

# THE ANALYST'S ACCOUNTING OBSERVER

Jack T. Ciesielski, CPA, CFA

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## A Pension Deficit Disorder: End Of Year Issues

*If 2008 ended today, there would be no tears shed on Wall Street to mourn its passing. (Except for the shorts who made the right calls on financial institutions.)*

*2008's effects on the financial condition of companies in 2009 are starting to be puzzled out by Wall Street, however. When 2008 finally does end, the funded status of defined benefit pension plans on that day will have ongoing effects in 2009. Unless there's a sudden updraft in world markets, pensions will likely be seriously underfunded. That will have consequences for 2008 balance sheets - and 2009 reported earnings and cash outflows.*

*Precise estimates of how funding status will affect current balance sheets and future earnings and cash flows are not possible, but investors can at least develop ranges of outcomes to help them consider exposures. Offered here: reminders on pension reporting mechanics to help one better evaluate a firm's pension prospects.*

### I. If 2008 Ended Early...

It wouldn't be pretty. For the 345 firms in the S&P 500 with defined benefit plans, the table below outlines the possible losses racked up on pension assets if the asset allocations remained static from year end 2007 and they achieved market returns in each asset class.

### S&P 500 Pension Assets: Estimated Losses, 2008

(\$ in millions)	At 2007	Estimated Losses Through 11/14:				10/31 Values	Change	
		US Equities	Int'l Equities	Fixed Income	Real Estate			
<b>Domestic Plans</b>								Market indices used as proxy for asset class returns: <b>US Equities (including private equity)</b> - S&P 500 <b>Int'l Equities</b> - Morgan Stanley EAFE <b>Fixed Income</b> - Lehman Bros. Long-Term Corporate Bond <b>Real Estate</b> - S&P/Citigroup Global Property
Equities:								
US	\$667,934	(\$270,513)				\$397,421	-40.5%	
International	61,516		(\$29,712)			31,804	-48.3%	
Fixed income	426,692			(\$81,910)		344,782	-19.2%	
Real estate	57,439				(\$31,115)	26,324	-54.2%	
Hedge funds	7,189					7,189	0.0%	
Cash & other	97,826					97,826	0.0%	
<b>Total Domestic Plans</b>	\$1,318,596	(\$270,513)	(\$29,712)	(\$81,910)	(\$31,115)	\$905,346	-31.3%	
<b>Foreign Plans</b>	207,269		(100,228)			107,041	-48.4%	
	\$1,525,865	(\$270,513)	(\$129,940)	(\$81,910)	(\$31,115)	\$1,012,387	-33.7%	
Total YTD performance		<b>(\$513,478)</b>						

Over \$500 billion of market losses in just ten months - in funds needed to pay current pensioners, and to feed future pensioners. The only areas where no loss was projected: hedge funds and cash, and that's being generous. "Hedge funds," as disclosed in pension footnotes, is a very broad category; there's no particularly representative index that could be used for a proxy. As for cash, there's no telling what kind of instruments firms were calling "cash" - but 2008 has shown us that "cash equivalents" such as auction rate securities do not always hold their value.

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### R.G. Associates is:

<b>President:</b>	Jack Ciesielski
<b>Research Co-ordinator:</b>	Paula Tanabe, CPA
<b>Research Associate:</b>	Melissa Herboldsheimer, CPA
<b>Research Intern:</b>	Daniela Lancellotti
<b>Administration:</b>	Brenda Rappold

The estimated losses for ten and a half months far exceeded the actual gains of \$422 billion earned over the last three years. Of course, keep in mind that these are only estimates; actual (non)performance may vary. Any single company might have shifted major funds out of equities and into say, fixed income. Those kinds of results would have been only half as bad, but still quite awful. No matter how you try to rationalize it, the pension situation will spread gloom throughout end-of-year balance sheets - and spread it into next year's earnings and cash flows as well. In a nutshell, here are the likely effects of the market disarray:

• **Balance sheets.** Firms implemented Statement 158 at the end of 2006 - very fortunate for them because at the time, pension plans were nearly fully funded for the S&P 500. Statement 158 *completely* displays the funded balance of pension plans on the balance sheet. Yet the conversion to Statement 158 accounting hacked about \$152 billion, or 4.4%, out of stockholders' equity for the S&P 500 firms, due to a new treatment of unrecognized losses or gains.<sup>1</sup>

*Statement 158 made unfunded pension balances show more of a "real-time" effect of leverage. The funded balance has its own place in the balance sheet - an asset or obligation, depending on its balance. It is no longer combined with unrecognized losses or gains, which now reside in the accumulated other comprehensive income section of stockholders' equity. All else equal, shriveling pension asset values will create underfunded pension balances - and balance sheet leverage will become more pronounced.*

• **2009 Earnings.** Pension plan losses can occur in the obvious way: when pension plan assets decline in value relative to what they were expected to earn. One pension cost component is the expected return on assets, which serves as a rebate against the other pension cost elements. A firm might expect to earn an 8% return on its pension plan assets for 2008, but instead loses 22%. The difference is a 30% loss that will not be immediately recognized in earnings. It's an unrecognized loss that will be recognized in pension cost over time when it becomes large enough. "Large enough" is determined by a peculiar brand of accounting torture known as "corridor amortization."

