The Ryan ALM Pension Letter
March 31, 2013
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Index	Returns YTD 2013	Estimated Weights
Pension Liabilities:		
Market (Tsy STRIPS)	-2.27%	100 %
FAS 158 (AA Corporates)	-2.25	
PPA (MAP 21 = 3 Segments)	1.80	
PPA (Spot Rates)	-3.98	
GASB /ASOP (8% ROA)	1.92	
Pension Assets:		
Ryan Cash	0.04 %	5 %
Lehman (Barclay)Aggregate	-0.12	30
S&P 500	10.61	60
MSCI EAFE Int'l	5.28	5
Asset Allocation Model	6.53 %	100 %
Pension Assets – Liabilities:		
Market	8.80%	
FAS 158 (ASC 715)	8.78	
PPA (MAP 21 = 3 Segments)	4.73	
PPA (Spot Rates)	10.51	
GASB/ASOP (8% ROA)	4.61	

Using the Asset Allocation above, the difference in pension asset growth vs. liabilities in 2013 was: **8.80%** (market valuation STRIPS), **8.78%** (FAS 158), **4.73%** (PPA - 3 segment rates), **10.51%** (PPA-Spot Rates) and **3.63%** (GASB/ ASOP). Such valuations show the significant difference in not using *market* valuations. Most pension funds enjoyed a funded ratio surplus in 1999 but **pension asset growth has *underperformed* liability growth since by an estimated -176.24%** on a compounded index basis starting at 100 on 12/31/99!

		Total Returns								
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Assets	-2.50	-5.40	-11.41	20.04	8.92	4.43	12.25	6.82	-24.47	19.43
Liabilities	25.96	3.08	19.47	1.96	9.35	8.87	0.81	11.76	33.93	-19.52
Difference:										
Annual	-28.46	-8.48	-30.89	18.08	-0.43	-4.44	11.44	-4.94	-58.40	38.95
Cumulative		-37.60	-73.40	-60.08	-66.13	-76.75	-76.75	-64.60	-181.57	-106.94
	2010	**2011**	**2012**	**2013**						
Assets	11.89	3.27	11.79	6.53						
Liabilities	10.13	33.77	4.46	-2.27						
Difference:										
Annual	1.76	-30.50	7.33	8.80						
Cumulative	-115.67	-195.73	-194.30	-176.24						

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Number of DB Plans Hit All-Time Low
According to Jerry Geisel of Crain News Service, "the number of DB pension plans covered by the Pension Benefit Guaranty Corp. (PBGC) fell to an all-time low of 22,697. That's a drop of nearly 3,000 plans from Sept. 30, 2011. Except for a slight uptick from 2006 to 2007, the number of DB plans has declined every year since 1995. At 22,697 this is about 50% of what it was in 1997." The major reason for such a trend is the rising cost of DB plans, in particular, spiking contribution costs. This is why accounting strategies and manipulations have been in vogue here to reduce such contribution costs. MAP-21 legislation is the most recent example where the discount rate is smoothed over 25-years creating a much higher discount rate than market (around +300 bps.) thereby artificially lowering the present value of liabilities, enhancing the funded ratio which reduces contribution costs. The problem comes in believing these rates or using them to understand the economic Funded Ratio and implementing asset allocation strategy.

Will Stockton, CA Bankruptcy Affect All Public Pensions?
On April 1 (an omen?) Judge Christopher Klein allowed Stockton, CA to restructure its finances under bankruptcy protection. What is not clear is the treatment of pension benefit payments. Stockton had $700 million in debt with a $26 million annual budget shortfall when it filed for bankruptcy in June 2012. To regain solvency, Stockton has slashed tens of millions of dollars' worth of city services and said it would cut its municipal bond repayments to a degree never seen before in a municipal bankruptcy. However, it has not threatened to reduce pension benefits. Bond holders and insurers that guarantee the Stockton bonds are yelling foul citing the principle that in bankruptcy, similar class creditors must be treated the same. The federal bankruptcy judge handling the case has scheduled a trial. There is precedence in Central Falls, RI who cut its pensions severely. If the Stockton bond holders prevail this could ripple throughout the Public pension plan market. Tradition has it that pensions are sacred and legally binding obligations. Stockton pays about $20 million in annual pension contributions to CalPERS who administers all of the CA pensions for state employees and many municipal workers. Stockton has asked CalPERS for a "hardship exemption" to reduce its contributions. CalPERS rejected this request. San Bernardino, who also filed for bankruptcy in 2012, simply stopped its contributions to CalPERS. CalPERS geared up to sue but the judge handling the case tabled the topic for another day.

