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Developments

RECENT DEVELOPMENTS IN EMPLOYEE BENEFITS

Life after Deductions

By Ken Hohman, FSA, EA, FCA, MAAA

Fred Goldberg, former IRS Commissioner (1989-1992), once said, "Our income tax system has been destroyed by complexity – a complexity caused largely by well-meaning efforts to achieve theoretical purity, eliminate every real and imagined 'abuse,' and address nontax policy objectives." The chorus of "simplify the Tax Code" is being sung by a number of politicians and has been a frequent tune played in the 2016 presidential election debates, which may put it front and center on the Congressional agenda in 2017. Simplification sounds attractive but it could have a dramatic impact on employers and retirement plan participants.

After forty years of sifting through thousands of pages of the Internal Revenue Code, as well as hundreds of thousands of pages of regulations and other guidance related to the Code (OK—I may be exaggerating a touch), I have some real sympathy for Goldberg's position. However, one of those nontax policy objectives that he may believe is destroying our tax system is saving for retirement—the industry I've labored in all these years, so this is hitting pretty close to my roots and livelihood. While it wouldn't make much of a movie plot, the internal conflict I feel is palpable (personally, I see Brad Pitt in the role of the conflicted actuary).

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It is instructive to note that the US government starts from the perspective that everything should be taxed. The Joint Committee on Taxation (the JCT) notes that "tax expenditures" are defined under the Congressional Budget and Impoundment Control Act of 1974 (the "Budget Act") as "revenue losses attributable to provisions of the Federal tax laws which allow a special exclusion, exemption, or deduction from gross income or which provide a special credit, a preferential rate of tax, or a deferral of tax liability." The JCT measures tax expenditures over five-year periods. The tax expenditure attributable to the net exclusion of contributions and earnings for qualified employer retirement plans for the period 2014-2018 is just under $650 billion (i.e., in the government's view, this is the amount they have given up that is rightfully theirs). This is up from $85.5 billion relinquished during 1980–1984. Note that this does not include the expenditures related to Individual Retirement Accounts, but does net out the taxes expected to be paid on retirement benefits received.[1]

While the JCT has started splitting the expenditures related to defined contribution (DC) plans and defined benefit (DB) plans, the combined expenditure for all qualified retirement plans is the second largest tax expenditure after the exclusion of employer contributions for health care (which totals $785 billion).

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Everett Dirksen famously said, "A billion here, a billion there, and pretty soon you're talking about real money." Well, at $650 billion, we're talking real money—amounts large enough to make a politician take notice.

President Obama noticed and recommended budgets that decrease this tax expenditure. The President's position is that this expenditure primarily benefits the highly paid;

Also in this issue:

although, ERISA and numerous regulations are designed to prevent qualified retirement plans from discriminating in favor of *highly compensated employees*. This is enforced through a number of tests to assure that:

- a plan covers a sufficient number of lower-paid employees
- compensation of higher-paid employees is limited
- additional benefits or contributions are provided to the lower-paid if over 60 percent of the plan's benefits or contributions are provided to *key* employees
- benefit formulas and contribution allocation methods are nondiscriminatory
- benefits, contributions, and 401(k) deferrals are limited so the highly paid cannot take excessive advantage of the plan

A common complaint is that these tests generally look at discrimination in benefits, contributions, and deferrals in relation to a percentage of pay (albeit pay limited to $265,000 for 2016). For example, assume a $70,000 employee receives an annual contribution of $14,000 between employer contributions and salary deferrals and a $300,000 employee receives $53,000. Both are accumulating 20 percent of pay (limited to $265,000) in their retirement account; although, due to the limit, the $300,000 employee is actually receiving a contribution that is less than 18 percent of total pay. The Administration argues that this produces benefits that are too large for the highly paid individuals and that the benefit should not be subsidized with tax expenditures. Those supporting this position recommend lowering all the dollar limits in order to lower qualified plan expenditures for the highly paid.

Some have suggested that the maximum amount of employer contributions and deferrals of $53,000 (for 2016) should be lowered, to say $25,000. The basis for this is that tax expenditures should be limited to a level that is appropriate for encouraging retirement savings for nonhighly paid employees. That is, tax incentives should not be wasted on the $300,000 employee for retirement saving.