(Note that a firm can also generate unrecognized losses on the annual revaluation of its projected benefit obligation, just as asset revaluations generate them. For example, the covered employees might now be expected to live much longer than originally estimated, resulting in a larger present value for the projected benefit obligation - a loss. Likewise, if employees are now expected to have shorter lives than last estimated, the projected benefit obligation would have a lower present value, and a consequent gain.)

## Executive Summary

- Pension plan asset losses for the 345 companies in the S&P 500 with defined benefit plans are estimated to be \$513 billion through mid-November. Plan funding shortfalls will have an impact on 2008 year end balance sheets, 2009 earnings and also 2009 cash flows to the extent of increased required contributions.
- The underfunding will have a more pronounced effect on balance sheets in this downturn as opposed to the last major market downturn in 2001 to 2003. That's because Statement 158 more clearly shows the underfunded status of pension plans (and also other postretirement benefit plans). The standard did not become effective until 2006.
- Unless there's a sudden change in the markets, pension cost will be adversely affected in 2009 because of unrecognized losses at the end of 2008 that will begin to be amortized into pension cost beginning in 2009. Likewise, 2009 pension cost will be adversely affected in 2009 because of shrinkage in the expected return on assets "rebate." This is the decrease in pension cost that is attributable to the long-term expected earnings of the pension plan assets. Even if firms do not lower their expected return rate assumption in 2009, the asset base to which it will be applied is significantly lower. If all else remained unchanged, this factor alone would increase pension cost in 2009.
- 2009 cash flows could be nicked for additional contributions required by the Pension Protection Act of 2006. This act stiffened funding requirements for plans that are not fully funded, in some cases giving them a 7-year stretch to become fully funded. The basis upon which additional contributions will be figured is not based on information available to investors. Only the past history of contributions made after a shortfall reported on a GAAP basis will provide some foundation for what to expect.
- In the current credit crisis, there is a move afoot by major companies with pension plans to dilute the Pension Protection Act provisions.

<sup>1</sup> For the effects of Statement 158 on balance sheets when implemented, see Volume 16, Nos. 9 & 10, "S&P 500 Benefit Plans, 2006: Will Pension Panic Resurface?" (2007). Potential effects of the proposed Statement 158 were discussed in Volume, 15, Nos. 8 & 9, "Too Much Of A Good Thing Can Be Awful: S&P 500 Benefit Plans." (2005)

*Pension asset losses are likely to be “large enough” at the end of this year to make corridor amortization a certainty for next year, raising pension costs. Another factor arguing for higher pension costs in 2009: even if expected rate of return assumptions are held constant from 2008 - not that they should be - they’ll be applied to a smaller asset base. That will make the expected return rebate on plan assets lower than this year, also making overall pension cost higher.*

• **2009 Cash flows.** Pension contributions will increase in 2009 because of plan underfunding at the end of this year. Contributions are based on a different set of accounting principles than used in financial reporting, and there’s no bridge from published financial statement amounts to those used in calculating federally-required contributions.

*The Pension Protection Act of 2006 became effective at the beginning of 2008 and its provisions place much stiffer funding requirements on those plans. One might look at the cash contribution history relative to GAAP-based funding status after the last bout of pension underfunding in the early part of the decade, but history will not provide much direct guidance.*

Let’s consider each of these in turn - but first, a review of how pension accounting works in financial reporting, in three distinct areas.

### **Step 1: Understanding Pension Obligations**

• It all starts with a promise by employers to take care of their employees in their golden years. Those promises to pay in the future need to be estimated in full and then translated into present value dollar amounts. The **projected benefit obligation** (PBO) is the actuarial present value at a certain date of all benefits attributed to employee service rendered. The calculation assumes that pension benefits to be provided will be based on employees’ *future* compensation levels. For instance, an employee’s benefit level may be tied to the last three years of her pay. For the expected benefit cash flow stream to be realistic, the PBO includes expected pay inflation over the employee’s career. Otherwise, the pay rate on which the benefit is based will be understated; so would the expected benefit payments.

That’s why an expected rate of compensation increase is one of the important assumptions underlying the projected benefit obligation, along with actuarial assumptions about expected employee lives. After calculating the benefits to be paid based on the expected salary, the firm’s actuaries then estimate how long each employee is expected to live and thus collect those benefit payments. That total expected flow stream needs to be brought back to the present value via the **discount rate**.

The discount rate cannot be found simply by searching in the Wall Street Journal: it’s a constructed figure. According to Statement No. 87, it’s theoretically the implicit interest rate in “a portfolio of high-quality zero coupon bonds whose maturity dates and amounts would be the same as the timing and amount of the expected future benefit payments. Because cash inflows would equal cash outflows in timing and amount, there would be no reinvestment risk in the yields to maturity of the portfolio.” In practice, firms are not going to be able to find high-quality zero coupon bonds with maturities that will match their outflows; they’re permitted to use high-quality coupon-bearing bonds to construct the theoretical portfolio that would match the expected outflow, but they have to take into account the reinvestment yield on the coupon cash flows based on the yield curve existing at the date the projected benefit obligation is measured.<sup>2</sup>

## **The Three Rate Assumptions In Pension Accounting**

**Compensation increase rate** - the rate of growth expected in employees’ compensation from the present time until they retire. Bear in mind that for some benefit attribution formulas, the last few years of an employee’s service may have the most impact on the dollar amount retirement benefits they will receive - so in figuring the projected benefit obligation, this assumption is needed to make the PBO representationally complete.

