forward premium $\rho_{i,n,t}$. At short maturities of less than one year, we use forward and spot exchange rates to calculate $\rho_{i,n,t}$. At medium to long maturities, which are those equal to or greater than one year, forward markets are illiquid and so we calculate $\rho_{i,n,t}$ by constructing a fixed-for-fixed cross-currency swap.

More specifically, at the 3-month maturity, the forward premium can be calculated as the percentage difference between the outright forward and spot exchange rate:

$$\rho_{i,3M,t} = \frac{360}{n_t}(F_{i,3M,t} - S_{i,t})/S_{i,t}, \quad (2)$$

where $F_{i,3M,t}$ is the 3-month outright forward exchange rate of currency i against the U.S. dollar at time t , and $S_{i,t}$ is the the spot exchange rate at time t , and n is the number of days for a benchmark 3-month contract at time t (the exact calculation depends on weekends and holidays covered by the contract period, but it is usually around 90 days). Both forward and spot exchange rates are defined as units of currency i per U.S. dollar.² We use Bloomberg to obtain FX rates for G10 currencies, and WM/Reuters from Thomson Reuters DataStream for the majority of EM currencies.

At maturities of 1-year or greater, we calculate $\rho_{i,n,t}$ using a number of derivatives. The main idea is to construct a fixed-for-fixed cross-currency swap rate that allows investors pay fixed foreign currency cash flows and receive fixed U.S. dollar cash flows. As explained in detail in Du and Schreger (2016) and Du, Tepper and Verdelhan (2018), the spread on the fixed-for-fixed swap is equal to the long-term forward premium for hedging foreign currency risk against the U.S. dollar. We obtain all swap data from Bloomberg.

For G10 currencies, the market convention is to price the long-term forward premium through a collection of interest rate swaps and cross-currency basis swaps with the following formula:

$$\rho_{i,n,t} = irs_{i,n,t} + bs_{i,n,t} - irs_{USD,n,t}, \quad (3)$$

where $irs_{i,n,t}$ denotes the n -year interest rate swap rate for exchanging fixed currency i cash flows into the floating interbank interest rate benchmark (referred to as the Libor interest rate swap) in country i , $bs_{i,n,t}$ denotes the n -year cross-currency basis swap rate for exchanging the floating benchmark interbank rate in country i for U.S. Libor, and $irs_{USD,n,t}$ denotes the n -year U.S. Libor interest rate swap rate for exchanging fixed dollar cash flows into U.S.

²Alternatively, we can calculate the log forward premium $\rho_{i,3M,t} = \log(F_{i,3M,t}) - \log(S_{i,t})$, which is very close to the $\rho_{i,3M,t}$ given in Equation 2.

Libor. In order to hedge long-term currency risk for currency i , a dollar investor has to go through three steps. First, the investor pays the foreign currency interest rate swap, $irs_{i,n,t}$, to swap fixed foreign currency cash flows into floating foreign currency Libor cash flows. Second, she pays the cross-currency basis swap, $bs_{i,n,t}$, to swap floating foreign currency Libor into U.S. dollar Libor cash flows. Third, she receives the U.S. interest rate swap, $irs_{USD,n,t}$, to swap floating dollar U.S. Libor cash flows into fixed U.S. dollar cash flows. The combination of the three steps eliminates all floating cash flows and only exchanges of fixed cash flows in foreign currency and the U.S. dollar at the inception and maturity of the swap remain, which exactly replicates a long-term forward contract.

