

# The Market Value of Pension Liabilities

**WHAT IS THE MARKET VALUE** of pension liabilities covered under FAS 158? This is a difficult question, because the Financial Accounting Standards Board (FASB) is currently between working definitions of market value as it applies to pension liabilities.

The old working definition was the projected benefit obligation (PBO) as defined by FAS 87. However, the connection between PBO and market value has been broken with the issuance of FAS 157, Fair Value Measurements (in this article, the terms “fair value” and “market value” are used interchangeably). This PBO-market value connection worked under the old FASB definition of fair value but, for the most part, doesn’t work under the new definition contained in FAS 157.

I intend to focus on just one aspect of pension liabilities—how the discount rate is determined. Because of the long-term nature of pension plans, the impact of a change in the discount rate is huge. Specifically, what discount rate is consistent with the market value of pension liabilities, and how different is that from the current method?

## Definition Change

But first, how did it come to pass that FASB decided that it needed to change the definition of fair value that it had used for 20 years or more? Was it a realization that FASB somehow got it wrong in

the first place? For an organization whose only job is to figure out rules for telling what things are worth, how is it possible that it got the definition of fair value wrong?

Here is a non-accountant’s attempt at explaining what happened. First, realize that FASB is not in the dictionary business. Its sole concern is the creation and maintenance of Generally Accepted Accounting Principles (GAAP). GAAP is not a static set of rules; the rules get changed every time a new accounting statement is issued, of which there are now 159. The rules need to change simply to keep up with the constant changes occurring in the financial marketplace.

So, for FASB, the key criterion for the suitability of the definition of fair value was the role that it intended fair value to play in the GAAP framework. As applied to pension liabilities, this role was to apply a settlement value. Essentially, the fair value of a pension liability was set very close to the current cost of buying an annuity for the full benefits owed. FASB calls this valuation method the effective-settlement method; i.e., using a discount rate at which the liabilities can effectively be settled.

This approach is still used for pension accounting under FAS 158, but these liabilities are no longer considered fair value. Previously, however, this approach to fair value worked well for FASB for several reasons. First, it injected a dose of conservatism into the fair value of pension liabilities—one of the original principles of GAAP. Also, it was mechanically convenient, as it made use of published yield curves used in the pricing of bonds. And finally, the sensitivity of pension liabilities to market interest rates mirrored the sensitivity of bond prices, so the effective-settlement method produced what looked like a market value.

Why do I say that the effective-settlement approach to fair value is conservative? Consider the Must-Settle-All Model, under which pension plan sponsors experience an irresistible compulsion to settle all pension liabilities at least annually, regardless of price or interest rates. It’s illustrated by a pension plan sponsor crawling and clawing his way to a telephone, gasping, “... must ... settle ... all ... pension liabilities!” The effective-settlement approach follows the Must-Settle-About-Half Model, under which pension plan sponsors settle roughly half of all pension liabilities annually because they are indifferent as to settling the liability or retaining it.



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As it turns out, the Must-Settle-About-Half Model does not accurately portray pension plan sponsor behavior. Excluding divestitures and excluding one company (Verizon Communications, which settled an average of about 5 percent of pension liabilities annually from 1999 to 2006), the 2007 Dow 30 pension plan sponsors settled an average of just 0.1 percent of pension liabilities and just 0.01 percent of other post-employment benefit (OPEB) liabilities annually during 1999 to 2006. These percentages represent total settlements, including plan terminations and annuity purchases from a related entity, neither of which are relevant to an ongoing pension plan sponsor's liability pricing assumptions. Anecdotally, the largest category of settlements for an ongoing pension plan sponsor is the payment of an unusually large number of lump sums in a year, and this is only vaguely indicative of an intention to settle liabilities.

