

Structured products truly demand more sophisticated analysis, and PaR-like methods may be the most comprehensive. Indeed, callable and related structures are often valued with a quasi-market convention technique referred to as Option Adjusted Spread (OAS) analysis. OAS is actually a simplified sub-set of PaR usually relying on Monte Carlo methods, as introduced in Chapters 19, and 21. The idea is to value the spread between the “option/fancy” product and its “non-fancy” parallel so that the net value of the position is zero. Then, that “spread” must be the value of the embedded optionality. A little care is required since the market convention methods do not account for rebalancing, liquidity, bid/offer spreads, etc, as PaR does, nor do the market convention methods provide back test results for comparison to the forecasted OAS results, as PaR does.

14.6.27 A Real Trade – Call-Spreads Revisited

This Section illustrates a trading example that brings together many of the issues discussed thus far. A “buy & hold” (call-spread) strategy example is used to keep matters simple, with dynamic position examples provided in Chapter 22, and in the TG2 “trading volumes” and specialised books, such as [4.a], [5.a], and [6.a].

14.6.27.1 The Situation

During a nasty recession, a government pumps Trillions into the economy via Keynesian monetary policy (by buying government securities) to kick-start the economy. Unfortunately, due to uncertainty about the economy, the monies the central bank pumped into the economy (which went into the hands of the institutions who sold those securities to the central bank), did not actually make into the economy. Rather those monies were put on deposit by the institutions so that they could “keep their powder dry” for the “rain days” they are expecting.

Eventually, the economy starts to show signs of improvement and massive changes in government policy have removed much of the uncertainty in the minds of the institutions. All of a sudden, the institutions are prepared to take those Trillions out from deposit, and use them for building, lending, hiring, etc.

This sudden and massive increase in the “effective” money supply causes the on-set of high inflation.

As an investor, you consider that now the central bank will need to raise interest rates as part of their normal monetary policy regarding inflation. Suppose your experience has been that the central banks typically raises 50 bps on its first foray into inflation fighting mode, and then checks the effect of that some months/quarters later (e.g. to see if more is needed).

That is, you expect some possibility of a 50 bps rate hike, say, within the next 10 months, as that date corresponds most closely to your expectation and the central bank's "decision date" (e.g. some central banks only enact normal monetary policy on prescribed dates, such as quarterly FOMC meetings).

Caveat: Likely, under such circumstances the "rest of the universe" also would be expecting a hike, and they will have traded on such expectations. Those "traded expectations" would be reflected in the forward rates/futures prices. For example, if current rates are 5%, and there is an expectation of a 50 bps hike, and the relevant forward rate is at 5.35%, then it is common to interpret this to mean that the market has about a 70% expectation that the central bank will hike (i.e. the 35 bps that is in the market over current rates vs. the expected 50 bps hike), as that is the amount "priced in" the market values.

This knowledge/information obliges one to perform a rather more involved trade idea analysis than is practical here, see [8.a], [8.b], and [8.c].

Instead, for this example, consider that you are the only one with this idea and there is nothing "special" happening in the forward curves, etc. since the objective here is to introduce basic IR option market convention calculations.

Clearly, though, in the real world the trade idea analysis would require greater depth, see [8.a], [8.b], and [8.c].

Your mandate, keeping it simple, also states that your performance objectives are to make 25% ROI on average, that you must "win" twice as often as you "lose" (i.e. on average 2 of 3 trades must make money), and that the maximum draw-down you are allowed on this particular trade is 12,000.

14.6.27.2 A Trade Idea

The situation is: If there is a hike, then rates will move a fixed (around 50 bps) amount, and if not rates will not move (in fact rates move for other reasons, but assume for simplicity that nothing else is going on). Since there is considerable uncertainty regarding the "event", an options strategy is considered (c.f. an outright trade in the underlying, which would be a more efficient approach when there is high degree of confidence in the event).

Normally, central bank intervention relating to inflationary issues is via the short end of the curve, and so short dated underlying instruments are appropriate (e.g. LIBOR). In addition, a trade idea such as this is likely "best" executed via listed contracts (e.g. options on Eurodollar futures), since those have the lowest execution costs/highest ease of access (i.e.