Hi, everyone! Thank you for coming to my final presentation today. My name is Hu Jienan and I am in FX Trading Desk of Shanghai Branch. So, today I would like to talk about the recent trend of onshore RENMINBI. As Many of our peers and clients are interested in the arbitrage opportunities on the USDCNY pair due to the CIP deviation. So I think it’s a good idea to have some discussions today.

So today my presentation would consist of three parts. The first one is Forward Basis Arbitrage, and then Basis Trading and last but not least, the analysis of recent USDCNY basis trend.

As Basis Arbitrage and Basis Trading are quite common in FX trading. So I will just give a quick introduction of the arbitrage process.

At the beginning of the arbitrage, the arbitrager first borrows USD in the offshore market, for example, makes an overnight or other short-term repo and then rolls over the repo at the end of each period till the end of the whole arbitrage. At the same time, the arbitrager needs to pay an 1 year SOFR OIS to hedge the risk of USD rates and fix the funding cost. (Next Page pls)

The next step is to sell-buy a 1y USDCNY swap. Let’s assume the notional amount of the swap is one million USD. So, the arbitrager is going to pay million at the end of the year. Also, if the arbitrager wants to get a profit in USD at the end, it needs to buy an additional 1 year USD forward at the beginning.

For the last step, here I provide two approaches. So basically the first approach is the mirror of step1. In step1 the arbitrager makes a repo in USD and pay a 1year SOFR OIS to fund USD in a fixed cost. In step3 the arbitrager make a reverse repo in CNY and receive a 1year CNY IRS to get a fixed lending yield of CNY.

But there is a problem in practice for approach 1. The most common reference rate for CNY IRS in the onshore market is 7D Fixing Repo rate, and its standard contract for 1-year IRS is paid quarterly, which will result in a certain amount of CNY profit at the end of each quarter during the arbitrage period. If the arbitrager wishes to avoid the FX exposure of the profit during the period, it needs to calculate the CNY profit on each payment date and hedge it by buying USD forwards of the corresponding maturity.

Compared to receiving CNY 1-year IRS, Approach 2 is simpler. Arbitrageurs can buy 1-year zero-coupon CGB directly through Bond Connect or CIBM. Similarly, apart from the principal portion, the FX exposure of the CNY profits generated at the end of the arbitrage can be closed by buying additional amounts of forward USD at the beginning of the period, just as shown in Step2. In this case, we can calculate the formula for the arbitrage profit as shown in the slide. Under the assumption of continuous compounding, starting with lowercase t and ending with uppercase t, the arbitrage return for this period can be expressed as basis in the second and third formulas. Actually, if Basis equals 0 here, then the second formula is the covered interest rate parity formula.

The point I want to emphasize here is that the arbitrage profit doesn’t count on the narrowing or widening of Basis in the future, but the absolute value of Basis at the beginning of the arbitrage. As long as the Basis is not zero, Basis Arbitrage can be implemented. The only pressure is that the MtM value of the portfolio may temporarily be negative, but it will be able to make a definite return at the end of the period.

But in practice, the basis arbitrage cannot be implemented by onshore institutions because we don’t have direct access to USD funding for the arbitrage purpose. If there is no USD funding, the Basis arbitrage cannot be carried out. But still we can bet on the basis narrowing by conducting basis trading. The first step is to sell-buy a long term swap, still we assume it as one year. The second step is to buy-sell a short-term swap with 1 million USD nominal amount and roll over at the end of each swap with the same notional principal, so that the cash flow of USD at the beginning and ending of each swap can be just completely hedged, while for CNY, the difference between the far leg of the old swap and the near leg of the new one just would become the profit and loss during the process of basis trading.

However, in order to conduct a basis trading, there is still a step that we need to do. That is to hedge the rates risk of both USD and CNY by paying a USD IRS and receiving a CNY IRS.

Let me just show you the result of cash flow calculation. You can just see third line, the total cash flow in . So basically, considering the current basis is negative, so if the Basis will narrow in the future, otherwise, we may encounter a loss with the Basis widen further. And although the double IRS has largely reduced the rates risk of USD and CNY, as shown in the blue terms, the risk exposure rates cannot be perfectly hedged. There is still a residual term associated with the floating rate.

As for the unhedged spot risk, if we ignore the effect of discounting factor and sum the total cash flows for each period, then the last term will be just minus , which is equal to the opposite of the swap point at the beginning of the period. (next page pls)

Ok, let’s move to the last section—the Basis Analysis. This plot is the time series of USDCNY forward basis since 2015. The difference between the blue line and the red one is the selection of CNY real rate. The former one used the 7D Fixing Repo rate and the latter one used the 1 year CGB yield to maturity. (next page). This plot is the trends of basis in different terms. The plot below zooms up the movement of Basis after it entered the sub-zero range starting in March 2023. It can be noticed that since September last year, the 1-year basis has been at the bottom of all maturites, and it has widened more than the basis of maturities longer and shorter than it. Therefore, it is reasonable to assume that this could be caused by the PBoC's intervention in the FX market through 1-year forwards. The market believes that it has been constantly selling 1-year USD forwards to the market through agent banks since September last year. We can see more evidence by comparing the trend of CNH