**Discount Rate** - Once a firm has figured out what is its expected cash outflow for all of its employees, it must discount those amounts back to present day dollars. Obviously, that’s what the discount rate does.

The discount rate should reflect the implicit rate in a portfolio of high-quality zero coupon bonds that would settle the cash flows of the projected benefit obligation. And the discount rate should move in the same direction as the general level of interest rates.

**Expected long-term rate of return on plan assets** - what a firm assumes it will earn on pension plan assets. These assumed earnings reduce the total pension cost - *whether or not they were actually earned*. The difference - gain or loss - between the expected return and the actual return is deferred and amortized later.

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<sup>2</sup>Statement No. 87, “Employers’ Accounting for Pensions,” paragraph 44A.

What's a "high-quality" bond? It's not spelled out plainly in Statement 87, but the SEC has held it to be corporate bonds rated Aa or higher by a recognized rating agency.<sup>3</sup> Firms may also base their discount rates from a published high-quality corporate bond index such as the Moody's Aa long-term bond rate or the Citigroup Pension Liability Index. "Basing" the discount rate on an index is not the same thing as simply grabbing the rate from a web page and running it in the PBO calculations. If a firm goes down the index route, they need to look at what the SEC expects:

**"The staff expects registrants with material defined benefit plans to include clear disclosure of how it determines its assumed discount rate, either in the financial statement footnotes or in the critical accounting policies section of MD&A. That disclosure should include the specific source data used to support the discount rate. If the registrant benchmarks its assumption off of published long-term bond indices, it should explain how it determined that the timing and amount of cash outflows related to the bonds included in the indices matches its estimated defined benefit payments. If there are differences between the terms of the bonds and the terms of the defined benefit obligations (for example if the bonds are callable), the registrant should explain how it adjusts for the difference. Increases to the benchmark rates should not be made unless the registrant has detailed analysis that supports the specific amount of the increase."<sup>4</sup>**

In practice, it's hard to find examples of the kind of disclosures the SEC is expecting. The SEC should be demanding those disclosures this year. Because of the market slump, firms will have plenty of incentive to spike discount rates - and they'll have latitude to do that. More on that later.

*Bond math rules in the development of a projected benefit obligation. A PBO is nothing more than a stream of expected cash outflows expressed in terms of present value via the discount rate; it's the same process governing bond prices. The two rates involved in the determination of the PBO work in opposite directions: inflation of the compensation increase rate will raise the PBO, all else equal, because the size of the undiscounted expected cash outflows will increase. A rise in the discount rate will lower the PBO, all else equal, because the higher discount rate yields lower present values for the outflows - just like a bond price is lowered by higher market rates of interest.*

## Step 2: Understanding Funding Status

Plan sponsors are required by the Employee Retirement Income Security Act to contribute pension assets for the benefit of the covered employees, rather than simply paying them as they go. The fair value of those assets are netted against the pension benefit obligation. The result is either an overfunded plan status where the fair value of assets exceeds the obligation, or an underfunded plan status where the PBO exceeds the fair value of the plan assets.

Time for an important point: the determination of funded status takes place on a plan-by-plan basis. Many companies have more than one defined benefit pension plan, and they may have diverging fund status. Combined overfunded plans will be displayed in the balance sheet as assets; combined underfunded plans will show up as liabilities. If the plan sponsor presents a classified balance sheet (one showing current/noncurrent assets and liabilities), then so must the net underfunded balance plans be classified: current, noncurrent or a combination of the two. Overfunded plans are classified as noncurrent assets.

*Note that this treatment just began with the implementation of Statement 158 in 2006. Prior to this, any unrecognized gains or losses on plan assets or obligations were netted against the funded balance, masking the true status of pension plans on the balance sheet. Post-Statement 158, those unrecognized gains or losses are on the balance sheet, net of tax, in the "accumulated other comprehensive income" section of stockholders' equity. Accumulated losses will decrease stockholders' equity; accumulated gains will increase it. By isolating the unrecognized gains or losses in stockholders' equity, Statement 158 presents the firm's leverage more realistically.*

## Step 3: Accounting for Annual Pension Cost

What you should know by now: there's an obligation for employers to pay pension benefits and that obligation should be reduced by assets in order to fund it. The net obligation (or asset) appears on the balance sheet, and it's the result of both plan assets and pension benefit obligation being remeasured at the end of each year. So - one would expect that the change in the net obligation should be recognized as pension expense or income as the case may be.

It doesn't work that way in the crazy world of pension accounting: the results would be far too volatile. Total pension cost is a stew composed of many ingredients - some make sense, others exist merely to flatten the pension expense.

Components that make sense: interest cost and service cost. Keep in mind the projected benefit obligation is a creature of present value: each year that passes will make it grow because interest will accrue on the obligation. Service cost is the present value of the benefits earned by the covered employees for having put in another year of service to their employer.