FASB cast this effective-settlement fair value role for pension liabilities by including a non-equilibrium category of fair value—i.e., where an “average” pension plan sponsor would be disinclined (not indifferent) to settling the liability at the lowest available price in the marketplace. Instead, under this fair-value definition, a meeting of minds between buyer and seller on price need only be a remote possibility. The old (from FASB Concept Statement 7, or CON7) fair-value definition is:

*Fair value is the amount at which that asset (or liability) could be bought (or incurred) or sold (or settled) in a current transaction between willing parties, that is, other than in a forced or liquidation sale.*

Fair enough, but what if there is no price equilibrium—there are plenty of sellers offering to settle the liability but no willing buyers because the price is too high? In this case, the CON7 definition pits the speculative word “could” against the equilibrium-essential word “willing.” Could there be a willing buyer in a non-forced, non-liquidation situation? Of course there could be, even if it's quite unlikely. FASB

followed this line of reasoning, concluding that the offered settlement contract price represents fair value, because in theory, there could be a willing buyer, and if so, that would be the required price.

So, what caused FASB to change the definition of fair value? Probably the main reason is that the push to fair-value accounting provided pressure on FASB to wring out any conservatism it had injected into the fair-value definition; financial statement users are demanding genuine fair values, not conservative fair values. Also, removing the word “could” from the fair-value definition is an important step in preventing abuse of fair-value accounting for assets.

#### **FAS 157**

The new FAS 157 fair-value definition is stated in a sentence, but the full definition really takes up the entire statement. “Would” replaces “could,” thus removing the non-equilibrium category of fair value. The FAS 157 liability fair value focuses on the “exit price” that the market participant who owes the liability would pay to transfer it, rather than the price someone is offering to accept it. Also, the exit price that the liability holder would pay to transfer the liability must be supported by a realistic valuation technique.

To make a long story short, you determine the fair value of pension liabilities by getting inside the head of the pension plan sponsor and figuring out what he would be willing to pay to settle the pension liabilities. But you must do this using a realistic model, employing objectively observable input data, and without the benefit of mind-reading abilities or a polygraph.

How do you do this? Let's start with the easier cases and then lay the groundwork for the harder cases. First of all, if the pension liability is unfunded, there's no reason to suppose that the plan sponsor thinks differently of it than of any other debt. So, the effective-settlement approach yields fair value in this case. Also, what if plan termination is imminent? Because the plan

is about to be terminated, and liabilities are about to be settled, the effective-settlement approach yields fair value in this case, too.

Suppose you have a well-funded ongoing pension plan. What distinguishes this case is that the plan sponsor has the option of paying the benefits from the plan assets and letting the plan's investment return replenish the assets, in part or in whole. The plan sponsor's default liability pricing assumption (expressed as a discount rate) is the expected return on assets. The plan sponsor views the plan as a sinking fund, with assets projected to earn the expected rate to cover each future year's projected benefit payments.

FAS 157's fair-value method doesn't ask for the plan sponsor's default pricing assumption, however; it asks what is the lowest rate of return the plan sponsor would accept to settle the liability for future benefit payments. Typically, the plan's anticipated actual investment return is expected to deviate considerably from the mean expected return. Also, decrement experience (i.e., termination, retirement, and death) can deviate from the expected value. So, it stands to reason that the plan sponsor would accept a return lower than the plan's expected rate of return to eliminate the downside risk of the actual returns falling short of the expected return (even though also eliminating the upside potential), plus other potential sources of decrement experience loss.

And, we have noted, the empirical evidence is that the ongoing pension plan sponsor wouldn't accept a return as low as is implicit in annuity purchases (the current effective-settlement discount rate is a proxy for this discount rate). I conclude that for a well-funded pension plan, a discount rate consistent with FAS 157 would be between the current effective-settlement discount rate and the plan's expected investment return. In particular, fair-value pension liability would most likely be lower than the effective-settlement liability currently required. Actuaries and economists will have to solve the puzzle of how to rigorously determine this fair-value discount

rate as a function of the plan's funded status, liability duration, investment allocation (and resulting expected return and expected variability of return), and possibly the current effective-settlement rate.

Where's the equilibrium in this approach? It's great to determine what the plan sponsor would pay to settle liabilities, but don't you also need a willing seller at that price? There's no real-world equilibrium in this case because annuity providers are subject to reserve and investment constraints that ongoing pension plan sponsors are not, leading to a price gap. So, in the absence of real-world price equilibrium, FAS 157 has assigned to fair value the logical prerequisite price for equilibrium: i.e., the exit price at which the liability holder would be indifferent as to settling the liability or retaining it. The hypothetical counterparty would be an unrelated pension plan sponsor with

an identical pension plan who is likewise indifferent to conducting the other side of the settlement transaction.

