Bryan, Pendleton, Swats & McAllister, LLC *January/February 2016*

Developments

RECENT DEVELOPMENTS IN EMPLOYEE BENEFITS

Lifetime Income: An International Worry

by Ken Hohman, FSA, EA, FCA, MAAA

When I consider the problems in the world, I think to myself how glad I am to be my age and not forty years younger (of course, I then think of my physical transformation over those forty years and come to my senses). Many actuaries seem to share my global apprehensions, at least when it comes to the issue of retirement. Will my children or grandchildren be able to retire secure in the knowledge that they will not outlive their assets? The universal fear is that they will not (well, the universe may not be that concerned about my children and grandchildren specifically, but you get the idea).

These three actuarial associations ... share a mutual concern that citizens in their respective countries do not possess the tools and financial training needed to make their defined contribution retirement savings ... last a lifetime.

Over the last two years, I have had the good fortune to work with several actuaries around the world to write a paper titled *The Challenge of Longevity Risk: Making Retirement Income Last a Lifetime* (http://www.actuary.org/files/The-Challenge-of-Longevity-Risk.pdf). The paper is a joint effort of the Actuaries Institute in Australia, the Institute and Faculty of Actuaries in the United Kingdom (UK), and the American Academy of Actuaries in the US. These three actuarial associations pretty much span the globe, and they share a mutual concern that citizens in their respective countries do not possess the tools and financial training needed to make their defined contribution retirement savings (e.g., 401(k) account balances) last a lifetime. Interestingly, these three geographically diverse nations have arrived at this collective concern from very different perspectives.

The longevity dilemma

All three countries have long employed the "three-legged stool" approach to retirement. That is, retirement income is derived from three sources: (1) government (i.e., social security); (2) employers (i.e., employer contributions to employer-sponsored retirement programs), and (3) personal retirement savings (either inside or outside of employer-sponsored retirement plans). The amount of retirement income, the allocation of this income among the three sources, and the taxation of the income is very different for each nation, but the overall structure is similar.

In recent years, we have witnessed growing anxiety over the decumulation (payout) phase of retirement ...

We are all aware of the shift in US employer-sponsored retirement programs over the last quarter century. We have moved from a defined benefit centric system, with retirement income generally guaranteed for the employee's lifetime, to a defined contribution (primarily 401(k)) system, with benefits paid in the form of a lump sum. While we have yet to feel the impact of this change on a generation of retirees, alarm signals have been raised that workers are not saving sufficiently for retirement, and retirees lack the wherewithal to make their savings last for their lifetimes. Much has been done over the last 25 years to encourage workers and their employers to accumulate more assets in retirement accounts. In recent years, however, we have witnessed growing anxiety over the decumulation (payout) phase of retirement, where lump sum distributions are frequently the only available option.

Australia made the move to defined contribution a generation before the US; it is now experiencing the effects of that shift on people in their retirement years and recognizes some failures in the system. Australia's Superannuation Guarantee mandates an employer contribution to defined contribution plans. The mandated contribution rate started at 3 percent of pay in 1992, and was increased to 9½ percent in mid-2014. It is proposed to increase to 12 percent over the next decade as the government attempts to address the nation's retirement shortfall. Various "income stream" options are offered for the decumulation phase, but guaranteed life income is seldom selected, and half of retirees choose lump sums (with others taking periodic payouts with no lifetime guarantees).

The Australian government, uneasy with the financial security of retirees, recently undertook a study and concluded that the decumulation of employer-sponsored defined contribution plans "is underdeveloped and does not meet the risk management needs of many retirees."