Municipal Bankruptcies
As I have reported for several years, there is an ugly and unfortunate trend in America of our cities filing for bankruptcy under Chapter 9, Title 11 of the U.S. Bankruptcy Code which now totals 31 filings since January 2010. According to State Budget Solutions "there were just 239 municipal bankruptcy filings between 1980 and 2010. Although federal law governs Chapter 9 bankruptcy, state law significantly impacts the eligibility of municipalities to file for Chapter 9 bankruptcy. In Chapter 9 bankruptcy, there is no provision for liquidation of the municipality's assets and subsequent distribution of the proceeds to creditors. Furthermore, unlike private companies, municipalities cannot simply dissolve, allowing creditors to take the value of municipal assets as compensation for their investments. It is feasible for a bankrupt municipality to disincorporate effectively merging with a larger municipality." There are two states that prohibit their cities from filing for bankruptcy (Georgia and Iowa). This crisis has developed due to unaffordable budgets mainly due to spiking pension contribution costs. For most cities, the annual pension contribution cost is equal to 100% of their budget deficit. There

were 12 bankruptcy filings in 2012, 13 in 2011 and 6 in 2010. The most recent and most notable are:

> **July 10, 2012 = San Bernardino, CA**
> **June 28, 2012 = Stockton, CA (largest city to file for bankruptcy)**
> **April 14, 2012 = Mammoth Lakes, CA**
> **2011 = Jefferson County, AL (largest bankruptcy ever = $4 billion in debt)**

Bankruptcy Watch: Detroit

The New York Times reported (by Monica Davey and Mary Williams Walsh) that a municipal auditor recently found $7.2 billion in retiree health costs that had never been reported. The city is under mandatory state oversight. A state-appointed review team has found a long list of can-you-believe-this actions by the city stretching back decades. One example was in order to preserve cash; the city resorted to increasing its workers future pensions at contract time instead of a pay increase. Under Michigan law, the state emergency manager has the authority to remove local elected officials from financial decisions, change labor contracts, close departments and even recommend that Detroit enter bankruptcy proceedings. Such a Chapter 9 filing would be the largest municipal bankruptcy in America's history at $14 billion of long-term obligations.

State Bankruptcies

According to State Budget Solutions, "States are constitutionally recognized sovereigns. Therefore, bankruptcy is not a legal option for state governments." Unfortunately, several states are worse off than the worst cities but supposedly cannot file for bankruptcy. Once again, pensions tend to represent one of the largest budget costs with pension contribution costs rising since 1999 by 10 to 20 xs. The moral here is: "Fix the pension costs and you fix the budget costs". Please read my research paper **"The Public Pension Crisis"** by emailing us at **RyanContact@RyanALM.com** which explains how the Public pension crisis happened.

SEC Accuses Illinois of Fraud

The New York Times reported (by Mary Williams Walsh) for only the second time in history, federal regulators have accused an American state of securities fraud. They found that Illinois misled its bond investors about the condition of its public pension system from 2005 to 2009 when it issued $2.2 billion in bonds. The issue was that Illinois claimed it properly funded the pension plans when it had not. Illinois is considered, perhaps, the weakest state based on its funded ratio (@ 54%). If marked to market (MTM) the funded ratio would actually be closer to 35% but such is the world of GASB accounting where they use the ROA as the discount rate for liabilities… *Caveat Emptor!*

Moody's To Create New Public Pension Calculations

P&I reported (by Hazel Bradford) that in an effort to more accurately calculate the true size of pension liabilities, Moody's has decided to ask for *market value* information on assets and liabilities including:
1. Accrued liabilities based on high-grade long-term corporate bond index currently at 5.5%
2. Market value of assets instead of five-year smoothing
3. Projected pension contributions over an amortization period of 17 years

