CREDIT SPREAD DISPARITIES BETWEEN ASSETS AND LIABILITIES

Timothy F. McCusker, FSA
Consultant

Summary

Recent legislation in the U.S. (the Pension Protection Act) and the first phase of U.S. accounting reform (FAS 158) mandate that liability cash flows be discounted at high quality corporate bond yields. These credit yield requirements are at odds with a true financial economics framework for pension management and also result in liability benchmarks that are not investible for matching asset strategies. In the current environment, plan sponsors that used Treasury or swaps-based Liability Driven Investing (LDI) programs experienced large asset gains while liabilities changed only slightly. This relative gain should reverse slowly over time, but Treasury or swaps-based LDI will remain a key component of most matching strategies.

The use of lower yielding (but less risky) instruments such as Treasury STRIPS or swaps in LDI programs correspond more with financial theory than the regulations put forth by both the Pension Protection Act and the Financial Accounting Standards Board as financial theory suggests that the use of corporate bond yields do not reflect the true nature of liabilities. In fact, more conservative rates, such as zero-coupon Treasuries or the swap curve[1], should be used in order to value the plan's liabilities. Using the swap curve in the first quarter of 2008 would have resulted in increasing liabilities as swap yields fell; however, using the rates mandated by the PPA and FAS actually resulted in liabilities falling slightly as credit concerns caused spreads to increase.

The current dislocation in the credit markets and the recent experience of those plan sponsors who have implemented Liability Driven Investing[2] programs have brought the issue of using a credit-based discount rate to value liabilities, with varying credit exposure in LDI programs, into focus. Accounting rules and funding regulations determine an organization's balance sheet, income statement, and cash contribution requirements. Plan sponsors who have implemented LDI or those who are considering LDI must evaluate the proper instruments used to hedge plan liabilities as well as the proper risk exposures that should make up a plan's risk budget.

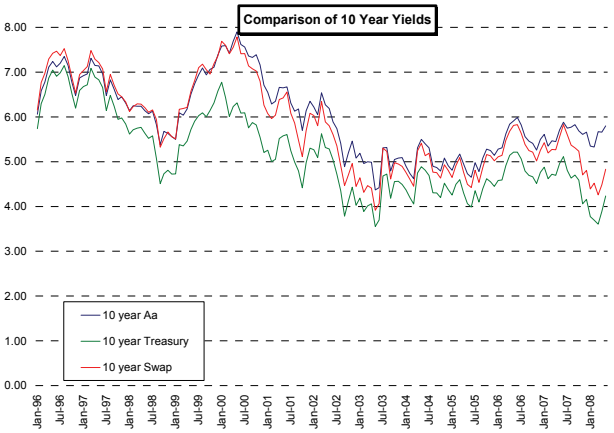
PLAN SPONSORS THAT USED TREASURY OR SWAPS-BASED LDI PROGRAMS EXPERIENCED LARGE ASSET GAINS WHILE LIABILITIES ONLY CHANGED SLIGHTLY.

[1] The swap curve is a LIBOR-based yield curve used to price derivative transactions (such as swaps) between 2 counterparties (often large banks.) While the swap curve does have an element of credit risk due to the exposure to a counterparty, this credit risk can be minimized if managed properly, thus the swap curve is often used as a proxy for risk-free discount rates.

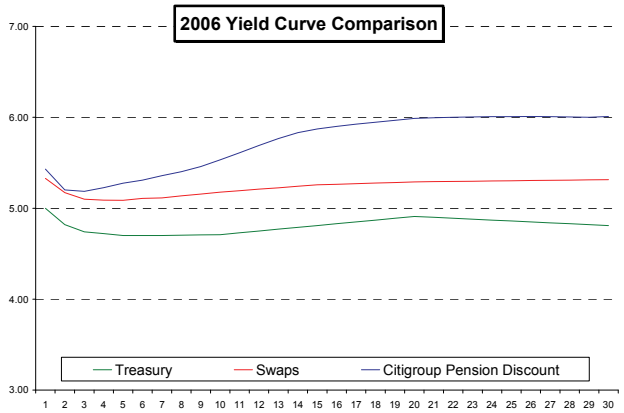
[2] The continuing shift of pension plan regulations toward mark-to-market recognition of assets and liabilities has brought increased focus to the concept of liability-driven investing. At a high level, liability-driven investing (LDI) is based on managing plan assets with consideration given to the future benefit promises they are designed to support. These future benefit payments stretch very far into the future and are discounted back to the present using current rates in order to determine the total liability. The long dated nature of these cash flows causes the plan's liability to have significant duration, or interest rate sensitivity, regardless of the interest rate chosen to discount the cash flows. To reduce volatility of funded status and the possibility of unexpected contribution requirements, assets can have similar interest rate sensitivity.