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<sup>3</sup> See "Current Accounting and Disclosure Issues in the Division of Corporation Finance," December 1, 2005, p. 43, at: <http://www.sec.gov/divisions/corpfin/acctdis120105.pdf>

<sup>4</sup>Ibid.

Components that don't make sense: everything else. Other chief components of pension cost include an expected long-term return on assets, amortization of unrecognized gains or losses, and amortization of prior service costs. Consider the long-term return on assets first. It's "the average rate of earnings expected on the funds invested or to be invested to provide for the benefits included in the projected benefit obligation. In estimating that rate, appropriate consideration should be given to the returns being earned by the plan assets in the fund and the rates of return expected to be available for reinvestment."<sup>5</sup> It's purely a projection, and it's applied to the market-related value of plan assets. That market-related value of plan assets might simply be their fair value - or it could be a calculated value, with fair value changes recognized "in a systematic and rational manner" over a maximum of five years. In total, it could also be a hybrid: a firm could use straight fair value for say, its fixed income holdings and a smoothed, calculated value for its equity holdings.

In short, the expected rate of return on plan assets is a guess about the rate of return to be earned on pension plan assets, based on the current and future asset mix and performance. The rate is applied to the value of plan assets - either fair value at reporting date or with an extra dollop of smoothing in a calculated value<sup>6</sup> - to produce the expected return component of pension cost. By definition, this is always a reduction of the overall pension cost: nobody uses a negative expected return assumption. Because the assumptions underlying the expected return assumption are so malleable and the earnings impact is so immediate, this is traditionally an investor focus point.

**The expected return tees up the next common component: amortization of unrecognized gains and losses.** Suppose the expected return assumption used by a company for 2008 was 8% and it actually *lost* 38%. (That might be pretty realistic, actually.) The unrecognized loss would be the difference between the actual return and expected return, and it would *not* enter into 2008 pension cost. Instead, it would be combined with any existing unrecognized losses (or gains) in stockholders' equity. When those losses become big enough, they will be recognized as a component of pension cost. How big is "big enough?" At a minimum, when the unrecognized losses/gains exceed 10% of the larger of the beginning of year market-related assets or projected benefit obligation, the excess is amortized into pension cost over the remaining service life of covered employees. This is the afore-mentioned accounting torture known as "corridor amortization."

**Plan asset losses for 2008 won't affect 2008 pension cost - but they're going to have a negative effect in 2009. On a plan-by-plan basis, firms will have to look at their cumulative unrecognized losses and compare them to the larger of the 2008 ending PBO and market-related value of plan assets. (These will be the beginning of year balances for 2009.) Any unrecognized losses in excess of 10% of the greater of the two will be amortized into 2009 pension cost, probably over the expected service life of the employees. ("Probably," because that's the longest amortization period allowed, and you have to expect that firms would want to minimize the additional cost instead of trying to amortize it over a shorter period.)**

Anyone trying to estimate the incremental pension cost in 2009 due to amortization of losses would have to know in advance of year end: 1) the cumulative unrecognized losses, both on the market-related plan assets and PBO (if any); 2) the size of the market-related plan assets and the projected benefit obligation; and 3) the service life of the covered employees. Even if one was comfortable with guesses about the first two, the third one would be a guess: there's no disclosure requirement for the expected service life of employees.

The last major component of pension cost is amortization of prior service cost. Prior service cost is the result of a plan amendment that gives covered employees increased benefits for past services. At grant, it automatically increases the plan's projected benefit obligation - but there's no matching increase in pension cost at grant. Instead, the prior service cost is worked into future pension cost based on future service. Short-cut methods are acceptable, such as amortization of the prior service cost over the lives of the covered employees. It would be more sensible if the PBO effect of plan amendments for prior services were simultaneously recognized in earnings - but that would make pension cost volatile, and therefore undesirable by reporting firms. The pension accounting contains many such accessions to the "needs" of reporting firms that wish to snuff their pension cost volatility.

***Put them all together and what have you got: pension cost! (Sort of. Economically, pension cost would be the change in the net funded obligation from year to year, and that's far from what you get.<sup>7</sup>)***

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<sup>5</sup>From Statement 87, paragraph 45.

<sup>6</sup>Note that a firm can't switch back and forth between a calculated value and fair values to its benefit. It must consistently use one method.

<sup>7</sup>See p. 12 of Volume 17, No. 5, "Benefit Plans 2007: Close To The Edge - And Back?" for more on alternative pension cost figures.

## Looking At The Layers Of The Pension Cost Parfait

Often considered a single number, net pension cost (or income, occasionally) is a parfait of many layers. The aggregate amount of cost not found in one line of the income statement, but instead is scattered throughout the income statement. Generally, wherever there is labor cost, some allocated portion of pension cost or income is also found, whether it be cost of goods sold, selling, general & administrative expense, or any other income statement caption that captures labor content. It may also be stored in the balance sheet: in the case of self-constructed assets, like buildings or plant and equipment.