Moody's collects data on 14,000 public pension plans. Moody's cites that by their calculations, the state and local unfunded pension liabilities total more than $3 trillion which is more than triple what municipalities are reporting. The Society of Actuaries have been promoting that

pension entities need to create a set of *economic books* that mark-to-market (MTM) assets and liabilities to know the economic truth about your Funded Ratio. Without the economic truth, pension funds are operating on misleading and erroneous Funded Ratio calculations which have led to inappropriate asset allocation, benefit and contribution decisions… it all links. To properly calculate the economic books requires a Custom Liability Index (CLI) which prices each liability payment at the market and then calculates the true growth rate of liabilities. Ron Ryan invented the custom liability index in 1991. For more info on the Ryan ALM Custom Liability Index please contact us at **RyanContact@RyanALM.com.**

GASB Approves New Public Pension Accounting Rules

P&I (by Hazel Bradford) also reported or reminded us that effective June 15, 2013 GASB will require a new "net pension liability" calculation to be posted on balance sheets along with funding projections. Accounting wise this means that the unfunded actuarial accrued liability will use traditional entry-age projections offset by the fair value of plan assets. Currently, public pensions use various ages for their projections. Until now, most public pension plans have focused on the annual required contribution, which is calculated based on growing assets and liabilities at the return on asset assumption (ROA). As a result, public plans made the ROA their focus and target return instead of outgrowing liabilities… the $3 trillion mistake!

Saving Social Security and Medicare

As I recommended in my "If Elected President" column every month in 2008, as well as throughout the last two decades, we needed Congress to quit stealing from the SS/Medicare Trust Fund. Based on their fuzzy accounting, the Trust Fund has had an annual surplus for some time. Congress took that annual surplus and moved it into the federal general fund to support the budget and gave an IOU back to the SS Trust Fund. This has amounted to over $2.8 trillion in the last 12 years. I thought there was a "lock-box" here to protect the Trust Fund from such maneuvers? Unfortunately, we are now on a path of growing SS and Medicare annual deficits which started in fiscal 2010 = $(49 b), 2011=$ (45 b) and 2012 = $(165 b). Borrowing is a common financial transaction but stealing is a sin. Currently, Social security and Medicare are estimated at $48 trillion in long-term spending. The top five U.S. federal government spending programs (ranked) are:
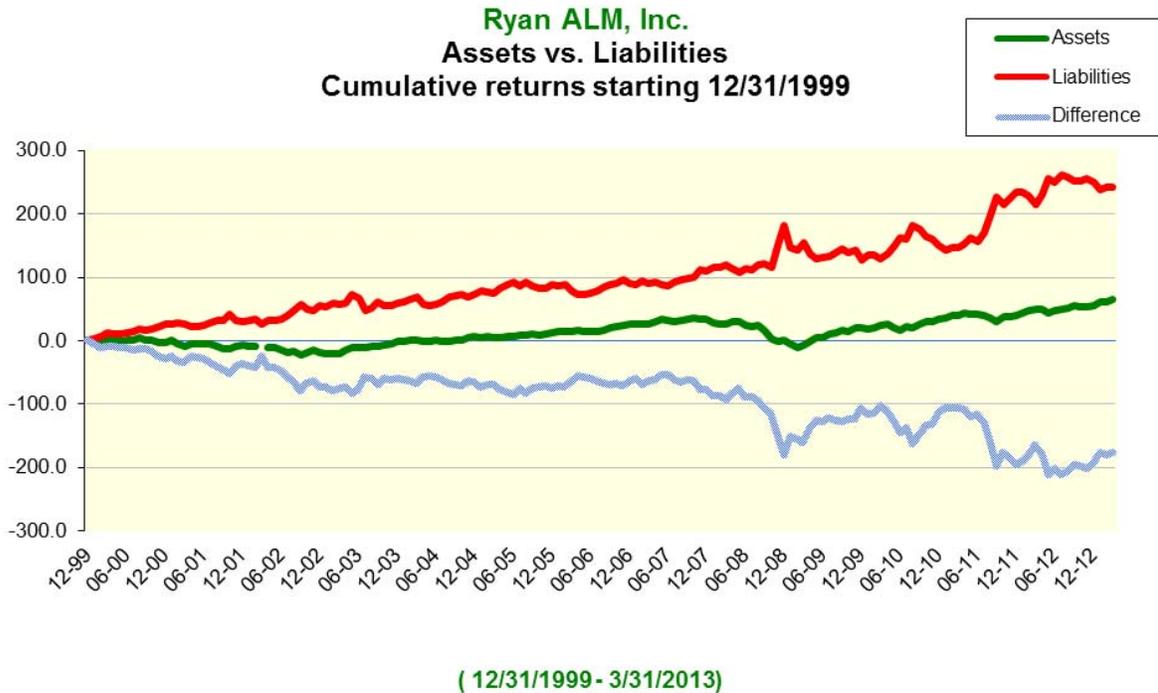
1. Social Security
2. National Defense
3. Medicare
4. Medicaid
5. Interest on debt

