Asset-Liability Matching for Retirees

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One approach to building income streams for your clients' golden years is to match assets to liabilities using bond immunization and a total return strategy. It may tilt the portfolio's allocation a bit, but it could be the answer to funding retirement, college, and other long-term obligations.

Clients who are worried about making their retirement portfolios last a lifetime will be able to appreciate the challenges faced by insurance companies and pension funds. Both are charged with investing assets in a way that will allow them to meet obligations for many years into the future. But unlike the relatively predictable nature of household living expenses, the future liabilities of insurers and pension funds are subject to wide variations.

Insurance companies must be prepared to pay out benefits whenever a claim is filed; other than statistical models that estimate future claims based on historical experience, insurers have no way of knowing exactly when any given policyholder will file a claim.

Defined-benefit pension plans that promise future benefits to retiring employees will see their obligations change over the years depending on future pay raises, the number of new hires, early terminations, mortality rates, and other variables. In some cases benefits won't be paid for 25 years or more. A lot can happen during that time to alter those future obligations.

Yet despite the difficulty in estimating future insurance and pension liabilities, most insurers and pension funds somehow manage to meet their obligations. For many of them, the solution lies in asset-liability matching.

Rather than investing in a diversified portfolio of stocks and bonds and hoping returns meet or exceed the amount needed to pay future obligations (called the total-return method), cautious insurers and pension funds estimate their future liabilities and invest in assets that are assured of being there when the obligations come due--in other words, they match their assets to their liabilities.

Advisors may want to explore an asset-liability matching strategy for their own clients' long-term obligations. Insurance companies and pension funds have many years of investment consulting expertise at their disposal, and what works at the macro level

could be equally effective at clients' micro level. There are two main strategies to consider.

Cash-flow matching

When it comes to meeting fixed obligations, nothing does it quite like fixed-income securities. Cash-flow matching involves the purchase of individual bonds whose coupon payments and par values at maturity precisely match the cost of liabilities coming due. Buying zero-coupon bonds that mature in eight, nine, 10, and 11 years for a 10-year-old child's college fund is an example of cash-fl matching.

While the simplicity of cash-flow matching is appealing, it is not always easy to implement, especially when the timing and amount of obligations are harder to define than a 10-year-old child's future college expenses. And although interest rate risk is not an issue for a college saver who doesn't plan to redeem the bonds prior to maturity, clients with more complex and less predictable obligations will want to protect against changes in interest rates.

Bond immunization

The second approach used in asset-liability matching is bond immunization. Here, the duration of the bond portfolio is matched to the time horizon of the liabilities. Duration is a measure of how long it takes a bond to be repaid, taking into account the bond's yield, coupon, final maturity, and call features. It indicates how sensitive the bond will be to interest rate changes.

For example, the price of a bond with an effective duration of two years will rise (or fall) 2% for every 1% decrease (or increase) in interest rates. A bond with a duration of five years will rise (or fall) 5% for every 1% decrease (or increase) in rates. The longer the duration, the more sensitive a bond is to changes in interest rates.

On the liability side, interest rate changes affect the present value of the future liabilities. Present value is calculated using a discount rate that is tied to current rates and some number of years. If the discount rate rises, it will cause the present value to fall, and vice versa.

For example, a $1 million liability that must be paid in 10 years has a present value of $675,564 if a discount rate of 4% is used. But if current rates rise to 6%, the present value falls to $558,395. Present value also changes with the advance of time. Five years from now the present value of the $1 million in liabilities will rise to $747,258 if a 6% discount rate is used, or $821,927 with the 4% rate.

The theory behind a bond immunization strategy is that as interest rates rise, the value of the bond portfolio will fall--but so will the present value of the future liabilities. As long as liabilities can be paid, it doesn't matter that the portfolio is worth less. And vice versa. If interest rates fall, the discount rate used to determine the present value of the future liabilities will also fall, causing the value of the future liabilities to rise. But then the value of the bond portfolio will rise as well, again leaving the asset-liability equation basically unchanged.

Assuming the yield on the bond portfolio roughly equals the liability discount rate, assuming the bonds do not default, and assuming callable bonds have been properly accounted for in determining the duration of the portfolio, the value of the assets should move in step with the value of the existing liabilities through time, regardless of what happens to interest rates.

Meeting clients' obligations

By perfectly matching the duration of the bond portfolio to the time horizon of the liabilities--and adjusting the portfolio as durations and the present value of liabilities change--a client should be able to meet his or her obligations. Remember, the idea here is not for the portfolio to earn high returns or even retain a fixed principal value. The investment goal is stated in terms of the portfolio's ability to pay the liabilities--and that's all.

Because asset-liability matching is not designed to generate high returns, some insurers and pension

funds also employ a total-return strategy using a diversified portfolio of stocks, bonds, cash, and alternative investments. This may be used for liabilities more than 25 years out, which are difficult to match in the fixed-income market and which are less predictable, as inflation and other factors have a longer period to work their infl . And, of course, insurance companies and pension funds are not opposed to building a surplus. Once they know their future liabilities are taken care of, they may be more than willing to take on some risks in an attempt to earn higher returns.

Clients who are nervous about investing retirement funds in the stock market may welcome an asset-liability matching approach, even if it means overweighting (by your standards) their allocation to fixed income. Like insurance companies and pension funds, which have no other goal than meeting their financial obligations when they come due, your clients may care less about becoming wealthy than simply meeting their expenses in retirement and knowing the money will be there when it is needed.

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