

Ronald Ryan, CEO, CFA

# The Ryan ALM Pension Letter™

June 30, 2015

(Copyright Ryan ALM, Inc. 2015 ...All Rights Reserved)

Index	Returns YTD 2015	Weights
<b>Pension Liabilities:</b>		
Market (Tsy STRIPS)	-3.68%	100 %
ASC 715 (FAS 158)	-1.55	
PPA (MAP 21 = 3 Segments)	3.31	
PPA (Spot Rates)	2.10	
GASB /ASOP (8% ROA)	3.88	
<b>Pension Assets:</b>		
Ryan Cash	0.14 %	5 %
Barclay (Lehman) Aggregate	-0.10	30
S&P 500	1.23	60
MSCI EAFE Int'l	5.94	5
<b>Asset Allocation Model</b>	<b>1.09 %</b>	<b>100 %</b>
<b>Pension Assets – Liabilities:</b>		
Market	4.77%	
ASC 715 (FAS 158)	2.64	
PPA (MAP 21 = 3 Segments)	-2.22	
PPA (Spot Rates)	-1.01	
GASB/ASOP (8% ROA)	-2.79	

William F. Sharpe  
Lifetime Achievement Award

Money Management Letter  
Lifetime Achievement Award

Capital Link  
Most Innovative ETF Award

IMN  
ETF of the Year Award

Bernstein Fabozzi/Jacobs Levy  
Research Paper of the Year Award



Using the Asset Allocation above, the difference in pension asset growth vs. liabilities in 2015 was: **4.77%** (market valuation STRIPS), **2.64%** (ASC 715), **-2.22%** (PPA 3 segment rates), **-1.01%** (PPA-Spot Rates) and **-2.79%** (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 -160.93%** on a compounded index basis starting at 100 on 12/31/99!

	Total Returns (Market Values)										
	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	-64.60	-77.50	-181.5	-106.94	
	2010	2011	2012	2013	2014	2015					
Assets	11.89	3.27	11.79	19.04	9.74	1.09					
Liabilities	10.13	33.77	4.46	-12.59	24.35	-3.68					
Difference:											
Annual	1.76	-30.50	7.33	31.63	-14.61	4.77					
Cumulative	-115.67	-195.73	-194.30	-120.74	-177.14	-160.93					

## 2015 Starts as Good Year for Pensions Due to “Negative” Liability Growth

Just like in sports, it is the *relative* score of asset growth vs. liability growth that counts in pensions not the absolute return of assets. Imagine if the opponent in sports could score a negative, that would be an easy opponent to beat. Well, so far in 2015, that is what’s happening in pensions. According to the Ryan ALM Liability benchmark (Treasury STRIPS) liabilities have grown **-3.68%** this year. Using our ASC 715 discount rates liability growth is **-1.55%**. Although assets have shown little positive growth at 1.09%, they have outperformed liabilities.

## Center for Retirement Research at Boston College Pension Study

In June the Center released its study of “The Funding of State and Local Pensions: 2014-2018” which reviewed 150 plans. The year 2014 was the first year under the new GASB 67 standards. GASB allows for a separation of reporting and funding with two important changes: First, for reporting purposes all public plans must adopt market value for assets instead of smoothing. Second, liabilities are to be priced for valuing liabilities at a blended discount rate of the ROA until assets are exhausted and then a 20-year muni rate. For funding purposes, assets are smoothed and liabilities are priced at the ROA as a discount rate. Based on the ROA, the funded ratio increased from 72% in 2013 to 74% in 2014 with an unfunded liability of \$1.1 trillion. The Center also calculated liabilities at a matrix of discount rates ranging to 4%. At 4%, the unfunded liability would grow sharply to \$3.9 trillion with a funded ratio of 55%. The Center used 4% as the riskless rate (Treasury STRIPS) in this matrix. However, Treasury STRIPS for June 30, 2014 would be closer to 3% (Ryan ALM STRIPS Index yield = 2.80% on June 30, 2014). At 3% the unfunded liability would be over \$4.7 trillion with a funded ratio of 40%. Only seven plans reported a GASB 67 blended discount rate for liabilities instead of the ROA:

	Discount Rate		Funded Ratio	
	Actuarial	GASB 67	Actuarial	GASB 67
Duluth Teachers	8.0%	5.4%	56.9%	46.8%
Kentucky Teachers	7.5	5.2	53.6	45.6
New Jersey PERS	7.9	5.4	60.9	42.7
New Jersey Police & Fire	7.9	6.3	72.6	58.9
New Jersey Teachers	7.9	4.7	54.0	33.6
Texas ERS	8.0	6.1	77.2	63.4
Texas LECOS	8.0	5.7	73.2	56.4

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

Ryan ALM produces four pension discount rate curves in conformity with ASC 715 (FAS 87/106/158) by manufacturing AA corporate zero-coupon bond yield curves since FAS 158 became effective in 2006. Our discount rate yield curves are used and accepted by a top four accounting firm. If you have an interest in our ASC 715 data, contact us at... [Contact@RyanALM.com](mailto:Contact@RyanALM.com).