Alcoa's net pension cost provides an example of the components:

(\$ in millions)	2007	2006	2005
Service cost	\$200	\$209	\$209
Interest cost	666	628	619
Expected return on plan assets	(787)	(740)	(719)
Amortization of prior service cost	15	14	22
Recognized actuarial loss	<u>127</u>	<u>118</u>	<u>95</u>
Net pension cost	<u>\$221</u>	<u>\$229</u>	<u>\$226</u>

**Service cost** - The value of the pension benefits earned by employees by virtue of having worked another year.

**Interest cost** - Pension obligations are stated at their present value. As each year goes by, an interest cost is recognized as that liability gets closer to its undiscounted value. The expected cash outflows being discounted embody the rate of compensation increase reflecting how fast the firm expects employee earnings to grow before reaching the pay level on which their pension benefits will be based.

**Expected return on plan assets** - Pension assets are expected to earn an assumed return, regardless of what the actual return is for the year. This amounts to a non-cash "rebate" on pension costs.

**Amortization of prior service cost** - Workers (or a group of workers) sometimes negotiate a pension benefit from an employer based on years of service already provided. The value of this prior service benefit is amortized over the expected service lives of the workforce.

**Recognized actuarial loss** - Expecting an 8% return on assets, a firm might actually generate a loss of 38%. Strange as it sounds, the 8% assumed earnings will be recognized in the net pension cost; the difference between expected and actual results will be recognized later if they become bigger than 10% of the greater of the beginning of year PBO or market-related value of plan assets. Likewise, the pension obligations can generate gains or losses. Whatever the source - assets or liabilities - the excess of the unrecognized gains or losses over the 10% threshold is amortized into pension cost over the expected remaining service lives of the employees (at a minimum).

The table at right shows the different assumptions used by Alcoa over the last three years. The two balance sheet assumptions are used in calculating the PBO; notice that they are reflected in the *following* year's pension cost. For example, the 5.70% discount rate used to determine the PBO at the end of 2005 was the rate at which interest was recognized in 2006 pension cost. Similarly, the 4.00% compensation increases factored into the 2006 PBO calculation were reflected in the 2007 compensation cost.

	2007	2006	2005
<b>Year-end Balance Sheet Assumptions:</b>			
Discount rate	6.20%	5.95%	5.70%
Compensation increases	4.00%	4.00%	4.00%
<b>Assumptions In Determining Annual Pension Cost:</b>			
Discount rate	5.95%	5.70%	6.00%
Expected long-term return on plan assets	9.00%	9.00%	9.00%
Compensation increases	4.00%	4.00%	4.50%

## II. What Matters At 2008's End

**Balance sheets.** With so many variables affecting pension reporting, it's hard to figure out where they will lead. Obviously, the plan asset performance is going to be a prime mover in this year's pension reporting. There could be some relief in the net funding position due to projected benefit obligations being deflated a bit because of higher discount rates. For example, the Moody's Aa corporate bond yield was 6.37% at November 7 - an increase of 89 basis points from where they stood on December 28, 2007.

Even if the increase in that "foundation" for many pension plan discount rates is a proxy for overall discount rate increases, don't expect higher discount rates to bail plans out of a severely underfunded status. It's not likely to come even close. Play with the bond math, and you'll see why. The table at left shows what happens to the present value of a series of cash flows of \$100 over 40, 30, and 20 year time frames for a 90 basis point increase from an initial interest rate of 6.25%. That rate happens to be the median discount rate in the S&P 500 plans for 2007.<sup>8</sup>

A long time frame like 40 years produces the biggest cut to the present value of the cash flows: 11.3%, which is still far from the kind of asset losses likely to be realized. Shorter time frames produce less of a cut to the present value of the cash flow stream. The higher discount rates we should see in 2008 are unlikely to automatically reduce the 2008 pension benefit obligations by any significant amount. Relative to the plan assets, the valuation of the PBOs will probably result in significant underfunded status for most firms.

A frustration for investors wanting to investigate: there's no information given about the undiscounted cash flow profile used in calculating the projected benefit obligation, nor are sensitivity factors required. Knowing the effect of a 100 basis point shift on the size of a projected benefit obligation would help investors tremendously in figuring potential balance sheet effects. There isn't much deep analysis they can execute for estimating the effects of interest rate changes on a projected benefit obligation. If one recognizes that microscopic precision isn't possible, a rough idea of balance sheet effects from pension plan performance can be figured, however. Below, an example with information drawn from **Johnson & Johnson's** 9/30 10-Q and 2007 10-K.