The UK, on the other hand, generally required that at least 75 percent of defined contribution account balances be paid in a form guaranteeing lifetime income; that is, an annuity product from an insurance company. Such a requirement would certainly allay the fears felt in Australia and the US over retiree security; however, the provision was largely unwelcomed by retirees, who consider annuities to be expensive (which they are in our current low interest rate environment). Retirees wanted more flexibility and the ability to take more risk with their retirement savings, and in 2014, the annuity mandate was removed, more as a political expediency than sound retirement policy (that is my assessment, but I've gotten little argument from my UK colleagues). In the short time since the annuity requirement was eliminated, annuity purchases from UK defined contribution plans have plummeted. Clearly, the purchase of annuities is not the best choice for all retirees. Those with small defined contribution account balances may require money now on which to live, and the promise of a miniscule lifetime income is of little solace. A lifetime income may also be significantly overpriced for a person with substandard life expectancy (e.g., someone with a terminal disease). And, of course, there are those who would rather spend today than save for tomorrow (however, recent analysis in the UK suggests that many retirees have left their funds invested rather than withdraw large cash sums).[1]

The fact that actuaries in these three nations see longevity risk as a significant hazard to a stable retirement emphasizes the universality of the issue. The joint paper indicates that, "[t]he financial cost of longevity risk is that either individuals will outlive their retirement savings or, alternatively, they will underspend their savings, leading to a lower income over retirement and an unintentional bequest on death."

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With tightening of national budgets (placing pressure on social security systems and tax incentives to save for retirement), lengthening life expectancy (and the under estimation of life expectancy by most workers), and the removal of lifetime income guarantees in employer-sponsored plans, there is international concern of a cohort of 85-year-old retirees running out of money. Personally, I hope my wife and kids will tolerate me being around when I'm 85 (it's hard to tolerate me now, and I plan to complain a lot more over the next 20 years); I have little hope that someone will want to employ me at a living wage at that age.

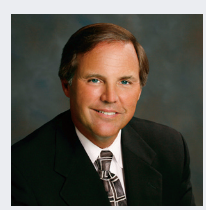
The five principles

The joint paper is directed to policy makers in our respective countries, and it identifies five principles that should be part of any government framework to address the longevity risk issue. These are:

Adequacy. This is an accumulation phase concern. It is obviously essential that individuals accumulate adequate assets through the three legs of the retirement income stool. Workers need to understand what an

CONSULTANTS *in the* LIMELIGHT

Ken Hohman (BPS&M Louisville) was recognized as a past president at the 50th Anniversary Celebration of the American Academy of Actuaries held in Washington, D.C.



Ken Hohman

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"adequate income" is and how much they must save to reach this level. In addition, governments must provide appropriate incentives for retirement savings.

Information. Longevity risk, distribution options, and distribution products are difficult concepts for most individuals to grasp. More and better information must be made available during both the accumulation and decumulation phases.

Flexibility. A lesson clearly learned from the UK experience is that retirement regulations must be flexible enough to allow workers to exercise the appropriate choices for their situations. It must also allow product providers to be innovative in developing solutions for retirees.

Equity. Fairness is in the eye of the beholder, and our retirement stakeholders—the individual, the employer, and the government—can (and often do) eye things very differently. Governments must define equitable tax incentives for retirement savings, maintain generational equity, and beware of unintended consequences (for example, the US Federal Reserve's actions with regard to interest rates have had a significant impact on retirement savings and retirement products).

Sustainability. The paper discusses the need for an efficient and sustainable retirement market. It is vital for policy makers to assure that all three legs of the retirement stool remain strong and maintain intergenerational equity. A financially sound and consistent system will allow workers to plan for retirement with certainty and permit product providers to invest in innovative new offerings.

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In perspective

The paper notes the complexity surrounding retirement decisions. Tax considerations are complex, as are the various elections available under social security systems. But perhaps the most difficult concept to understand is longevity risk, and the impact it can have on retirement.

It is, of course, essential that retirement assets last the lifetime of the retiree (and perhaps the retiree's dependents). Workers need to be educated about risks surrounding life expectancy (planning assets to last just until life expectancy results in a 50 percent probability of financial ruin), and this must continue throughout retirement, since life expectancy is not a static number that is fixed at retirement.

Lifetime income products that either guarantee income or provide a high probability of income lasting for life form a vital solution to longevity risk. These products must be priced fairly, and the benefits and cost must be understood. An insured annuity product may be priced appropriately, but if the consumer does not understand the impact today's low interest rates have on the premium, the consumer will forever consider annuities to be absurdly expensive. It will also be imperative that new and innovative products be developed and understood by retirees.

