FIRST PRINCIPLES CAPITAL MANAGEMENT

"Carry On"

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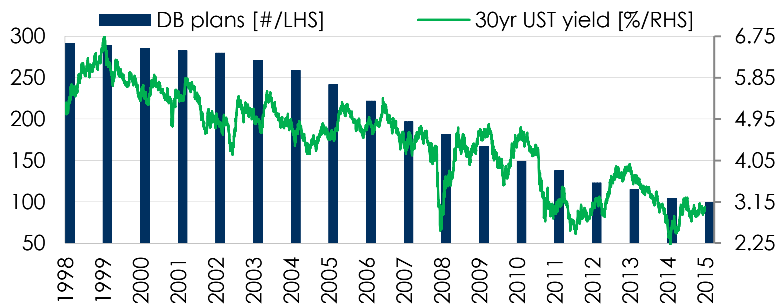
With the Federal Reserve contributing to the recent flattening of the US yield curve by raising the fed funds rate on June 14th, it's time again to round up the usual leveraged investment suspects like mortgage REITs, closed-end funds, and 3X ETFs. These investment vehicles utilize leverage to drive much of their economics. So, when short-term interests rate rise, these investor groups often see their economic prospects hurt by higher financing costs, which is manifested in the form of reduced or negative "carry" (i.e., the differential between an asset's yield and its financing costs). However, this time we need to include another investor group in the impacted leveraged mix: corporate defined benefit (DB) pension plans. What? Aren't pensions typically underfunded by 20 or more percent, which means they are inherently short US interest rates, benefiting when rates rise? Well, yes and no. Some corporate pensions have utilized leverage to hedge their liabilities, potentially presenting a carry issue for them too. Will the continued curve flattening lead to potential de-leveraging among pensions? Let's see.

As background, the combination of the Pension Protection Act in 2006 and the Great Recession in 2008 helped spur many closings of DB plans over the past decade. But it was really the Federal Reserve's Operation Twist in the fall of 2011 that sealed the fate of most pensions. When the FOMC announced the buying of long-term bonds, Treasury yields quickly fell by more than 125 basis points (bps), and the value of DB liabilities increased by nearly 15% in just one quarter, putting most plans at near-record deficit positions. It was the straw that broke the backs of already weary plan sponsors. Those who hadn't done so previously now waved the white flag, and a great capitulation towards de-risking their DB plans began.

Chart I: Total number of DB pension plans within Fortune 500



Source: Willis Towers Watson, Bloomberg

De-risking steps were not limited to closing a plan to new employees, eliminating future accruals for existing beneficiaries, and executing partial buy-outs, but also included implementing a new investment strategy that incorporates a "glide path" towards reduced risk, designed to hedge the liability over time. Along the way, many larger underfunded plans also implemented liability-driven derivatives overlay strategies as part of the glide path - introducing explicit leverage to plan assets.

A derivatives hedging program often includes a preponderance of long-dated interest rate receiver swaps (i.e., the plan receives a fixed rate and pays a floating rate), as well as tactical uses of Treasury futures and swap-option collars to help hedge the long-duration interest rate exposure imbedded in a typical plan. As such, many plans effectively swapped a portion of their liabilities from long-dated fixed rate exposure to 3-month LIBOR, exposing them to the short end of the US yield curve and Federal Reserve interest rate policy.

How exposed are plans to the short end of the yield curve, and could plans start to generate negative carry (i.e., cash outflows) on their derivatives overlays? It depends on several factors including when the overlay program was implemented and the maturity profile of their interest rate swaps.

Since pension committees meet so infrequently, DB plans often move at the pace of a sailboat going against New York's famous East River current. Consequently, the time from white-flag capitulation to derivatives execution took many plans several years to implement. As such, most plans that utilize derivatives probably started assembling their overlay hedging portfolios well after 2011. Let's assume most hedging took place between 2012 and 2015.

If we look at monthly swap rates during that period along various maturities, and we assume a bulk of the hedging was executed in the long-end of the yield curve (i.e., 10-, 20-, and 30-years to match the long duration of the liabilities), we can replicate a typical receiver swap portfolio as shown in Table I. The average book yield is 2.49%, with a range of 2.16% - 2.82%. Given that most DB plans have a tendency to chase market trends (again, because they are inherently slow-moving entities), to be conservative let's assume that most plans are slightly below average in terms of yield levels.