### Johnson & Johnson: Pro Forma Balance Sheet Pension Effects

<i>Plan assets &amp; PBO are beginning of year amounts - in \$ millions</i>					
Plan assets	\$10,469				
Assumed asset returns	-30%				
Estimated loss	<u>\$3,141</u>				
Projected benefit obligation	\$12,002				
Assumed decrease	-10%				
Estimated PBO decrease	<u>\$1,200</u>				
Incremental underfunded status	<u>\$1,941</u>				
				<b>Note: this example is provided to show the necessary balance sheet adjustments for estimates of pension underfunding. It is not showing an expectation of how J&amp;J's plan assets and PBO have actually performed in 2008.</b>	
	<b>As reported, 9/30/08</b>	<b>To Record Incremental Underfunding</b>	<b>As adjusted, 9/30/08</b>		
Current assets	\$36,590		\$36,590	<b>Change in Leverage Ratios:</b>	
Noncurrent assets	<u>51,134</u>	<u>\$679</u>	<u>51,813</u>		Financial leverage
Total assets	<u>\$87,724</u>	<u>\$679</u>	<u>\$88,403</u>		LTD/Equity
				Total liabilities/equity	
Current liabilities	\$22,730		\$22,730		
LT debt	8,395		8,395		
Deferred taxes	1,384		1,384		
Employee related obligations	5,533	\$1,941	7,474		
Other liabilities	3,948		3,948		
	41,990		43,931		
Stockholders' equity	<u>45,734</u>	<u>1,262</u>	<u>44,473</u>		
	<u>\$87,724</u>	<u>\$679</u>	<u>\$88,403</u>		
<i>The incremental underfunding is assumed to be related only to plans that began the year in underfunded state. (J&amp;J had plans that were in a net overfunded position at the beginning of the year, and the net funded status for them was reported in the noncurrent assets. For this exercise, it's assumed that they didn't go into underfunded territory.) The tax-effected amount (\$1,262) increases the unrecognized loss in the accumulated other comprehensive income account in stockholders' equity. The tax effect (\$679, or 35% x \$1,941) is an increase to deferred tax assets.</i>					

<b>40 year scenario</b>	
PV on 2007 discount rate	\$1,458.43
PV on revised discount rate	\$1,310.29
\$ difference	<b>\$148.14</b>
% difference	<b>11.3%</b>
<b>30 year scenario</b>	
PV on 2007 discount rate	\$1,340.43
PV on revised discount rate	\$1,222.43
\$ difference	<b>\$118.00</b>
% difference	<b>9.7%</b>
<b>20 year scenario</b>	
PV on 2007 discount rate	\$1,124.07
PV on revised discount rate	\$1,047.16
\$ difference	<b>\$76.91</b>
% difference	<b>7.3%</b>

<sup>8</sup>See Volume 17, No. 5, "Benefit Plans 2007: Close To The Edge - And Back?", April, 2008, p.11.

In Johnson & Johnson's case, the effects of a 30% decline in plan assets and a 10% deflation in the projected benefit obligation didn't change the complexion of the balance sheet very much, in terms of the leverage ratios. Even if *no* decline in the PBO is assumed, the leverage ratios for J&J do not reach alarm-causing levels.

*In any scenarios an analyst might care to draw, it's important to rein in exuberance in extrapolation. What matters is the value of plan assets and obligations at one point in time: the last day of the year. Asset values and interest rates (affecting discount rates) could be quite different from current levels.*

**Income statements.** There are two primary ways that this year's asset performance will affect next year's pension cost. The first: unrecognized losses will likely be large enough to warrant amortization into next year's pension cost, making for increased net pension cost. The second: even if expected asset return assumptions are not reduced, the pension cost rebate for asset performance will be smaller because it will be calculated on a shrunken asset base. Let's study the effect of amortizing the net losses more closely, continuing with the Johnson & Johnson example.

**Estimating Total Losses**

Unrecognized actuarial losses	\$1,027
Assumed asset losses	3,141
Assumed PBO gains	(1,200)
Ending 2008/Beginning 2009 unrecognized losses	\$2,968
Beginning of year 2009 assets	\$7,328
Beginning of year 2009 PBO	\$10,802
Larger of BOY assets or PBO	\$10,802
times 10% = Corridor threshold	\$1,080
Excess of losses over threshold	\$1,888

At left: start with the unrecognized actuarial losses at the beginning of 2008. Add to it the expected net losses on the assets and the assumed gains on the PBO, for a total of \$2.968 billion, pretax, reducing the stockholders' equity. Then compare it to the greater of the ending 2008/beginning 2009 assets or projected benefit obligation, using the amounts previously estimated<sup>9</sup>. The estimated PBO is the greater of the two, so 10% of it becomes the threshold for amortizing the unrecognized losses: \$2.968 billion less \$1.080 billion yields \$1.888 billion to be burned into pension cost over the remaining service life of the employees.

Just one problem: what is the expected service life of the covered employees? It's not a required disclosure. At least one can rough out a reasonable guess, as in the table at right. Basically it's a repeat of the same exercise - but once the amount to be amortized beginning in 2007 has been determined, it's divided by the amortization actually present in the 2007 expense to reverse-engineer the years in the amortization/service life period: a short 8.77 years. Assuming the average imputed life would be equally affected in 2008 by newcomers to the pension plan and by retirees, another year would be lopped off of the average. The estimated 2009 pretax increase to pension cost would be \$243 million - \$1.888 billion divided by 7.77 years.

**Imputing Service Life**

2007 BOY PBO	\$3,561
2007 BOY Plan assets	\$1,650
Larger of BOY assets or PBO:	\$3,561
times 10% = Corridor threshold	\$356
Unrecognized actuarial losses, EOY 2006	\$1,996
Less "corridor" threshold	356
To amortize in 2007	\$1,640
Divided by 2007 recognized actuarial losses	\$187
Imputed service lives in 2007	8.77

**This would make for a reasonable estimate if the pension data was presented for only one plan.** The caution has been sounded before that the pension information presented is an amalgam of all plans of a firm, not just one. Suppose the \$187 million of 2007 recognized actuarial loss really related to one plan that had say, \$4 billion of unrecognized losses, offset by another plan that had \$2.004 billion of unrecognized gains. In the aggregate, the only thing the investor knows existed in 2007 was an unrecognized loss of \$1.996 billion, and goes through the exercise above - and it would be incorrect. The corridor test would have to be done on the PBO and assets of that particular plan. There might be no corridor amortization on the plan with unrecognized gains, but only on the plan with unrecognized losses - making the \$187 million related to the plans with much more to burn into pension cost. If it was twice the amount in the example above, then the imputed service life would be twice as long as the original estimate.