The hope is that policy makers will consider our five principles and find a way to construct a financially secure retirement in a defined contribution world that will accommodate diverse personal situations. Luckily, I've had access to pension plans with lifetime income guarantees; if I were forty years younger I would be very worried.

[1] *https://www.abi.org.uk/News/News-releases/2015/11/Pension-Stats-six-months-on*

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

Ken has spent 38 years in the retirement industry, 36 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.

A Comparison of Social Security Systems: Australia, United Kingdom, and United States

While Australia, the UK, and the US all provide "social security" benefits to retirees, the systems operate quite differently. The following is a brief general comparison of major features of the programs offered to retirees by each country. Note the term *insured* refers specifically to individuals who are not self-employed.

	Australia	United Kingdom	United States
Programs	Universal and mandatory occupational pension system	Social insurance and social assistance system	Social insurance system
Types of Plans	The system consists of the **Age Pension,** which is a universal coverage, noncontributory component and the **Superannuation Guarantee**, which is a mandatory employer retirement contribution to private funds to supplement Age Pension benefits.	A new flat-rate, single-tier **State Pension** will replace the current two-tier **Basic State Pension (BSP)** and **Second State Pension (S2P)** for everyone below the state pension age (SPA) beginning April 2016. This comparison will focus on the new, single-tier **State Pension**.	This is an employment-based system with lifetime benefits for earners and their spouses. The benefit amount uses a formula based on earnings.
Coverage	**Age Pension:** All residents of Australia (means tested unless blind) **Superannuation Guarantee:** Mandatory employer-paid for employed persons aged 18–69 earning above a monthly baseline; voluntary coverage for self-employed persons	**State Pension:** Insured and self-employed individuals with National Insurance contributions (NIC) or credited activities	Employed (including self-employed) individuals with specified minimum annual net income
Benefit	**Age Pension:** A flat-rate benefit of A$788.40 every two weeks for an individual ($14,586/year US) or A$1,188.60 for a couple ($21,990/year US) in 2016. The benefit is means tested. If an individual's income and resources exceed certain limits the benefit is reduced or suspended. The benefit is adjusted annually for cost-of-living. **Pension Supplement:** Paid to old-age pensioners to assist with general living expenses, including utilities.	The full State Pension benefit is £155.65 per week ($11,572/year US) (2016/17 rate). Individuals who have already earned an S2P benefit will receive an additional "protected" amount, which is the difference between the two-tier starting benefit and the full State Pension. The benefit increases annually at the greatest of wage increase, cost-of-living, or 2½%.	The Social Security benefit is based on a tiered formula based on 35 years of covered earnings, with each year's earnings limited to a specified dollar amount ($118,500 for 2016).The formula is weighted towards the lower earnings levels. The benefit is adjusted annually for cost-of-living. The 2016 normal retirement age benefit for an individual who has always been at the earnings limit is $33,354 per year. Minimum benefits are also available for spouses, and additional subsidies are available for low-income earners.

Source of Funds	**Age Pension:** Total cost is financed from general revenues. **Superannuation Guarantee:** Mandatory employer contributions of a percentage of each covered employee's earnings. In 2016, the tax rate is 9.5% (2016–2017) on basic wages up to A$50,810 per quarter (approximately $36,150 US[1]).[2] Voluntary contributions by insured and self-employed individuals are encouraged through tax incentives.	**Insured:** NIC through payroll deductions at 12% for earning between £155 and £815 (approximately $222 to $1,165 US) a week, plus 2% on earnings over that amount in 2015-2016.[3] **Employer:** Generally pays 13.8% on pay in excess of £156 ($223 US) a week in 2015-2016.	**Insured:** Pays 6.2% percent of covered earnings ($118,500 in 2016, or a maximum 2016 payroll tax of $7,347) and employers pay an identical amount. **Self-employed:** Pays full 12.4%.
Retirement Age	**Age Pension:** Age 65 (rising to age 67 from 2017 to 2023) **Superannuation Guarantee:** Age 55 and permanently retired	**Men:** Age 65 **Women:** Age 63 (rising to 65 by November 2018) The retirement age for both men and women will gradually rise from age 65 to age 68 from 2020 to 2046.	**Early:** Age 62–66 with a reduced benefit **Normal:** Age 66 (rising to age 67 by 2027) **Deferred:** Benefits may be deferred up to age 70 with an increase in the benefit.
Qualifying Conditions	Must have been a resident of Australia for at least 10 years, including at least five continuous years	Requires 35 years of NIC or creditable activities for full State Pension. A minimum of 10 years of NIC or creditable activities for reduced amount.	Requires 40 quarters of coverage; a quarter of coverage is earned on pay of at least $1,260 (2016)