ASC 715 (formerly FAS 158) Pension Discount Rates Available via Ryan ALM

Ryan ALM produces pension discount rates in conformity with ASC 715 (FAS 87/158) by manufacturing an AA corporate zero-coupon bond yield curve since FAS 158 became effective in 2006. We make our discount rate curves available to any corporate plan sponsor, consultant, accounting and actuarial firm usually by the third business day of each month. Our discount rate yield curve is monitored and accepted by a major accounting firm. If you have an interest in subscribing to our data, please contact us at… **RyanContact@RyanALM.com.** Moreover, Ryan ALM creates **Custom Liability Indexes (CLI)** as the proper benchmark for liability driven objectives based on FASB, PPA, GASB and Market discount rates. Our CLI is a *daily index* report that calculates: Present Value, Term Structure, Growth Rates (Returns), Summary Statistics (YTW, MDuration, Average Price (Cost)) and Interest Rate Sensitivity.

Ryan ALM Pension Scoreboard

The graphs below show asset vs. liability rolling 12 month and cumulative growth since 1999.
Ryan ALM Benchmark Liability Index = % growth while pension assets =   % growth for a
difference of **–176.24% suggesting any pension Funded Ratio below 206.60% in 1999 has a
deficit today on a** *market weighted* **basis. The Ryan ALM Pension Funded Ratio = 48.40%.**

Ryan ALM, Inc.
Assets vs. Liabilities
(12 month rolling returns)

— Assets
— Liabilities

(12/31/1999 - 3/31/2013)

Ryan ALM, Inc.
Assets vs. Liabilities
Cumulative returns starting 12/31/1999

— Assets
— Liabilities
····· Difference

(12/31/1999 - 3/31/2013)

The World of Ryan Indexes

Custom Liability Indexes … (Patent Pending)

The best way to price (discount rate) and understand the interest rate sensitivity of liabilities is the **Ryan Treasury STRIPS yield curve indexes** as a **LIABILITY INDEX BENCHMARK.** In March 1985, when STRIPS were born, the Ryan Financial Strategy Group (RFSG) created the **1st STRIPS Index.** Based upon these Ryan STRIPS indexes we created the **1st Liability Index** as the proper Liability Benchmark for liability driven objectives. The Ryan team has developed hundreds of Custom Liability Indexes (CLI). Similar to snowflakes, no two pension funds are alike with unique benefit payment schedules due to different labor forces, mortality and plan amendments. Until a CLI is installed as the benchmark, the asset side is in jeopardy of managing vs. the wrong objective (market indexes). **If you outperform generic market indexes, but lose to the CLI … the plan loses!**

Ryan Treasury Yield Curve Indexes (*Constant Maturity / Duration* series)

In March 1983, the Ryan Financial Strategy Group (RFSG) created the **1st Daily bond Indexes (the Ryan Index)** as a *Treasury Yield Curve constant maturity* index series for each *auction* maturity series (from Bills to Bonds). In March 1985, the day after Treasury STRIPS were born RFSG created the **1st Treasury STRIPS indexes** as a *Treasury Yield Curve constant duration* series of 1-30 year maturities (30 distinct constant duration indexes + composite). The best way to measure interest rate risk is to use the Ryan Treasury Yield Curve Index series.