Table I: Monthly swap rate 2012-2015

	Total	5-year	10-year	20-year	30-year
Average swap rate		1.40%	2.27%	2.61%	2.96%
Lowest		0.75%	1.59%	1.87%	2.15%
Highest		1.93%	3.09%	3.51%	3.93%
StDev (monthly)		0.20%	0.41%	0.43%	0.46%
Est. hedging portfolio maturity weights	100.00%	10.00%	30.00%	30.00%	30.00%
Weighted average portfolio swap rate	2.49%				
Minimum weighted average swap rate	1.76%				
Maximum weighted average swap rate	3.35%				
StDev (monthly)	0.33%				

With USD 3-month LIBOR (i.e., the rate on the floating leg of an interest rate swap) currently at 1.29%, we can see that a typical swap overlay portfolio will generate more than 100 bps of carry for DB plans. By comparison, the amount of carry was approximately 60 bps higher a year ago. Even though carry is trending downward with each Fed move, a derivatives portfolio continues to move in step with the change in value of the DB plan's liability as well as generates positive cash flow for the plan, for now.

In the current interest rate environment, we would estimate that most pension overlay positions are still well within the "green zone" (i.e., positive carry and positive mark-to-market (MTM)), with only a small position in the "red zone" (i.e., negative carry and negative MTM). Red-zone deals would likely include shorter-term receiver swaps with original maturities under 10 years. Consequently, any MTM loss should be relatively modest at this stage, assuming average entry-point execution.

Est. DB derivatives portfolio with USD 3M LIBOR = 1.29%

Mark to Market	Carry +	Carry -
+	80%	0%
-	15%	5%

It's important to point out that over the life of an interest rate swap one should expect to migrate from a positive carry to a negative carry position. Thus, being in the red zone is not an unusual occurrence over the life of an interest rate swap.

However, things could change for the prospects of DB overlay portfolios depending on how aggressive the Federal Reserve is as it seeks to normalize rates over the near-term. If the FOMC normalizes at a pace that includes two or three 25 bps rate increases over the near-term, then the percentage of the swap portfolio in both a negative carry and negative MTM position could increase markedly.

For example, should USD 3-month LIBOR reach 2.00%, then the complexion of the overlay portfolio would certainly change. The percentage of negative carry across the portfolio would increase, and while one would expect the MTM to worsen too, it will be hard to determine by how much. That's because the impact of the FOMC's fed funds policy on the longer end of the yield curve is like maneuvering CrossFit battle ropes - the person doing the exercise can move the ropes up and down a lot in the short end, but have less impact on its movement at the end of the rope. However, should the Federal Reserve undo Operation Twist in conjunction with additional fed funds rate increases, then the red zone could become crowded. But that's okay, because pension investment committees should remember that the value of their liabilities will be falling even more, which is still a good outcome for the plan's funded status.

Est. DB derivatives portfolio with USD 3M LIBOR = 2.00%

Mark to Market	Carry +	Carry -
+	50%	0%
-	25%	25%

When a greater percentage of swaps enter the red zone, it will start to introduce a liquidity need for plans, as ongoing negative carry payments will need to be made to counterparties and clearing agents, and additional MTM collateral calls will need to be satisfied, slowly de-leveraging the overlay portfolio.

While heretofore most pension investment committees have focused their economic sights solely on the long end of the US yield curve, now they need to pay close attention to the short end as well. With each FOMC increase in fed funds, committees should revisit their contingent liquidity policies. Comparable to the preparedness for satisfying private equity capital calls, DB plans that utilize derivative overlay strategies must be prepared for the Federal Reserve to come a-calling. Besides being vigilant in terms of liquidity, FOMC preparedness includes increasing the percentage of plan assets allocated to floating rate assets (e.g., bank loans and CLOs) and to inflation sensitive assets, including TIPs. In the meantime, carry on.

About the author:

Richard F. Dolan is the Chief Executive Officer of First Principles Capital Management, LLC (FPCM). FPCM is a wholly owned subsidiary of American International Group (AIG). Mr. Dolan is a member of the Investment Committee of AIG's pension and 401(k) plans.

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