[1] *Approximate values in US dollars are based on the average exchange rates between 10–10:30 AM, Feb 19, 2016 from the following sites http://www.x-rates.com, http://www.xe.com, http://money.cnn.com, http://www.oanda.com, http://www.exchangerate.com, and http://www.bloomberg.com (note: multiple exchange rate sources used due to differences in conversion rates offered).*

[2] *https://www.ato.gov.au/printfriendly.aspx?url=/Rates/Key-superannuation-rates-and-thresholds.*

[3] *https://www.gov.uk/national-insurance/how-much-you-pay*

Correction

The Variable-Rate Premium Cap (Per Participant) column appearing in the table on page 6 of the Nov-Dec 2015 issue of *Developments* was incorrectly shown as $5003 for the years 2017–2019. The correct dollar amount is $500 with an accompanying footnote. The corrected table appears to the right.

PBGC Premium Rates for Single-Employer Pension Plans

Year	*Flat-Rate Premiums*[1]	*Variable-Rate Premiums*[2]	*Variable-Rate Premium Cap (Per Participant)*	
2015	$57	$24	$418	Bipartisan Budget Act of 2013
2016	$64	$30	$500	
2017	$69	$33[3]	$500[3]	Bipartisan Budget Act of 2015
2018	$74	$37[3]	$500[3]	
2019	$80[3]	$41[3]	$500[3]	

[1] *The flat-rate premium is equal to the amount in the table above multiplied by the PBGC Premium Rates for the number of participants*

[2] *The variable-rate premium is equal to the amount in the table above for each $1,000 of unfunded vested benefits (subject to the per-participant cap)*

[3] *Rates as noted above are subject to indexing, and therefore may be higher than the amount shown. After 2019, all rates are subject to indexing. There are no scheduled increases (other than indexing) for years after 2019.*

The Cadillac Tax

by Meena Nooe, ASA, ACA, CERA, MAAA

The Eldorado, the Seville, the Escalade: the Cadillac brand has become synonymous with expense and luxury in the American culture. It is a symbol of status, disposable income, and a high tax bracket. So the unofficial name for the tax on high-cost employer-sponsored healthcare[1] plans laid out in the 2010 Affordable Care Act (ACA) is only logical: the Cadillac Tax.

The tax targets employer-sponsored "Cadillac" health plans, which are characterized by low cost-sharing for participants, an extensive range of covered services, and a large network of providers. The typical example is a union or upper management healthcare plan.

The intent of the Cadillac Tax is trifold: curb the nation's healthcare expenditure, increase workers' take-home pay, and provide governmental revenue to fund the other aspects of the ACA (i.e., subsidies for coverage, Medicaid expansion, and insuring the uninsured).

The evolution of healthcare benefits

During World War II, the National War Labor Board enacted a wage freeze for all workers, which prevented employers from using pay as a means of attracting scarce labor. The 1942 Stabilization Act made it possible for employers to use health insurance as a way to compete for workers. Health insurance, as a fringe benefit, was not impacted by the wage freeze. Even more appealing, the money spent on employer-sponsored health insurance was tax deductible for the sponsor and not taxable for the employees. Thus, health insurance became a way to not only attract and retain employees, but to supplement pay with a tax favorable benefit in addition to the taxable salary.

The fact that employer healthcare spend is not taxable income is an essential point to understanding the growth of our national healthcare expenditures. The less medical plan participants contribute to the cost-sharing, the more likely they are to use the benefit.