The Administration has gone a step further. Under its proposal, if the total of all an individual's qualified retirement accounts (including IRAs) exceeds a dollar threshold, the individual will be prohibited from having any further contributions made to those accounts. If this proposal becomes law, we will need sage guidance to explain how to administer the requirement. The explanation provided in the President's budget proposal appears theoretically accurate but administratively challenging. (Will the employer need to keep track of what every participant has in his or her personal IRAs and prior employers' plans?)

There is certainly reasonable logic in asserting that it is wasteful to dedicate tax expenditures to encourage highly paid individuals to save for their own retirement. Surely, these folks have the financial wherewithal to save for retirement without a tax subsidy.

The flip side

Those opposed to this logic note that by reducing the tax benefit for retirement contributions for business owners and managers, these corporate decision-makers will see no incentive for maintaining an employer-sponsored retirement plan. Is this argument simply political lobbying rhetoric or is it financial fact? And if it is true, is it a bad thing?

"All else equal, a simple tax system is preferred from the standpoint of complying with, and enforcing, the tax laws. . ."

In its February 2015 paper, the JCT make the following cogent comment:

> *"All else equal, a simple tax system is preferred from the standpoint of complying with, and enforcing, the tax laws. . . . When the system has a large number of tax expenditures, the agency administering the system must have a large staff to formulate the rules and to insure that taxpayers calculate tax liability correctly. . . . Taxpayers themselves must invest large amounts of time in understanding the rules so as to avoid overpaying their taxes, or alternatively, find that they are better off by paying for professional advice and tax return preparation. This time and effort diverted from other activities is a source of inefficiency generated by a complicated tax system. . . . Finally, extensive use of the income tax for delivering subsidies may adversely affect individuals' perceptions of the equity of the tax system."*[2]

The Tax Code and regulations related to retirement savings are anything but simple, and there is a cadre of IRS and Department of Labor agents to enforce compliance with the complex rules. However, many of the changes being proposed would add to the complexity rather than simplify.

There is little incentive for business owners to maintain tax qualified retirement plans for their employees if the tax benefit for the highly paid employees is reduced or eliminated and the cost of maintaining the program (due to administrative complexity and/or fiduciary liability) is not reduced (or actually increases). There may, however, be ample reason to continue retirement plans if the administrative burden is reduced.

Historically, employers sponsored a meaningful retirement program in order to attract and retain talented employees. Certainly this is a greater motivation when unemployment rates are low and workers are in demand, but unless and until a significant number of large employers eliminate their retirement programs, not having a plan will be a competitive disadvantage.

Another rationale to provide a retirement program can be found in a 1936 thesis by Birchard Wyatt (a cofounder of The Wyatt Company—the company that evolved into the consulting firm Willis Towers Watson). Wyatt's thesis states that, "the alternative to sponsoring a pension plan is to have hidden pensioners lingering on the payroll." The term hidden pensioners infers an individual who no longer has a value to the employer commensurate with the cost of pay and benefits provided. I conjure an image of a disgruntled retirement-aged employee sitting at his or her desk, daydreaming about a beach, a book, and an umbrella drink—but financially unable to retire (don't look at me that way!). The move from traditional defined benefit pension plans to defined contribution plans has created a giant Petri dish in which to test Mr. Wyatt's eighty-year-old hypothesis.

> "the alternative to sponsoring a pension plan is to have hidden pensioners lingering on the payroll."

There are highly qualified people who continue to work beyond the historically accepted retirement age because they enjoy the challenge of their job and want to keep working. Of course, there is the potential that even motivated older employees may incur a diminution in ability that causes them to be unprofitable to their employer. This risk was certainly a driver in the creation of pension plans, before those of us in this age category became "protected" under law.

To the extent that employers recognize the risk that older employees, who would rather be enjoying retirement, will hang onto their jobs solely because they cannot afford to retire, is a strong justification to maintain a meaningful retirement program regardless of tax incentives.