Ryan ALM also 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 *monthly index* report that calculates: Present Value, Term Structure, Growth Rates (Returns), Summary Statistics (YTW, MDuration, Average Price (Cost)) and Interest Rate Sensitivity.

## Will Greece Collapse?

Greece’s debt load is 170% of GDP, about double the average for Eurozone nations. In the last five years, Greece’s GDP has declined 25%. Its rate of unemployment among the youth is 60%. The Troika (European Commission, European Central Bank and IMF) have demanded that

Greece achieve a budget surplus of 3.5% of GDP by 2018... mission impossible? Although austerity measures are required and pressured by the Troika, there have been no job cuts in the Greek public sector. The Greek private sector has experienced the most shock from Troika's measures. The cost of pensioners has taken a heavy toll on Greek government finances.

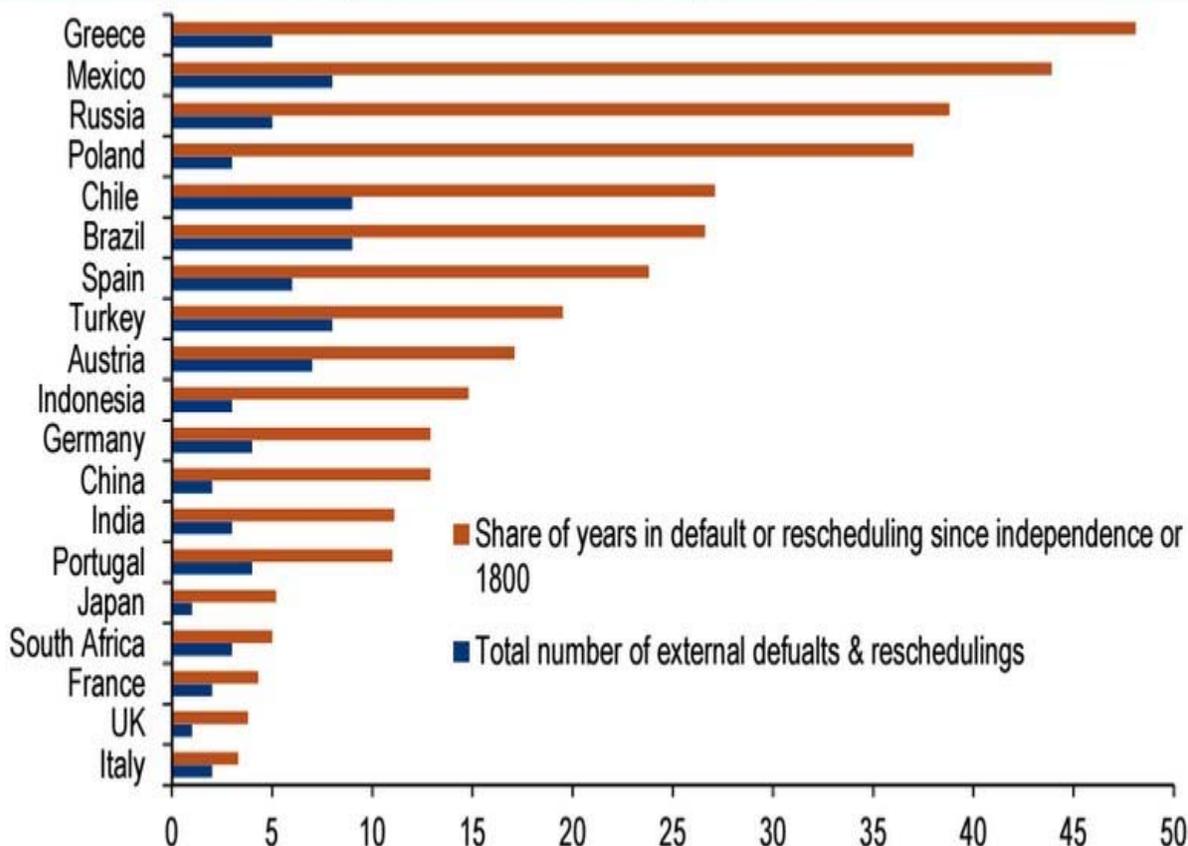
### Will Puerto Rico Collapse?