Reining in healthcare spend

The Cadillac Tax is designed to limit a company's expansion of healthcare spend. It does this by limiting the financial benefit derived from healthcare spend by creating a cost threshold for healthcare benefits. If the per-person cost of a healthcare benefit is greater than the threshold, employers must pay a 40 percent tax on the excess amount for the entire plan. The idea is to penalize companies for growing healthcare cost.

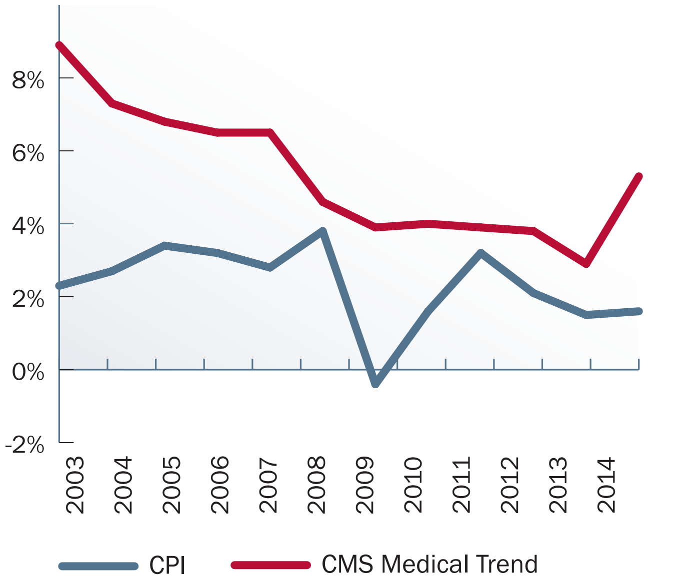
The Cadillac Tax is designed to limit a company's expansion of healthcare spend.

The per-person cost is based on the actual gross spend. The calculation starts with total premiums. For fully insured plans, this is the premium set by the insurance company; self-insured plans, which set their own premiums, use their COBRA premium. In addition to total premiums, the gross spend umbrella includes employer contributions to flexible spending accounts, health reimbursement accounts, and health savings accounts. Significantly, premium contributions paid by employees play no role in the gross spend calculation.

The 2018 general thresholds for the working population are $10,200 for single coverage and $27,500 for family coverage. For the retiree population, and for employers whose employees are engaged in designated high-risk professions, the 2018 thresholds are $11,850 for single coverage and $30,950 for family coverage. The law does allow adjustment of the threshold for the demographics of the group.

> The link to CPI rather than the healthcare spend trend is intentional; the hope is this will provide an incentive for employers and insurers to better contain future healthcare costs.

These thresholds are linked to the Consumer Price Index (CPI) for inflation, and this is where we find the key cost-control incentive for companies: the healthcare spend trend has outpaced the CPI for over a decade. If this pattern continues, the number of plans that hit the threshold will increase each year. The link to CPI rather than the healthcare spend trend is intentional; the hope is this will provide an incentive for employers and insurers to better contain future healthcare costs.



The above graph illustrates the significant growth of healthcare costs over CPI during the period 2003–2014.

An analysis performed by the Kaiser Family Foundation determined that up to 26 percent of companies will hit the Cadillac Tax threshold in 2018, if no changes are made to their current healthcare offerings. By 2023, it is estimated that as many as 30 percent of companies will hit the threshold.

Alternatively, a survey of 422 companies, performed by the International Federation of Employee Benefit Plans, reports that approximately 37 percent of companies estimate they will be subject to the excise tax in 2018 if no changes are made. By 2020, 50 percent expect to be hit by the tax; by 2023, that number grows to 55 percent.

These numbers illustrate the wide-spread impact of the Cadillac Tax under the original law. Employers initially expected to hit the threshold in 2018 will receive some relief with the recent changes to the implementation of the tax.