While pension plans provided greater security to retirees through the guarantee of lifetime income and the employer's assumption of market and longevity risks, there is no reason that employer-sponsored defined contribution plans cannot provide sufficient retirement income to avoid the pitfall of hidden pensioners.

But what if tax deductions for contributions (and perhaps investment earnings) were greatly reduced, or eliminated?

Wagging the dog

We (employers, consultants, the government, and workers) have created a retirement conundrum—we have developed a retirement dog that is being wagged by its tax-deductible tail. It seems unreasonable to think that a shortened or removed tail will wag the dog as it has in the past, but play along with me as we devise one possible scenario.

> . . .we have developed a retirement dog that is being wagged by its tax-deductible tail.

It is difficult to imagine employers willing to subject themselves to arcane discrimination requirements without sufficient tax incentive. That could suggest that employers would drop tax-qualified retirement plans in favor of nonqualified plans that can be discriminatory. These plans, however, have grown in complexity, particularly when the plan is intended to benefit a broad group of employees.

I could conjecture that if the government greatly reduces the tax incentives associated with retirement savings, employers may ignore the risk of hidden pensioners and provide retirement dollars through higher salary. If this starts a trend, and enough employers follow it, not having a retirement plan will no longer be a huge competitive disadvantage; however, this is a big "if" — recall all the talk of employers eliminating their health plans after the Affordable Care Act. But if this scenario plays out, our three-legged stool retirement paradigm—that is, retirement provided through Social Security, voluntary (a very important adjective) employer-sponsored retirement plans, and voluntary (that word again) personal savings, will become a pair of stilts.

If everyone is financially responsible, this may work, but on the (not so) slim chance that it does not, there will then be extreme political pressure to fix the retirement crisis. The case will be made in Congressional committees that employers shirked their responsibility and retirement savings is too complex for the masses, leading to eloquent oratory in the Congressional chambers demanding that we Federalize retirement (after all, we've done such an exemplary job of keeping Social Security fiscally sound). Our retirement system will transform from a three-legged stool to stilts and then a pogo stick, with all retirement savings structured through the government.

There are many other directions the future of retirement could travel. Employers could recognize the risk of hidden pensioners and choose to maintain retirement plans that primarily benefit lower-paid employees. Or both sides of the Congressional aisle could come together and devise retirement incentives that encourage appropriate retirements savings with reduced compliance burdens (don't laugh . . . it could happen).

> Absent a DB plan, the best approach to lessen the chance of accumulating hidden pensioners is a substantial DC retirement plan.

Employers ignore hidden pensioners at their own peril. This group of employees may not only be inefficient, they may also be seen as impediments to advancement by young, aggressive workers. The hidden pensioner, by definition, is not as engaged in their job as he or she should be or once was. A hidden pensioner's laissez-faire attitude can be contagious and open the door to a number of competitive and litigation risks. DB plans were excellent workforce management tools and kept hidden pensioners to a minimum by providing a means for employers to incentivize these individuals to retire. Absent a DB plan, the best approach to lessen the chance of accumulating hidden pensioners is a substantial DC retirement plan.

We may have a better sense of the course after the November elections, but major changes to the Tax Code will not come quickly. Once changes do develop, check that Petri dish often to see how this bacteria is growing.

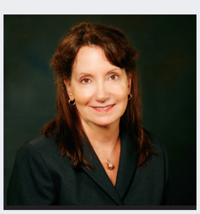
[1] *Joint Committee on Taxation, Background Information on Tax Expenditure Analysis and Historical Survey of Tax Expenditure Estimates (JCX-18-15), February 6, 2015.*

[2] *Ibid.*

Kenneth F. Hohman, FSA, EA, FCA, MAAA

Ken has spent 40 years in the retirement industry, 38 as an actuarial consultant with BPS&M. His expertise is in the design, funding, administration, and regulatory compliance of qualified and nonqualified retirement plans. His clients comprise a variety of employers, including Native American tribes, governmental entities, not-for-profit, and for-profit private employers. He heads the firm's ESOP Practice Group and has extensive experience in assessing the feasibility of establishing ESOPs, including repurchase liability studies. He has presented at the annual Enrolled Actuaries Meeting on various employee benefits issues, has written articles on retirement plan topics, and has spoken at various venues, including IRS internal training seminars. He is a past president of the American Academy of Actuaries. Ken is the managing principal in our Louisville, KY office.