If you're trying to estimate the potential effects of plan losses on next year's pension cost, don't limit yourself to what you derive in this exercise. Try to construct a range of estimates, with perhaps five to seven years on either side of what the imputed service life might be. Estimating pension cost is not a precise task: getting the direction right is more important, and achievable, than trying to come up with a single estimate that's on the money.

On to the other effect of the market slump on pension cost: the expected return on assets contribution. The assumed long-term earnings rate assumption is applied to the market-related value of assets - it may be a calculated value that smooths the loss recognition, or it may be the fair value of the assets. It's up to the company to choose, but it must apply the method consistently. Either way, the expected return contribution should decrease - it's just that it will decrease less if the losses are being averaged than if it is calculated on a straight fair value of assets. Unfortunately, a firm is not required to disclose whether

<sup>9</sup>The assets to be used in the amortization test is the market-related value of assets - which, as discussed earlier, can be the fair value of the assets or a calculated value. The selection is not required to be disclosed, so the investor is essentially forced to presume that the company uses a fair value figure - the only one disclosed.

its market-related fair value is a calculated value or a fair value. Still, this is an exercise in getting the direction of a change right, and not coming up with exact point estimates.

Continuing with the J&J example: the investor now believes that the 2008 ending assets will be down 30%, at \$7.328 billion, and does not expect the company to change the expected long-term rate of earnings on plan assets. In 2007, Johnson & Johnson used an expected long-term earnings rate of 9.00%; if it uses it again in 2009, then the expected return on beginning plan assets will be \$660 million.<sup>10</sup> In 2007, the expected return was \$809 million - meaning there could be a \$149 million increase in pension cost even if all other components were unchanged.

Will companies lower their expected return assumptions because of the market pandemonium? If they're consistent with their past behavior, they probably will. S&P 500 firms have steadily decreased their expected returns in the past five years, albeit on a small scale.<sup>11</sup> Whether or not they decrease expectations, it always makes sense to check the realism of the expected returns. A reasonableness test (believability test?) can be done quickly with the table below. It shows what the implied earnings assumption is for the equity portion of a portfolio, assuming a 5% earnings rate on the fixed income part. The 8.25% expected return (highlighted) is the median expected return assumption for the S&P 500, and it may seem reasonable at first. Consider though, that if firm employing that assumption with a 40%/60% bond/equity mix, it's really saying it expects to achieve better than 10.4% on its equity allocation - something that nobody expects like clockwork these days.

### Expected Returns For Different Bond/Equity Blends

Portfolio Mix:		Overall Expected Return Assumptions								
Bonds	Equity	7.25%	7.50%	7.75%	8.00%	8.25%	8.50%	8.75%	9.00%	9.25%
0%	100%	7.25%	7.50%	7.75%	8.00%	8.25%	8.50%	8.75%	9.00%	9.25%
10%	90%	7.50%	7.78%	8.06%	8.33%	8.61%	8.89%	9.17%	9.44%	9.72%
15%	85%	7.65%	7.94%	8.24%	8.53%	8.82%	9.12%	9.41%	9.71%	10.00%
20%	80%	7.81%	8.13%	8.44%	8.75%	9.06%	9.38%	9.69%	10.00%	10.31%
25%	75%	8.00%	8.33%	8.67%	9.00%	9.33%	9.67%	10.00%	10.33%	10.67%
30%	70%	8.21%	8.57%	8.93%	9.29%	9.64%	10.00%	10.36%	10.71%	11.07%
35%	65%	8.46%	8.85%	9.23%	9.62%	10.00%	10.38%	10.77%	11.15%	11.54%
40%	60%	8.75%	9.17%	9.58%	10.00%	10.42%	10.83%	11.25%	11.67%	12.08%
45%	55%	9.09%	9.55%	10.00%	10.45%	10.91%	11.36%	11.82%	12.27%	12.73%
50%	50%	9.50%	10.00%	10.50%	11.00%	11.50%	12.00%	12.50%	13.00%	13.50%
55%	45%	10.00%	10.56%	11.11%	11.67%	12.22%	12.78%	13.33%	13.89%	14.44%
60%	40%	10.62%	11.25%	11.88%	12.50%	13.13%	13.75%	14.38%	15.00%	15.63%
65%	35%	11.43%	12.14%	12.86%	13.57%	14.29%	15.00%	15.71%	16.43%	17.14%
70%	30%	12.50%	13.33%	14.17%	15.00%	15.83%	16.67%	17.50%	18.33%	19.17%
75%	25%	14.00%	15.00%	16.00%	17.00%	18.00%	19.00%	20.00%	21.00%	22.00%
80%	20%	16.25%	17.50%	18.75%	20.00%	21.25%	22.50%	23.75%	25.00%	26.25%
85%	15%	20.00%	21.67%	23.33%	25.00%	26.67%	28.33%	30.00%	31.67%	33.33%
90%	10%	27.50%	30.00%	32.50%	35.00%	37.50%	40.00%	42.50%	45.00%	47.50%
95%	5%	50.00%	55.00%	60.00%	65.00%	70.00%	75.00%	80.00%	85.00%	90.00%
100%	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA

