

# Learning Interest Rate Interpolation

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The usual methods for interest rate interpolation consider only the values and time to maturity of spot rates as the inputs, and differ mainly on the continuity of the implied forward rates. We treat the interpolation problem as a replication problem, where a bond (or interest rate future/swap) is priced as a function of the minimum variance replicating portfolio of the traded bonds (or derivatives). In this view, the hedging ratios determined by the interpolation are as important (if not more) than getting the “right” interpolated rate; this is similar to the adjustments to the Black and Scholes delta as a consequence of the joint dynamics of the asset price and volatility in the different volatility models. We show how to learn the parameters of the weight functions and apply this method to the overnight rate indexed interest rates derivatives in Brazil. We then extend the concept from interpolating broken dates to the market references, in order to determine which points are key to the shape and dynamics of the curve and which points can be replicated by these real anchors.

## References

CARREIRA, MARCOS , *Smooth Operator: Interpolating OIS rates in Brazil* , Global Derivatives - Budapest - 2016