CONSULTANTS *in the* LIMELIGHT



The *Navajo Nation Retirement Guide,* which was written and designed by **Kathie Tange-duPré** (BPSM Nashville), has received two awards: the Communicator Award and 2016 Pension & Investment Eddy Award.

With over 6,000 entries received from across the US and around the world, the Communicator Awards program is the largest and most competitive awards program honoring the creative excellence for communications professionals. The Retirement Guide won an Award of Distinction in the 'Brochure-Educational' category, presented for projects that exceed industry standards in quality and achievement.

The Pension & Investments (P&I) Awards were created over 20 years ago to identify and reward the best practices in providing investment education to defined contribution plan participants. The Retirement Guide was awarded 1st Place within the Special Projects category.

An Alternative Method to Develop Benefit Plan Costs

By Rachael Padgett, ASA, MAAA

In a September 2015 meeting with the Big Four audit firms, the SEC staff stated it "would not object" to the use of an alternative method in calculating service and interest costs for both pension and OPEB plans. This alternative method, called the "disaggregated" or "spot rate" method, uses the full yield curve for a more precise estimate of the discount rates used to develop these components. Such a change may lower the immediate benefit costs for many plans.

Background

The benefit obligation for pension and OPEB plans is calculated by discounting each expected payment to the present by a spot rate from the corresponding duration on a high-quality corporate bond yield curve. Based on the benefit obligation and expected payments, a single weighted-average discount rate can be calculated. This rate is the single annual rate that would produce the same benefit obligation as the full yield curve. The single rate is unique to each plan, as it depends on the timing and size of the expected future payments. In Table 1, to the right, a single discount rate of 4.28 percent has been calculated.

For calculating service and interest costs, most plans currently use the traditional method, whereby the service and interest costs are measured using this single discount rate for all payments, regardless of timing. Under the new spot rate method, one or both costs may be calculated based on the full yield curve that was used to determine the benefit obligation. This method was first used by AT&T in the fourth quarter of 2014. In a statement to the SEC, AT&T stated that "the full yield curve approach, while not prevalent in practice, is a more precise measure of the components of the Company's net periodic pension and other postretirement benefit cost."[1] Since 2014, more companies have adopted the spot rate method; according to the Milliman 2016 Pension Study, 37 of the Milliman 100 plan sponsors disclosed adoption of this method for fiscal year 2016 pension expense.[2]

Table 1: Single Discount Rate Illustration

Duration	Expected Payments ($000)	Yield Curve Rate	Present Value using Yield Curve ($000)	Present Value using 4.28% ($000)
0.5	20,000	0.61%	19,939	19,585
1.5	21,000	1.51%	20,532	19,721
2.5	21,500	1.96%	20,482	19,362
3.5	22,000	2.23%	20,366	18,999
4.5	22,500	2.45%	20,179	18,634
5.5	23,000	2.66%	19,908	18,266
6.5	23,500	2.88%	19,545	17,898
7.5	23,500	3.10%	18,697	17,163
8.5	23,500	3.31%	17,813	16,459
9.5	23,500	3.52%	16,913	15,784
10.5	23,500	3.72%	16,015	15,136
11.5	23,500	3.90%	15,134	14,515
12.5	23,500	4.06%	14,282	13,920
13.5	23,000	4.21%	13,182	13,064
14.5	23,000	4.34%	12,427	12,528
15.5	22,500	4.45%	11,463	11,753
16.5+	363,000	4.54–4.86%	108,892	122,982
Total Present Value (Benefit Obligation)			**385,769**	**385,769**

Implementation and Changes

Because the benefit obligation is based on the yield curve, it will be the same under either method. Only the service and interest costs (and therefore the net periodic benefit cost) will change with the implementation of the spot rate method.

Table 2, which appears on the following page, expands on the example in Table 1. In Table 2, interest cost is reduced by approximately 18 percent with the use of the full yield curve for this particular plan.