For many EM currencies with capital controls, dollar investors can hedge foreign currency risk via non-deliverable swap markets. The market convention is to quote the long-term forward premium as

$$\rho_{i,n,t} = nds_{i,n,t} - irs_{USD,n,t}, \quad (4)$$

where $nds_{i,n,t}$ denotes the n -year non-deliverable cross-currency swap that exchanges fixed currency i cash flows into the floating U.S. Libor, which is cash settled in U.S. dollars. In other words, by paying $nds_{i,n,t}$, the dollar investor is able to convert n -year fixed, foreign currency cash flows into a spread over U.S. Libor, similar to paying $irs_{i,n,t} + bs_{i,n,t}$ for G10 currencies. The final step is to swap the floating U.S. Libor cash flows into fixed U.S. dollar cash flows by receiving the U.S. interest rate swap $irs_{USD,n,t}$.

One technical note is that in the case in which there is a mismatch between the frequency of floating interbank benchmark between the plain-vanilla interest rate swap and the cross-currency basis swap (for example, the Brazilian non-deliverable swap is indexed to 6-month U.S. Libor and the benchmark U.S. interest rate swap is indexed to the 3-month U.S. Libor), the mismatch is corrected using an additional tenor basis swap.

As discussed in Du, Keerati and Schreger (2025), since 2021, many major markets have implemented reforms to benchmark money market rates, adopting alternative benchmarks with reduced credit risk that more accurately represent actual money market transactions. During the transition period, we provide calculations of $\rho_{i,n,t}$ and $x_{i,n,t}^{Govt}$ under both the conventional IBOR and the alternative interest rate benchmark. For our main series, we set January 1, 2022, as the break date marking the transition from IBOR to the alternative benchmark. We adjust this break date for certain tenor-currency pairs to account for differences in liquidity and data availability.

4 Our Dataset

By Bloomberg’s licensing agreement, we cannot publish the raw data for computing $\Phi_{i,n,t}$. However, we are able to make the following data series available. The variables in the dataset are as follows:

- Main variables
 - **diff_y**: interest rate differential on government bonds in percentage points, or $y_{i,n,t}^{Govt} - y_{USD,n,t}^{Govt}$,
 - **rho**: market implied forward premium in percentage points, or $\rho_{i,n,t}$,
 - **cip_govt**: CIP deviations for government bonds in basis points, or $x_{i,n,t}^{Govt}$.
- Additional variables:
 - **cip_govt_break_date**: Transition date from IBOR to the alternative benchmark used in **rho** and **cip_govt**,
 - **rho_ibor**: market implied forward premium calculated under the IBOR benchmark,
 - **rho_sofr**: market implied forward premium calculated under the alternative interest rate benchmark after the benchmark reform,
 - **cip_govt_ibor**: CIP deviations for government bonds calculated under the IBOR benchmark,
 - **cip_govt_sofr**: CIP deviations for government bonds calculated under the alternative interest rate benchmark after the benchmark reform.

5 Data Caveats

There are two important caveats to our dataset for emerging markets. First, illiquidity in the FX forward and swap markets can lead to measurement problems. For example, our 3-month measure is very noisy for Malaysia, Thailand, and Indonesia. More generally, FX forwards and swaps become more illiquid during time of distress, which tends to introduce a downward bias to $x_{i,n,t}^{Govt}$.

Second, market segmentation and capital controls in emerging markets complicate the interpretation of our measure. In the event of extreme market segmentation (for example, Russia), $x_{i,n,t}^{Govt}$ can even go negative, which reflects depressed domestic government bond yields of emerging markets when compared with the U.S. Treasury yield on the currency-hedged basis.

References

- Du, W., R. KEERATI, AND J.SCHREGER (2025): “Decoupling Dollar and Treasury Privilege”, *Prepared for 2025 IMF Annual Research Conference*.
- Du, W., J. IM, AND J. SCHREGER (2018): “The U.S. Treasury Premium,” *Journal of International Economics*, 112, 167-181.
- Du, W., A. TEPPER, AND A. VERDELHAN (2018): “Deviations from Covered Interest Rate Parity,” *Journal of Finance*, 73, 915-957.
- Du, W. AND J. SCHREGER (2016): “Local Currency Sovereign Risk,” *Journal of Finance*, 71, 1027-1070.