# Cross Currency Basis Curve Introduction

# XCCY Basis Curve

- Cross currency swap has two legs. Each leg is based on an index in different currency.
- A cross-currency basis swap is an exchange of different currency floating rate notes.
- At inception of the trade, the notional principal amounts in the two legs are usually set to be fair given the spot exchange rate.
- One currency is assumed to be liquid currency and the other currency as illiquid.
- There is a cross currency basis that makes a cross currency swap be priced at par at inception

# XCCY Basis Curve

- On the liquid currency side, the interest rate curve is used for both forecasting and discounting.
- On the illiquid currency side, the interest rate curve is used for forecasting. But the same curve plus a basis spread is used for discounting.
- The new illiquid zero rate curve is viewed as the sum of the original interest rate curve and a zero spread curve.
- This zero spread curve is called cross currency spread curve.

# XCCY Basis Curve

- Cross currency swap has principal exchange at both effective date and maturity date done at the same FX rate.
- This principal related FX rate is called the contractual FX rate.
- Let N_B is the principal in currency B and N_A is the principal in currency A. X is the contractual FX rate. The principal is structured as

$$X \cdot N_A = N_B,$$

# XCCY Basis Curve

- The cash flow of a swaplet of leg B is given by

$$N_B \cdot \tau_i^B \cdot \left(L_i^B + s\right)$$

here s is the basis spread

- The cash flow of a swaplet of leg A is given by

$$N_A \cdot \tau_i^A \cdot L_i^A$$

# Thank You

You can find more details at

https://finpricing.com/lib/EqBarrier.html