Tweaking the tax

The ACA, as signed into law in 2010, mandated that the tax go into effect January 1, 2018; however, on December 18, 2015, Congress passed the Consolidated Appropriations Act. This Act modified three aspects of the Cadillac Tax. The Act:

- Delays the effective date of the tax to January 1, 2020
- Makes the Cadillac Tax deductible as a business expense
- Requires the US Comptroller General to conduct a study on the appropriateness of the demographic adjustments to the thresholds

The 2020 thresholds have yet to be officially defined, but the Act did specify that they will be equivalent to what the 2020 thresholds would have been if the tax had taken effect in 2018.

This new development not only gives employers more time to prepare for and/or adjust healthcare spend to avoid the tax, the deductibility also provides significant relief to both employers and insurers.

Going forward

The (literal) million(s) dollar question is: What now? The majority of employers are implementing changes to their healthcare spend to reduce the likelihood of their costs crossing the Cadillac Tax threshold. Here are the most commonly employed strategies:

- *Increase employee cost-sharing within current healthcare plan(s).* This includes increasing deductibles, coinsurance, copays, out-of-pocket maximums, etc. Because this shifts more cost to the employee, it incentivizes the employee to be a more active and selective healthcare services consumer.
- *Replace current healthcare plan options with a high-deductible health plan.* This is a more extreme approach to increasing employee cost-sharing and encouraging employees to be wise consumers of healthcare. (Keep in mind, ACA mandates that by design, every individual healthcare plan must pay for at least 60% of all costs. This is also known as the *actuarial value* of the plan.)
- *No longer offer a high-value plan.* If there is a significant difference in employee contribution rates among health plan options, those who elect the high-value plan tend to be the participants who use healthcare services the most. They generate the highest costs in a plan where the employer foots a greater percentage of the bill. Offering only lower-valued plans will shift a portion of this cost back to these individuals.

- *Offer all fringe benefits through a cafeteria (125) plan.* In this type of benefit design, the employer gives each employee a flat dollar subsidy. The employees use the money to buy the coverage types and levels they want (medical, dental, vision, life, accident, disability, etc.). This way the employee still benefits from the discounts group coverage offers, but the employer is not at risk for bad claims experience.
- *Offer employees coverage through a private exchange.* This is similar to offering a cafeteria plan, but with the additional benefit to the employer of having little or no administrative cost. The employer provides a flat dollar subsidy to each employee to purchase coverage through a privately run exchange, or for small employers, a state-run or federal exchange.
- *Introduce/incentivize the use of a wellness program.* A wellness program has the win-win potential of decreased overall healthcare spend and a healthier participant population.
- *Reduce or eliminate Pre-Medicare retiree healthcare benefits.* Retirees who are not yet Medicare eligible are typically the highest cost individuals on a healthcare plan. While a higher threshold can be used to calculate the Cadillac Tax for these individuals, this group's cost has the potential to exceed the thresholds as they are set today.

In perspective

Even though the Cadillac Tax won't come into play until 2020, it is a significant concern to employers today. And while employers are examining their options and developing strategies, postponements and changes are adding complexity to their already challenging task. Furthermore, the tax is a hot-button issue for this election year. The consequence of the two-year delay has placed the future of the Cadillac Tax in the hands of the political party that takes office in 2016. As employers continue to prepare for the tax, unions, lobbyists, and employee benefit groups will continue to pressure the government to reconsider its viability.

[1] *The Cadillac Tax does not apply to standalone dental and vision benefits; however, the Tax does apply to dental and vision benefits when they are bundled with medical benefits.*

Meena K. Nooe, ASA, CERA, MAAA, ACA

Meena joined the Health & Welfare actuarial practice at BPS&M in June 2011. She has performed both GASB 45 and SFAS 106 valuations, rate setting for self-insured plans, claims repricing, and network discount analyses. Meena is a project manager for the Health & Welfare team and is the manager of the Wells Fargo Network Evaluation Tool, a proprietary healthcare discount analysis program.

Meena received a BA in Mathematical Sciences and a BA in Secondary Education: Mathematics from Clemson University, where she graduated magna cum laude. Meena earned a MA in Mathematics from the University of Mississippi. Meena is an Associate of the Society of Actuaries and Associate of the Conference of Consulting Actuaries. She is a member of the American Academy of Actuaries.