Puerto Rico Gov. Alejandro Garcia Padilla recently declared that their \$72 billion in debt is not payable. This is equal to about 70% of the GDP of \$103 billion. However, according to El Nuevo Dia newspaper, the actual debt is closer to \$162 billion which is unsustainable. Puerto Rico enjoys tax advantages with no federal income tax and a commonwealth tax of only 4%.

### Financial Crises by Large Economies are Common

Based on a chart from Bank of America Merrill Lynch, Greece leads the way historically dealing with economic turmoil having spent 90 of the last 196 years in a financial crisis but Mexico (44%), Russia (39%) and Poland (37%) are not far behind. Chile and Brazil have the most number of years in default around 9%. Countries with the least number of years rescheduling their debt are Italy (3%), UK (4%) and France (4.5%). The USA is not part of this survey.

**Chart 3: External sovereign defaults and rescheduling, 1800-2010**



Source: BofAML Global Investment Strategy, <http://www.carmenreinhardt.com/data/browse-by-topic/topics/7/>

### **Size of U.S. Government Debt is \$210 Trillion not the \$18 Trillion Reported**

According to a paper published by the Mercatus Center at George Mason University, the true size of the federal Government debt is more like \$210 trillion based on their model of future debt rather than current debt. That would be somewhere around 12 times larger than the U.S. economy. Taxes would have to escalate by 58% to eliminate this horrific shortfall.

### **MAP 21 Pension Relief Will Fade Dramatically in Future Years**

Corporate pension relief under the Moving Ahead for Progress in the 21<sup>st</sup> Century Act of 2012 will be reduced in future years leading to higher corporate pension contributions. The Highway and Transportation Funding Act (HATFA) of August 8, 2014 delayed the scheduled phase-down of MAP-21 over five years. For the 339 companies in the S&P 500 with defined benefit plans, annual aggregate contributions fell to \$49.9 billion in 2014 from \$73.4 billion in 2010 while aggregate pension benefit payouts have risen steadily to \$105 billion in 2014 from \$94 billion in 2010. Corporations with the largest gap between benefit payments and contributions (in \$millions) are:

	<b>Benefit Payments</b>	<b>Contribution</b>	<b>Gap</b>
<b>GM</b>	<b>\$7,478</b>	<b>\$913</b>	<b>\$6,566</b>
<b>AT&amp;T</b>	<b>\$6,543</b>	<b>\$562</b>	<b>\$5,981</b>
<b>IBM</b>	<b>\$5,440</b>	<b>\$465</b>	<b>\$4,975</b>
<b>GE</b>	<b>\$3,682</b>	<b>\$962</b>	<b>\$2,730</b>
<b>Ford</b>	<b>\$4,451</b>	<b>\$1,845</b>	<b>\$2,606</b>
<b>Boeing</b>	<b>\$3,039</b>	<b>\$784</b>	<b>\$2,255</b>
<b>DuPont</b>	<b>\$1,651</b>	<b>\$311</b>	<b>\$1,340</b>

### **“The U.S. Pension Crisis” Book Wins IPPY Gold Award for Finance**

My new book on The U.S. Pension Crisis was just honored with the top IPPY award for an independent publisher on finance. The IPPY awards were launched in 1996 as the first awards program exclusively for independents. This year’s competition had 5,240 entries. If you are interested in purchasing, please email us at [Contact@RyanALM.com](mailto:Contact@RyanALM.com) or visit our web site for purchase info [www.RyanALM.com](http://www.RyanALM.com).

### **Declaration of Independence...facts you may not know**

1. It was *not* signed on July 4<sup>th</sup>. It was adopted on July 4<sup>th</sup> and signed on August 2, 1776.
2. There is more than 1 copy. Hundreds were printed and given to the colonies to be read aloud since many people could not read in those days. Such reading led to many riots.
3. Thomas Jefferson and John Adams both died on July 4, 1826

## Ryan ALM Pension Scoreboard

The graphs below show asset vs. liability rolling 12 month and cumulative growth since 1999. Ryan ALM Benchmark Liability Index = **265.91%** growth while pension assets = **104.98%** growth for a difference of **-160.93%** suggesting any pension **Funded Ratio below 178.51% in 1999 has a deficit today on a market weighted basis. The Ryan ALM Pension Funded Ratio = 56.02%.**



## 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](http://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](http://www.Powershares.com) (click on fixed income portfolios)

### 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](http://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 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 (1<sup>st</sup> 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 thereby reducing the cost and volatility of contributions.