The SEC staff said it "would not object" to treating this change as a change in accounting estimate and advised that robust disclosures should be included with the financial statements the first year the spot rate method is used.

This alternative method is seen as a more precise approach by the SEC. If a plan sponsor elects to change to this method, the SEC would not expect the plan

Table 2: Comparison of Traditional and Spot Rate Methods

	Traditional Method			Spot Rate Method		
Duration	Rate	Present Value ($000)	Interest Cost ($000)	Rate	Present Value ($000)	Interest Cost ($000)
0.5	4.28%	19,585	838	0.61%	19,939	122
1.5	4.28%	19,721	844	1.51%	20,532	311
2.5	4.28%	19,362	828	1.96%	20,482	401
3.5	4.28%	18,999	813	2.23%	20,366	454
4.5	4.28%	18,634	797	2.45%	20,179	494
5.5	4.28%	18,266	782	2.66%	19,908	530
6.5	4.28%	17,898	766	2.88%	19,545	562
7.5	4.28%	17,163	734	3.10%	18,697	579
8.5	4.28%	16,459	704	3.31%	17,813	590
9.5	4.28%	15,784	675	3.52%	16,913	596
10.5	4.28%	15,136	648	3.72%	16,015	596
11.5	4.28%	14,515	621	3.90%	15,134	590
12.5	4.28%	13,920	596	4.06%	14,282	580
13.5	4.28%	13,064	559	4.21%	13,182	555
14.5	4.28%	12,528	536	4.34%	12,427	539
15.5	4.28%	11,753	503	4.45%	11,463	510
16.5+		122,981	5,262		108,892	5,200
Total			**16,506**			**13,209**
Interest on Expected Benefit Payments			**(423)**			**(61)**
Total Interest Cost			**16,083**			**13,148**

under the spot rate method, the actuarial loss will be that much higher (or the gain that much lower). Any gain or loss is amortized over a number of future years, depending on the plan provisions, essentially smoothing the change over time.

Table 3 is an example of the benefit obligation reconcilation for 2015 and 2016 under each method. This example assumes that the benefit obligation is $383 million in 2016. Note that although a service cost example calculation is not shown, the 2016 service cost also decreases under the spot rate method.

While most plans can expect a decrease in service and interest costs, a downward sloping yield curve would likely cause higher benefit costs under the spot rate method than under the traditional method. This would result in a lower actuarial loss (or higher actuarial gain), which would be amortized over future years.

In perspective

Since 2014, many plan sponsors have decided to switch to the spot rate method. When considering this alternative method, plan sponsors should keep the following in mind:

- Continued use of the traditional approach is a valid option.
- If the spot rate method is elected, changing back to the prior method is not an option.
- The new method is seen as more precise, but it requires additional disclosures.
- The magnitude of the change in costs will depend, in part, on a plan's demographics.
- A downward sloping yield curve, while rare, will increase service and interest costs.
- Plan sponsors using a method other than the yield curve approach (such as bond matching) would need to have a discussion with their auditors and the SEC staff prior to adopting the alternative method.

As with any method, the spot rate method has its advantages and disadvantages. Plan sponsors should

sponsor to change back to the traditional method in a subsequent year.

Because the benefit obligation is not affected by the new method, and benefit obligations must be reconciled from year-to-year as illustrated in Table 3 below, any change in service and interest costs will be offset by another entry: the actuarial gain or loss. If the benefit costs are lower

Table 3: Annual Reconciliation

	Traditional Method ($000)	Spot Rate Method ($000)
Benefit Obligation 12/31/2015	385,769	385,769
Service Cost	4,758	4,457
Interest Cost	16,083	13,148
Actuarial (Gain)/Loss	(3,610)	(374)
Benefit Payments	(20,000)	(20,000)
Benefit Obligation 12/31/2016	383,000	383,000

discuss this method with their actuary to determine if it would be a good fit for their plan. For more details regarding the spot rate method or to discuss the impact a change may have on your plan, contact your BPS&M consultant—we “would not object” to a discussion.