RAFI Fundamental Weighted High Yield Index Series + RAFI Investment Grade Index Series
(PowerShares ETFs = PHB + PFIG)

In January 2010, Research Affiliates announced the creation of a series of bond indexes based on the RAFI fundamental weights. These include a short, intermediate long and composite Investment grade series and a short and intermediate High Yield series. Ryan ALM was honored and chosen as the index designer and calculation agent. In August 2010 the RAFI 1-10 year High Yield Index was launched as a **PowerShares ETF (PHB)**. There is also a Canadian hedged version **(PFH_CN)**. In September 2011 the RAFI 1-10 year Investment Grade index was launched as a PowerShares ETF **(PFIG)**. For more info on these ETFs and index, please go to:
www.Powershares.com   **(click on fixed income portfolios)**

Ryan/Nasdaq 1-30 year Treasury Maturity Ladder (PowerShares ETF = PLW)

On October 11, 2007 PowerShares launched a fixed income ETF **(PLW)** based upon the Ryan/Nasdaq 1-30 year Treasury Maturity Ladder index. This index is an equal-weighted diversified portfolio of 30 distinct maturities. For more info on this ETF and index, please go to:
www.Powershares.com   **(click on fixed income portfolios)**

Ryan ESG Bond Index Series (Global version)

In 2009 Ryan ALM launched the 1st ESG Global corporate bond index series based upon the GSRA ESG ranking (G100 + G400 series) for the top ranked ESG Global companies. This index series includes a 1-30+ year index.

Ryan ASC 715 (formerly FAS 158) Spot Rate Yield Curve Index

In 2006, Ryan ALM designed the FAS 158 yield curve index that prices any private pension liabilities in conformity to FAS 158 standards.

Ryan Canadian Corporate Bond Index (Pro-Financial fund)

In 2012, Ryan ALM designed an investment grade index for Canadian corporate bonds. This index should help with the new IAS 19 discount rate accounting rules.

To view all Ryan Indexes data go to: www.RyanIndex.com
Ryan Index is a Registered Trademark of Ryan ALM, Inc.
In October 2005, Ron Ryan terminated his license agreement with Ryan Labs to distribute and calculate the Ryan Indexes and Ryan STRIPS Indexes. Ron Ryan and Ryan ALM have no affiliation with Ryan Labs. Any use of the formulas, methodologies and data of any of the Ryan Indexes without Ron Ryan's written permission is prohibited.

Given the Wrong Index … you will get the Wrong Risk/Reward!

Pension Solutions:
Custom Liability Index and Liability Beta Portfolio
_____*(Patent Pending)*_____

Ryan ALM offers a turnkey system of CLI + Liability Beta portfolio as a pension solution:

Custom Liability Index (Patent pending) - The first step in prudent pension management is to understand, measure and monitor the liability objective frequently and accurately. Until liabilities are packaged as a **Custom Liability Index (CLI)** the asset side is in jeopardy of managing to the wrong objectives (i.e. market indexes). Only a CLI best represents the unique liability schedule of pensions. Just like snowflakes, no two pension liability schedules are alike due to different labor forces, salaries, mortality and plan amendments. How could a *generic market index* ever properly represent such a diverse array of pension liabilities? Once the CLI is installed the pension will now know the true **economic Funded Ratio** which should dictate the appropriate Asset Allocation, Asset Management and Performance Measurement. Ryan ALM is a leader in CLI as Ron Ryan was the inventor of the *first Liability Index* in 1991. In 2006, Ron won the *William F. Sharpe Index Lifetime Achievement Award*!

Liability Beta Portfolio (Patent Pending) – The value added in bonds is small as every performance ranking study proves (1st quartile vs. median difference). **The best value in bonds is to match and fund liabilities** as Dedication, Immunization and Defeasance have proven for decades. Since liabilities are dynamic calculations they need a CLI to monitor their risk/reward behavior. The *core* or Beta portfolio for a pension should be in high quality bonds that match and fund liabilities. A Beta portfolio is defined as the portfolio that matches the objective. If the true objective is liability driven then, by definition, the proper beta portfolio for any liability objective must be … a **Liability Index Fund or Liability Beta Portfolio**. This requires a Custom Liability Index in order to be executed.

The Ryan ALM Beta portfolio system will invest only in high quality securities that match the CLI. This provides our clients with the ***lowest cost and lowest risk portfolio***. It is the lowest risk portfolio since it has:

> **No Interest Rate Risk   (matches CLI)**
> **No Liquidity Risk**
> **No Credit Risk**
> **No Event Risk**
> **No Prepay Risk**

The Ryan ALM Beta portfolio is the lowest cost portfolio since we will always out yield liabilities by more than our low fee thereby guarantying each client **No Net Fee** to maturity (liability benefit payment dates). Moreover, the Beta portfolio is a matching liability portfolio that fully funds liabilities so no extra contributions are needed in this space reducing the volatility of contributions.