Future market returns are always anyone's guess. The table above was prepared with an assumed 5% return on the bond portion of a pension asset portfolio. For a given expected rate of return in the top row, and a particular asset mix in the left-hand columns, you can see the implied expected rate of return on the equity portion in the table body. Notice that the double-digit equity returns are shaded - and there are plenty of them. Single-digit expected rates of return might not be as reasonable as they sound.

**Cash flow expectations.** If the funded status of pension plans has worsened, then the funding requirements of the Employee Retirement Income Security Act will take hold. It's the degree to which cash flow will be affected that is an unknown - and unknowable. While there's a plethora of information about the pension plans in GAAP-based financial statements - and still more needed for really effective modeling - none of it relates to the basis upon which required contributions are determined. Funding status is based on a different set of principles than GAAP-based pension reporting.

Among the differences: no salary inflation in the determination of the pension obligation; the way discount rates are constructed; and assets are smoothed values rather than reported fair values. In short, you can't start from the GAAP financial statements and arrive at the ERISA-based figures in order to estimate the exposure to increased pension funding.

<sup>10</sup>A company may estimate its asset contributions and payments for an upcoming year so as to apply the expected earnings rate to average assets - not done here, in order to keep the example simple.

<sup>11</sup> See Volume 17, No. 5, "Benefit Plans 2007: Close To The Edge - And Back?", April, 2008, p.13.

Frustrating investors even more, the Pension Protection Act of 2006 became effective this year, and it imposes stiffer funding consequences for underfunded plans. For example: underfunded plans (generally defined as less than 80% of being fully funded) will face increased contributions over the next seven years to bring them up to a fully funded state. In any one year, the impact will not be felt immediately. If they achieve full funding before the end of the seven year period, their responsibility for the additional contributions would cease.

The problem for investors: they can't get an idea of what constitutes the funded status of the plans by looking at the pension footnotes because of the difference in accounting basis. Even if they were the same, investors would still be faced with the problem of aggregation, where contribution responsibility for an underfunded plan might be masked by another better-funded plan.

*The only reasonable course of action for investors would be to take a look at the past contribution history of a firm in the years after it showed underfunded status. While the future cash contributions in the event of underfunding aren't going to be similar, at least they provide a floor value from which the investor or analyst could model increased contributions.*

### III. Other Considerations

Pension plans have moved to the forefront of investor concerns for two simple reasons: pension plans are well-invested in the capital markets, which are themselves a concern investors, and federally-required contributions to plans will draw cash away from uses that benefit investors.

Why don't investors worry about the first cousin of defined-benefit plans: other postretirement benefit plans like health care obligations? After all, the accounting is very similar. Investors worry less about them than pensions for exactly the opposite of the two reasons above: these plans are skimpily funded, if at all, and there are no federal requirements that payments be made to such plans.<sup>12</sup>

Unless markets right themselves before year end, there will certainly be an effect on balance sheets and 2009 earnings. It's not as certain, however, that cash flow will be affected in any case. If markets improve - make your own guess - then funding status would improve as well, making really onerous contributions less likely. If markets don't improve, it wouldn't be surprising to see Congress postpone or otherwise dilute the "hurry-up funding" provisions of the Pension Protection Act of 2006. With everything on the table in the credit crisis, from accounting standards to bailing out entire industries with taxpayer funds, it would seem unlikely that this cash requirement would be overlooked. Companies are making sure that Congress doesn't overlook it, either: 300 of them have signed on to a letter urging Congress to lighten the Act's provisions.<sup>13</sup> So, the current outbreak of pension deficit disorder might be a bit premature.

*Wait another month and a half; in the meantime, pay the most attention to companies of interest that have the highest degree of exposure to equities in their pension plans. They're the most vulnerable in terms of where their funded status will take them in the near future.*

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<sup>12</sup>See Volume 17, No. 5, "Benefit Plans 2007: Close To The Edge - And Back?", April, 2008, for more about the funding levels of both kinds of plans at the end of last year in the S&P 500.

<sup>13</sup>See "Companies Push Congress for Pension Relief," by Stephen Manning, Associated Press, at: [http://ap.google.com/article/ALeqM5ijkmpntJkWi6wHF\\_jJO2FQmsuGoAD94D69700](http://ap.google.com/article/ALeqM5ijkmpntJkWi6wHF_jJO2FQmsuGoAD94D69700)

R.G. Associates, Inc.  
201 N. Charles Street, Suite 806  
Baltimore, MD 21201-4132

**Phone:** (410)783-0672

**Fax:** (410)783-0687

**Internet:** [jciesielski@accountingobserver.com](mailto:jciesielski@accountingobserver.com)

**Website:** [www.accountingobserver.com](http://www.accountingobserver.com)

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