[1] *http://www.sec.gov/Archives/edgar/data/732717/000073271715000025/filename1.htm*

[2] *http://www.milliman.com/uploadedFiles/insight/2016/2016-pension-funding-study.pdf*

Rachael Padgett, ASA, MAAA

Rachael joined the actuarial team at BPS&M in 2013. Rachael received a BS in Mathematics from Middle Tennessee State University, where she graduated summa cum laude. She is an Associate of the Society of Actuaries and is currently working through the actuarial exam process. Rachael works in our Nashville, TN office.

PBGC Issues Final Rule on 4010 Reporting

By Justin Kendle

Recent regulatory changes, namely the Moving Ahead for Progress in the 21st Century Act (MAP-21) and the Highway Transportation and Funding Act of 2014 (HATFA), have allowed companies to use stabilized interest rates for certain funding and benefit restriction purposes. The MAP-21 interest rates are constrained by a corridor around the 25-year average of the segment rates, allowing for less volatility, and were extended by the HATFA and the Bipartisan Budget Act of 2015 (BBA). This has resulted in decreased liability amounts for defined benefit plans.

For the PBGC, these additional waivers have resulted in it not receiving valuable funding information from roughly 200 controlled groups.

The Pension Benefit Guaranty Corporation (PBGC), which uses §4010 of the Employee Retirement Income Security Act of 1974 (ERISA) to monitor severely underfunded plans, has noted that a much larger number of plans have qualified for §4010 waivers, in particular the $15 million aggregate underfunding waiver, than would have qualified had nonstabilized rates been used (i.e. rates prior to MAP-21 and HATFA). For the PBGC, these additional waivers have resulted in it not receiving valuable funding information from roughly 200 controlled groups. In light of this, the PBGC noted in the Proposed Regulations that it believed it was necessary to modify waivers from 4010 reporting to better balance the "burden of reporting" with the PBGC’s need for information while targeting plans that presented the greatest risk to the PBGC and the pension system.

In response to this information shortfall, on March 23, 2016, the PBGC released a Final Rule on the Annual Funding and Actuarial Information Reporting requirements under ERISA §4010. The Final Rule revises the §4010 $15 million aggregate underfunding waiver. It also adds two new waivers intended to reduce 4010 filings for plans that pose relatively small risk to the PBGC. The regulatory changes established by this Final Rule are effective for information years beginning after December 31, 2015, and the first filings under these new regulations will be due April 17, 2017.

Funding relief legislation passed by Congress in 2012, 2014, and 2015 is the key reason behind this change in reporting requirements under ERISA section 4010. More plan sponsors will be required to provide reporting to the PBGC and the information required will take time to collect. Plan sponsors should also recognize that these actuarial and company financial reporting requirements may apply for several years.

Summary of regulatory changes

4010 funding target attainment percentage. A plan has previously been required to file under §4010 if it had a funding target attainment percentage (FTAP) below 80 percent. In order to codify prior statutory changes of MAP-21, a new definition of the FTAP, the 4010 funding target attainment percentage, was created. The 4010 FTAP is based on a liability calculated using nonstabilized rates. Unless a waiver applies, a plan is now required to file under §4010 if it has a 4010 FTAP that is under 80 percent, regardless of whether interest rate stabilization provisions result in an FTAP greater than 80 percent.

Changes to $15 million aggregate underfunding waiver. The $15 million aggregate underfunding waiver was modified so that nonstabilized rates must be used in the determination of the 4010 funding shortfall. The PBGC felt this change was necessary since, under the stabilized rates of MAP-21, there was a significant reduction in 4010 filings from plans that the PBGC believed present substantial risk and exposure to the pension insurance system. This change mirrors the use of nonstabilized interest rates in determining if a plan is less than 80 percent funded.

Alternative 4010(d) reporting compliance methods. The Final Rule provides that plans submitting a 4010 filing are not required to provide their at-risk funding target information (determined using nonstabilized rates) unless the PBGC makes a written request for such information to the plan. In the event this information is requested by the PBGC, the plan will have at least 30 days to provide the information. For at-risk plans (determined using stabilized rates), the Final Rule requires that the at-risk funding target must be included with a plan's 4010 filing.