One of the three FAS 157 valuation techniques—the income approach—uses the present value of future expected cash flows. FASB could retain the old fair-value definition by using an effective-settlement discount rate for pension payments with this technique. However, this approach would conflict with the requirement to consider the plan sponsor's pricing assumptions, because, as we have seen, the Must-Settle-About Half-Model doesn't reflect reality.

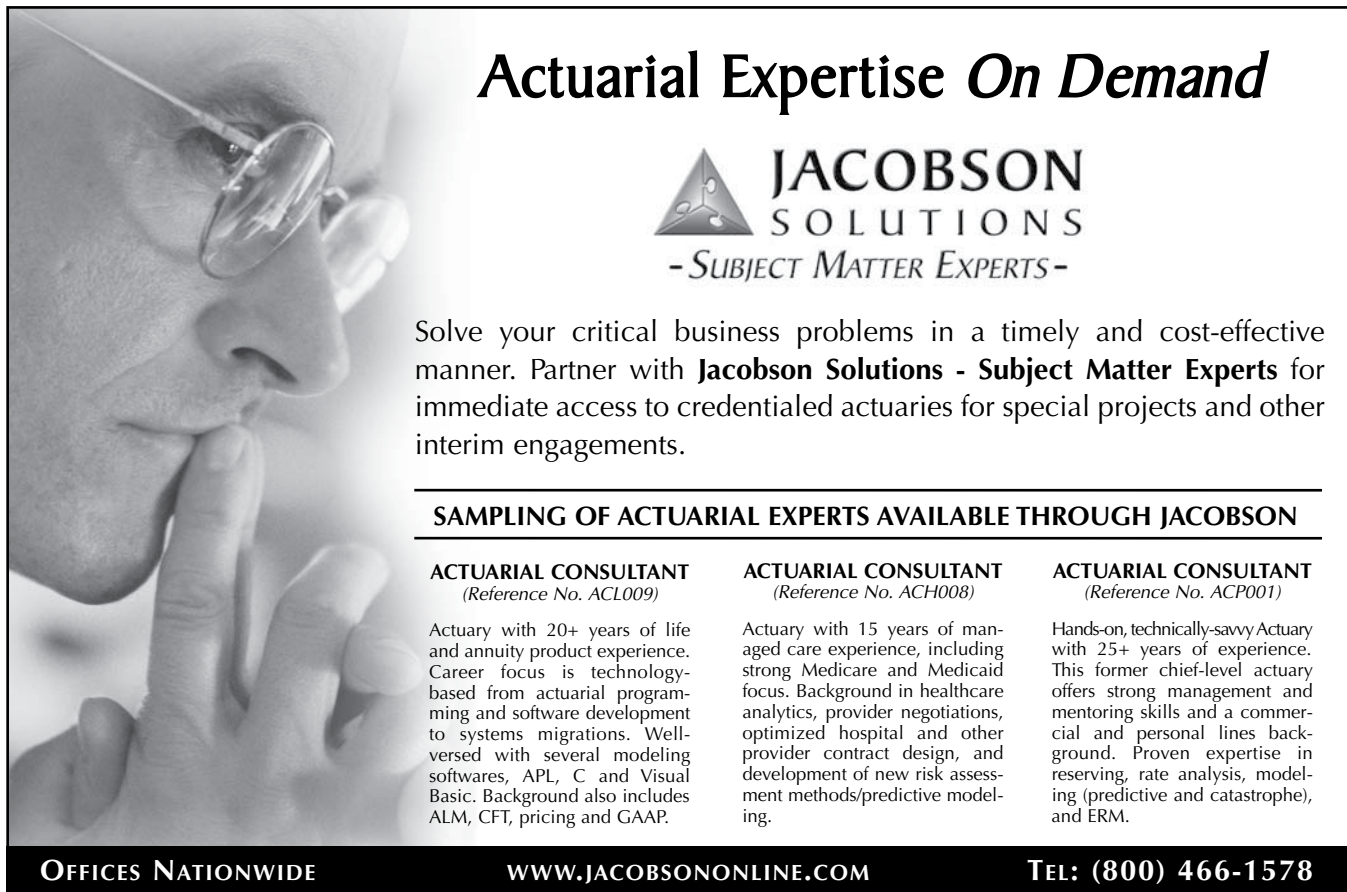
Instead, here's an outline of a possible approach to a fair-value discount rate for pension plans subject to a systematic minimum funding requirement, using expected-present-value techniques described in FAS 157 Appendix B:

