Caselet #43 – Sparky Learns about Callable Convexity

Learning Outcome Statement

After completing this caselet, students and trainees should be able to explain why callable bonds have both positive and negative convexity.

Caselet #43

Renowned Darla Moore School of Business graduate and bond analyst, Ms. Jane Gotzrox, is shaking her head sadly, “Sparky,” she says, “now that our portfolio managers have been shown callable bonds’ negative convexity, they say they’ve seen the light and they’ll never buy a callable again.

Unfortunately, they haven’t figured out that callable bonds can have positive convexity as well as negative convexity. That’s what we’re going to show them

“Get on your Yield Book Add-in and make another callable, a European 10NC2 with a 6% coupon. What the heck, Sparky, how about naming that bond for me, eh? What an honor!”

“Make the maturity date ten years from today and set all of the other dates to be compatible with that maturity. When you get to the call schedule page, make sure that this is a European callable. Get the call date right, eh? Okay, that’s the setup.”

“Now, use Yield Book Add-in’s pricing on the Gotzrox 6% 10NC2. I want you to begin with a flat term structure at, oh, 5%, and use a 20% volatility throughout this project. Capture your work to show the effective duration, effective convexity and OAS.”

“Then, price the bond at 85 and shift the yield curve parallel to itself to keep the OAS about the same – within a basis point or two. Can you guess which direction you have to shift the curve, Sparky? Capture your work showing effective duration, effective convexity and OAS.”

“Next, price the bond at 115 and repeat the exercise for the high price.”

“Finally, since you will have seen bonds with negative convexity and bonds with positive convexity, can you explain the economics of why that happens, Sparky? Yeah? If you do I’ll be impressed, so will potential employers.