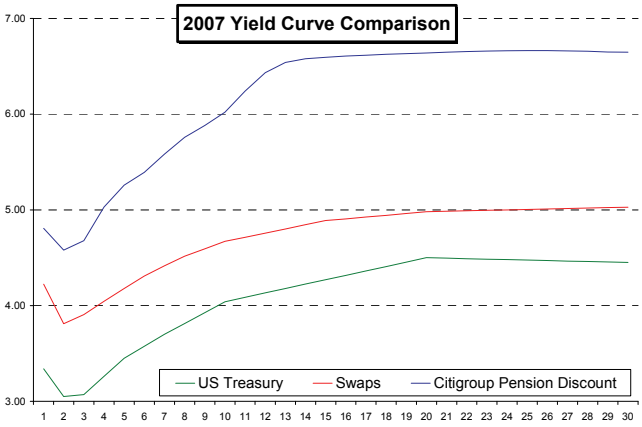
Background

Since mid-2007, capital markets have undergone a rigorous and often painful process of re-pricing risk. The credit contagion that has resulted from the sub-prime meltdown and forced system-wide de-leveraging has caused both supply and demand issues in previously functioning credit markets, as well as re-assessment of risk-taking that affected almost all securities. An important result from this credit contagion and subsequent flight to quality has been significant spread widening across the credit spectrum, including the "high-quality" credit rates that corporate pension plan sponsors are required to use in discounting plan liabilities. Despite a large drop in Treasury yields, corporate bond rates actually increased, due to spread widening as investors shifted away from risky assets. Alternatively, many of the instruments used in LDI programs fell in yield, as derivatives such as interest rate futures and swaps tracked Treasury rates quite closely.



The effect on plan liabilities is illustrated by using different yield curves to discount the projected benefit payments of a typical pension plan. The charts below show the change in several yield curves from December 31, 2006 to December 31, 2007 – common measurement dates for pension plan valuations. In fact, the increase of corporate yields (due to spread widening) as seen with the Citigroup Pension Discount curve, and decrease of treasury and swap yields, as seen with the swap curve and Treasury curve, has continued in the first half of 2008.





	12/31/06	12/31/07[3]	Yr over Yr Change
High Quality Corporate Yield Curve	1,000	925	-7.5%
Swap Curve	1,087	1,146	5.4%
US Treasury Curve	1,159	1,247	7.6%

We are left with three different interest rates driving the measurement of plan liabilities – which one is appropriate to use? Discounting at Treasury rates represents a risk-free measurement of plan liabilities. Matching benefit payment projections with Treasuries should eliminate investment risk, leaving only plan risk from deviations from actuarial assumptions. Discounting using the swap curve takes on counterparty risk, but otherwise produces similar results to Treasuries in a more liquid market. Use of the Treasury curve or swap curve is beneficial for understanding the true economics of the pension plan. Conversely, using a credit curve is in line with both IRS and FASB

[3]Year over year measurement of liabilities ignores the growth of liabilities due to benefit accruals and release of liabilities due to benefit payments. This is simply the present value of the same projection of cash flows at two separate dates.

rules, and can help in minimizing asset/liability volatility on these required discounting liability measurements.

Allocations to liability-driven investing can similarly be divided into two broad categories – physical corporate long bonds (containing credit exposure,) and Treasury strips, futures, or interest rate swaps. While interest swaps will contain some counterparty risk, resulting in a yield above the Treasury curve, these instruments behaved much more like Treasuries than physical corporate bonds over the last year. The experience of each of these types of funds during the recent credit dislocation is helpful in illustrating the differences in these LDI strategies.

IT IS UNLIKELY THAT CONFIDENCE IN CREDIT WILL BE RESTORED AS FAST AS IT WAS LOST.

Physical Long Bonds Based LDI Programs

Plans using physical long corporate bonds to increase asset duration maintain credit exposure, often moving from a Lehman Aggregate to a Lehman Long Gov/Credit allocation.[4] Such an approach has the benefit of being a better match due to this credit component, but the Lehman Long benchmark bond maturities rarely track benefit payment maturities. Further, the ability gain significant duration from the plan's allocation to fixed income is limited with the Lehman Long Gov/Credit Index providing approximately 11 years of duration. Nevertheless, Lehman Long investments tracked liabilities better than derivative-based LDI programs during the recent credit dislocation.