▶ The ongoing pension plan sponsor regards his future obligation to fund the


plan as debt with uncertain cash flows. Because future plan benefits and expenses are funded only by current plan assets, future investment return, and future sponsor contributions, the uncertainty in future sponsor contributions is a proxy for the uncertainty of investment return plus the uncertainty of benefit cash flows.

▶ The various assumptions (or a reasonable subset) used in calculating (and forecasting) the plan's minimum required contribution are treated as random variables, with the sponsor's assumed value set at the mean, with a probability distribution and a standard deviation assigned.

▶ The present value of future minimum required sponsor contributions to the plan (discounted at an effective-settlement rate) could be calculated two ways: (A) assuming experience exactly in accordance with sponsor assumptions; and (B) using a weighted average under a representative discrete set



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of projected experience results, weighted by the probability associated with that experience result. Alternatively, (B) could be developed using the Monte Carlo method.

- (B) would very likely exceed (A), as (for example) the minimum required contribution can never be negative no matter how high the investment return, but with a low investment return, stiffer minimum funding requirements can apply. Then (B) minus (A) would represent the portion of the present value of future contributions attributable to the assumptions' expected variance from the mean.

- (B) minus (A) could be added to the present value of future benefits (calculated using a discount rate equal to the plan's expected return and using all other plan sponsor assumptions), arriving at a risk-adjusted present value of future benefits (the fair-value discount rate could then be solved for).

- For example, say the deterministic present value of future benefits (DPVFB) is \$100; (A) the deterministic present value of future contributions is \$30, and (B) the risk-adjusted present value of future contributions is \$38. Then the risk-adjusted present value of future benefits (RAPVFB) is  $\$100 + \$38 - \$30 = \$108$ . Say the discount rate used to calculate the \$100 DPVFB is the plan spon-

sor's expected return of 8 percent, and the same calculation using a 7.5 percent discount rate would produce \$108. Then, 7.5 percent is the fair-value discount rate.

What if PBO calculated at the fair-value discount rate exceeds plan assets? One approach is to use a weighted average discount rate composed of the fair-value discount rate for the funded portion of the liabilities and an effective-settlement discount rate for the remainder. What if there is evidence that the plan will terminate, say in five years—e.g., the plan has been frozen and the plan sponsor appears to be waiting until a combination of contributions and investment returns will make the assets sufficient to terminate the plan? In that case, perhaps a weighted average discount rate that reflects the anticipated settlement and the fair-value discount rate in the interim. What about other post-employment benefits (OPEBs)? The treatment of OPEBs should follow that of pensions, as is currently the case.

### **Post-Retirement Benefits Project Phase 2**

FASB has begun talking about Phase 2 of its project for post-retirement benefits (a comprehensive review of pension

and OPEB accounting) but won't address discount rates until its international counterpart IASB has completed Phase 1 of its post-retirement benefits project. Will FASB require the calculation and disclosure of the fair value of pension liabilities? This would certainly make sense, as fair-value accounting is either mandated or allowed for by all but a few scope exceptions listed in FAS 159, The Fair Value Option for Financial Assets and Financial Liabilities. Even if the effective-settlement method is retained for pension accounting, Phase 2 will not be complete without a fair-value funded status disclosure provision.

But why stop there? The biggest hurdle to fair-value pension accounting (including expense calculation) is determining what a fair-value pension liability is. Why stick with the Must-Settle-About-Half Model when you can have fair value?

Meanwhile, pension plan doomsayers have been deprived of an important tool. They can no longer talk about how pensions are underfunded on a market-value basis, because of the current lack of a GAAP definition of market value of pension liabilities. They can talk about the current GAAP pension-funded status, but they should really point out that this isn't a market-value basis, and the funded status is probably better on a market-value basis.

How much better? Stay tuned as actuaries and economists solve the fair-value discount-rate puzzle. ●

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