New waiver—small plans. In balancing the PBGC's need for information with the cost of §4010 filings for plans, the PBGC has determined that it could provide a filing waiver for smaller plans without compromising the overall pension system. As a result, a Small Plan Waiver was added for controlled groups with, in aggregate, less than 500 participants, regardless of plan funding levels.

New waiver—missed contributions resulting in a lien or outstanding minimum funding waivers. In an effort to eliminate the need for duplicative reporting by a plan, the Final Rule has added a waiver for plans that would otherwise be reporting solely due to either a statutory lien resulting from missed contributions in excess of $1 million or outstanding minimum funding waivers exceeding $1 million. One condition for this waiver is that missed contributions that resulted in the lien or applications for minimum funding waivers must have been reported to the PBGC by the 4010 filing due date.

In perspective

While this Final Rule reduces the applicability of the $15 million aggregate underfunding waiver, it provides several new waivers by which plan sponsors can avoid having to file under ERISA §4010. Even with the additional waivers, the use of nonstabilized interest rates when calculating the 4010 FTAP and the aggregate funding shortfall will likely require more plans to submit a 4010 filing. Sponsors of underfunded plans should contact their BPS&M consultant to discuss whether this Final Rule will impact their filing obligations and the steps they can take to avoid having to make a 4010 filing.

Justin Kendle

Justin joined the actuarial team at BPS&M in 2013. Justin received a BS, cum laude, in Applied Mathematics and Mathematical Economics from Ball State University. He received his Master's in Mathematics from Murray State University. He is currently working through the actuarial exam process. Justin works in our Nashville, TN office.

The BPS&M Pension Liability Index

Updated as of March 31, 2016

By Jeffrey Thornton, ASA, EA, MAAA

Interest rates are arguably the primary driver of the volatility in pension plan liabilities. BPS&M has established a set of liabilities and applied the yield curves to those liabilities in order to create the indices used to demonstrate the effect of interest rates on plan liabilities. The BPS&M Pension Liability Index tracks the percentage change in liabilities for a typical defined benefit plan under the following four interest rate standards, which are in general use:

1. The Full Yield Curve published by the IRS for minimum funding purposes under IRS Code §430.
2. The 24-month Averaged Yield Curve published by the IRS for minimum funding purposes under IRS Code §430.
3. The Adjusted Average Yield Curve reflects the impact of the Moving Ahead for Progress in the 21st Century Act (MAP-21), the Highway and Transportation Funding Act of 2014 (HATFA), and the Bipartisan Budget Act of 2015 (BBA 2015). HATFA and BBA 2015 extended the funding relief, which was introduced by MAP-21 in 2012. Originally, under MAP-21, the funding relief began to diminish in 2013, but has been extended under BBA 2015, such that it now does not begin to diminish until 2021.
4. A Corporate Financial Yield Curve used for financial statement pension liability determinations. Prior to January 1, 2014, this was measured using the

Citigroup Pension Discount Curve. As of January 1, 2014, this is measured using the Wells Fargo Pension Discount Curve (AA-rated or higher). For more information about the Wells Fargo Pension Discount Curve, please read the article titled "Introducing the Wells Fargo Pension Discount Curves" in the Jan/Feb 2014 issue of Developments.

The BPS&M Pension Liability Index uses a hypothetical plan for benchmarking purposes based on "typical" pension plan features. The duration of the liabilities under this hypothetical plan is 15 years. The benchmark period for the Index starts with the effective date of the Pension Protection Act (January 2008), and the graph shows the rise and fall in liabilities due to changes in interest rates relative to that date. All other factors remain constant throughout the benchmarking period; ergo, the change in liabilities is due solely to the interest rate environment.

The trends demonstrated in the graph will generally hold true for most pension plans, but the magnitude of the percentage changes will vary depending on a given plan's demographics and benefit accrual patterns.

The table below shows the percentage changes in the indices over various periods.