Treasury and Swaps Based LDI Programs

Long Treasuries had impressive returns in the second half of 2008 and into the first quarter of 2008, increasing in value as the Treasury yields dropped. Although an allocation to long Treasuries is expected to track closely with liabilities, plan liabilities based on PPA and FAS corporate yields saw little change over this same period. Treasury futures and interest rate swaps[5] had similar positive experience in the first quarter to that of Treasuries. The swap spread, typically about 40-75 basis points above Treasuries, has historically tracked closely with the Aa spreads; however, during the credit crunch, swap spreads did not expand upwards along with Aa spreads. In fact, swap spreads remained quite stable – meaning the performance of interest rate swaps in LDI programs was similar to those of Treasuries.

This basis mismatch, the change in liabilities and the change in LDI programs not offsetting each other perfectly, benefitted the plan (assets were up, liabilities were down.) As credit markets improve and corporate spreads narrow, however, liability values will likely increase without a corresponding increase from Treasuries due to their lack of credit exposure. It is unlikely that confidence in credit will be restored as fast as it was lost. In other words, the recent gain in assets relative to liabilities will be matched by smaller, periodic losses over a longer time. Importantly, we must bear in mind that the level of spreads in the first half of 2007 was at an all-time low that may not occur again, limiting the ultimate losses from basis mismatch.

Future Decisions & Opportunities

To be clear, the economics of a plan's benefit obligations have not changed due to this bifurcation of swap rates and corporate rates. For most plans, projected benefit payments still stretch very far into the future and thus exhibit a high degree of interest rate sensitivity. The fact that accounting and funding regulations require use of credit yield curves to discount liabilities does not mean that plan sponsors should automatically shift their LDI allocation to a credit based benchmark to align with reported liabilities. In fact, adding credit exposure to the portfolio is adding an additional risk; it is not simply a yield pick-up and reduction in liability tracking error. To move in this direction would mean "marking-to-rules" rather than truly matching plan liabilities.

One consequence of replacing a plan's fixed in-

[4]Approximately half of the Lehman Long Government/Credit Index is Credit.
[5]Futures are exchange traded and backed by a clearinghouse – there is no counterparty risk to these instruments and therefore, minimal deviations from the referenced Treasury securities. Swaps are customized agreements between two parties, contracted through an ISDA agreement. There is some credit exposure in swaps due to the risk of a counterparty not making a promised payment. This counterparty risk results in an additional spread above Treasuries.

come allocation with allocations to long Treasuries or derivatives is the elimination or at least significant reduction in credit exposure. Adding credit exposure to a plan's asset allocation will likely improve the tracking of assets and reported liabilities; however, this reduction in tracking error should not be judged as a reward without additional risk. In taking on credit exposure, plan sponsors are adding an additional risk allocation to the plan's risk budget – this risk should only be added if the plan sponsor believes that it will be properly rewarded with a comparable return. This new risk exposure should be considered in the context of the total portfolio's risk budget, and sized properly within the existing risk budget.

IN TAKING ON CREDIT EXPOSURE, PLAN SPONSORS ARE ADDING AN ADDITIONAL RISK ALLOCATION TO THE PLAN'S RISK BUDGET.

Compensation for taking on credit risk may manifest itself in two ways: (1) increased returns through proper management of credit exposure and (2) improved tracking of assets with reported liabilities. Plan sponsors should consider adding credit only after considering all of the risks and rewards that this new allocation will bring to the total plan. Current market conditions may in fact provide an attractive risk-reward tradeoff in credit. The credit dislocation has created opportunities that plan sponsors may wish to take advantage of using a shorter time horizon opportunistic allocation. For more information on this, please see 'When Opportunity Knocks,' an April letter from NEPC detailing this opportunity.

It is important to consider the performance of the plan assets relative to plan liabilities – but it should be understood that this evaluation is of the performance of total assets relative to total liabilities. Investing in LDI can help to improve the tracking of assets and liabilities, but the tracking of assets and liabilities should not be judged based on the LDI program in isolation relative to liability performance. Through proper diversification of the remaining assets not invested in LDI, the plan may see improved asset returns when liabilities are increasing as equity asset classes and alpha sources may perform well as credit conditions improve.