The BPS&M Pension Liability Index

Updated as of January 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 on the right shows the percentage changes in the indices over various periods.

Indices Changes

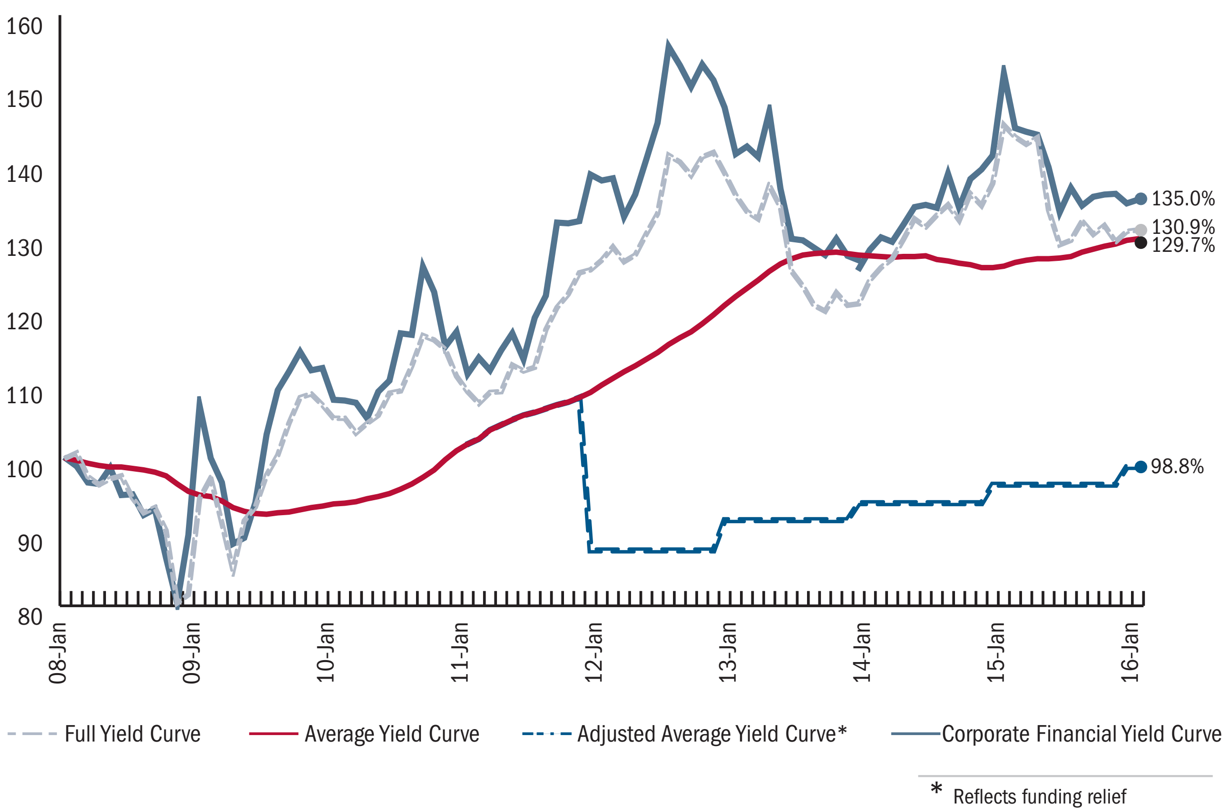
Indices	*Since Inception (1/1/08)*	*2016 Year to Date*	*Last 12 months*
Full Yield Curve	+30.9%	+0.2%	-9.8%
Averaged Yield Curve	+29.7%	+0.2%	+2.9%
Adjusted Average Yield Curve	-1.2%	0.0%	+2.5%
Corporate Financial Yield Curve	+35.0%	+0.4%	-11.2%

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



BPS&M
5301 Virginia Way, Suite 400
Brentwood, Tennessee 37027

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About BPS&M

Bryan, Pendleton, Swats & McAllister, LLC has been providing actuarial and benefit consulting services to clients since 1971.

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