Indices Changes

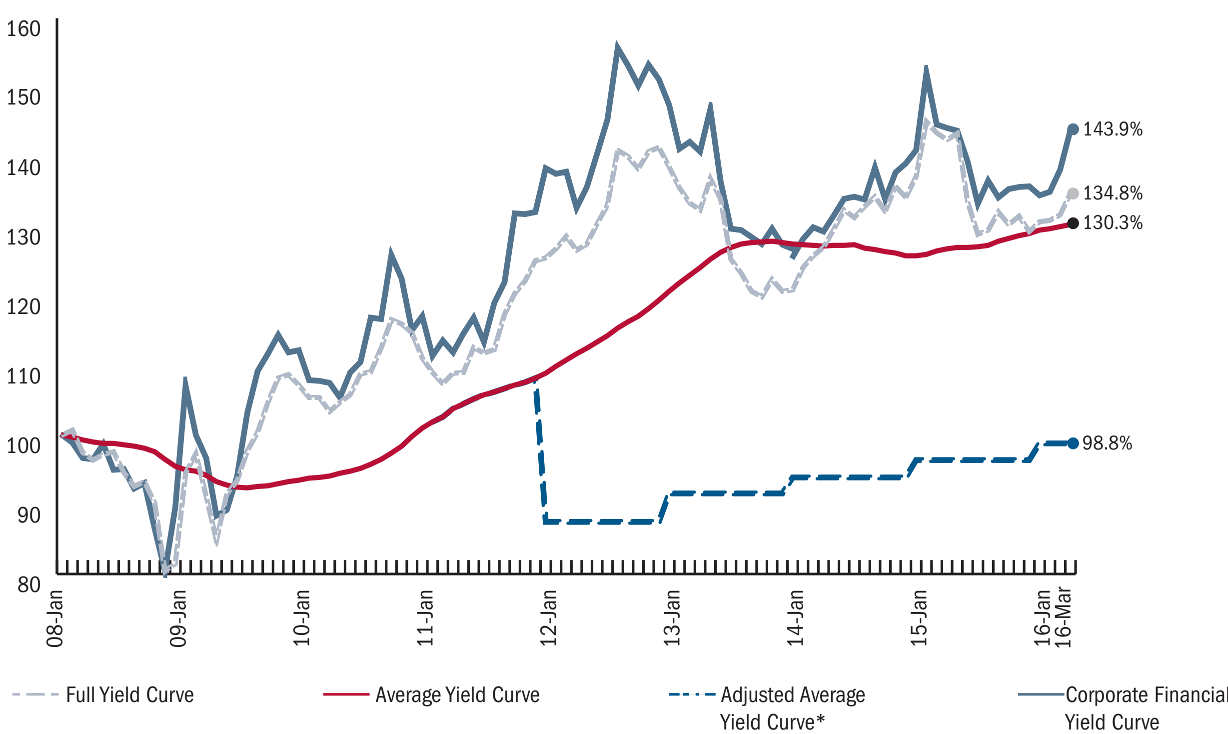
Indices	*Since Inception (1/1/08)*	*2016 Year to Date*	*Last 12 months*
Full Yield Curve	+34.8%	+3.1%	-5.4%
Averaged Yield Curve	+30.3%	+0.6%	+2.8%
Adjusted Average Yield Curve	-1.2%	0.0%	+2.5%
Corporate Financial Yield Curve	+43.9%	+7.0%	-0.2%

The BPS&M Pension Liability Index is updated regularly. If you have questions or comments concerning the BPS&M Pension Liability Index, please contact your BPS&M consultant or jeffrey.p.thornton@bpsm.com.

Jeffrey Thornton, ASA, EA, MAAA

Jeff has 10 years of actuarial experience in defined benefit plan administration. He specializes in liability studies and has provided plan-specific analyses for clients of various sizes and diverse industries. Jeff is a consulting actuary in our Louisville, KY office.

BPS&M Pension Liability Index since inception



* Reflects funding relief

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Jackson Suite 266 Highland Village, 4500 I–55 N, Jackson, Mississippi 39211, 601.981.2155
Louisville 11807 Brinley Avenue, Suite 101, Louisville, Kentucky 40243, 502.244.7828
Nashville 5301 Virginia Way, Suite 400, Brentwood, Tennessee 37027, 615.665.1640
Richmond 9020 Stony Point Parkway, Suite 200, Richmond, Virginia 23235, 804.267.3200

Contact us via email at developments@bpsm.com