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The Ryan ALM Pension Letter

March 31, 2014

Index	Returns YTD 2014	Weights
Pension Liabilities:		
Market (Tsy STRIPS)	7.03%	100 %
ASC 715 (FAS 158)	7.06	
PPA (MAP 21 = 3 Segments)	1.80	
PPA (Spot Rates)	5.53	
GASB / ASOP (8% ROA)	1.92	
Pension Assets:		
Ryan Cash	0.04 %	5 %
Barclay (Lehman) Aggregate	1.84	30
S&P 500	1.80	60
MSCI EAFE Int'l	0.83	5
Asset Allocation Model	1.72 %	100 %
Pension Assets – Liabilities:		
Market	-5.31%	
ASC 715 (FAS 158)	-5.33	
PPA (MAP 21 = 3 Segments)	-0.08	
PPA (Spot Rates)	-3.81	
GASB / ASOP (8% ROA)	-0.20	

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 2014 was: **-5.31%** (market valuation STRIPS), **-5.33%** (ASC 715), **-0.08%** (PPA 3 segment rates), **-3.81%** (PPA-Spot Rates) and **-0.20%** (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 -139.04%** 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	-181.57	-106.94
	2010	**2011**	**2012**	**2013**	**2014**					
Assets	11.89	3.27	11.79	19.04	1.72%					
Liabilities	10.13	33.77	4.46	-12.59	7.03%					
Difference:										
Annual	1.76	-30.50	7.33	31.63	-5.31%					
Cumulative	-115.67	-195.73	-194.30	-120.74	-139.04					

2014… Poor Start for Pensions

2013 proved to be the second best year in pension history (since 1987) with assets outgrowing liabilities by 31.63% (Ryan ALM estimate) using market or economic valuations. 2014 is starting out as a correction year as assets underperformed liability growth by **-5.31%** (see 1st page). We estimate pension asset growth of about 1.72% based on the asset allocation on the first page and liability growth of 7.03% based on the Ryan Liability Benchmark Index (using Treasury STRIPS). The ***Ryan ALM Pension Funded Ratio*** stands at **67.48%** starting at 100.00 in 12/31/99 (see graphs on page 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. 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 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.**

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.

US Public Pension Funding Crisis… CFA Sponsored Webinar

I was honored to be chosen as part of a distinguished panel to discuss the US Public pension funding crisis on an all-day webinar event hosted by the CFA institute's David Larrabee. Other panelists included were: Andrew Biggs (American Enterprise Institute), Keith Brainard (NASRA), Hank Kim (NCPERS), Robert Novy-Marx (University of Rochester), David Stella (Pension Management Advisors), Barton Waring (Barclay's Global Investors – retired). Many critical and emotional issues were debated such as the appropriate discount rates. The majority asserted that the appropriate discount rates to value liabilities are the risk-free rates. Public plans and elected officials don't want to use lower discount rates since it would lower the funded ratio and increase pressure to raise contributions. Instead they contribute less and take more investment risk in the hope that the bet pays off. To solve the funding shortfall, panelists urged for increased transparency, adherence to reasonable actuarial assumptions, full payment of the annual required contributions (ARC) and managing assets to a "custom liability index". Some predicted it will require a combination of higher taxes and less government services for a long time to come. To read more about the panel discussion please visit: http://blogs.cfainstitute.org/investor/2014/03/11/the-us-public-pension-funding-crisis-online-forum/

Chicago's Approach to Pension Funding Woes

Chicago mayor Rahm Emanuel proposed raising property taxes and reducing retirement benefits for some city workers to ease the city's severe pension funding program for municipal and laborers retirement systems. Under the plan the city would collect $250 million in property taxes over five years plus the employee contribution rate would be raised from 8.5% to 11.0% (a 29.4% increase). Annual 3% COLAs would be tied to inflation and skipped in certain years. In addition, the city would tap separate funds for its airports and utilities to cover pension funding increases for workers. Chicago warned that these two pension plans face insolvency within nine to 17 years. The current funding shortfall is $8.4 billion for the municipal pension and $1 billion for the laborers. Reactions were strong claiming that this proposal is unconstitutional since the state constitution prohibits any impairment of retirement benefits for public sector workers. Unfortunately, the recent court ruling in Detroit is setting precedence that pensions are contracts and the city or state has the right to alter or even terminate contracts. Chicago was recently downgraded by Moody's to Baa1 giving the city a lower credit rating than any major U.S. city except Detroit.

New Jersey's Governor Chris Christie Budget Cuts Concern Moody's

The governor is cutting $694 million of spending to balance the budget through June. That includes $94 million from recalculating the required pension contribution (ARC) as a result of revised actuarial assumptions. According to Moody's this will create higher pension costs in future years. New Jersey has the fifth-biggest net pension liability among U.S. states estimated at $47.2 billion. Moody's has given New Jersey debt a negative outlook.

Rhode Island Pension Time Bomb

Michael Riley is the vice chair at Rhode Island Center for Freedom and Prosperity. He recently compared Providence, Rhode Island to Chicago based on Moody's revised credit standards:

	Chicago	**Providence**
UAAL / Operating Revenues	**800%**	**592%**
ARC / Operating Revenues	**10%**	**13%**
ARC / General Fund Balance	**849%**	**3,080%**
Property Tax Rate	**1.11%**	**3.68%**
Bonded Debt per capita	**$2,886**	**$1,463**
Pensions + OPEB + Bonded Debt	**$13,529**	**$14,926**

GASB Declines to Delay Implementation of GASB Statement No. 68 Pension Standards

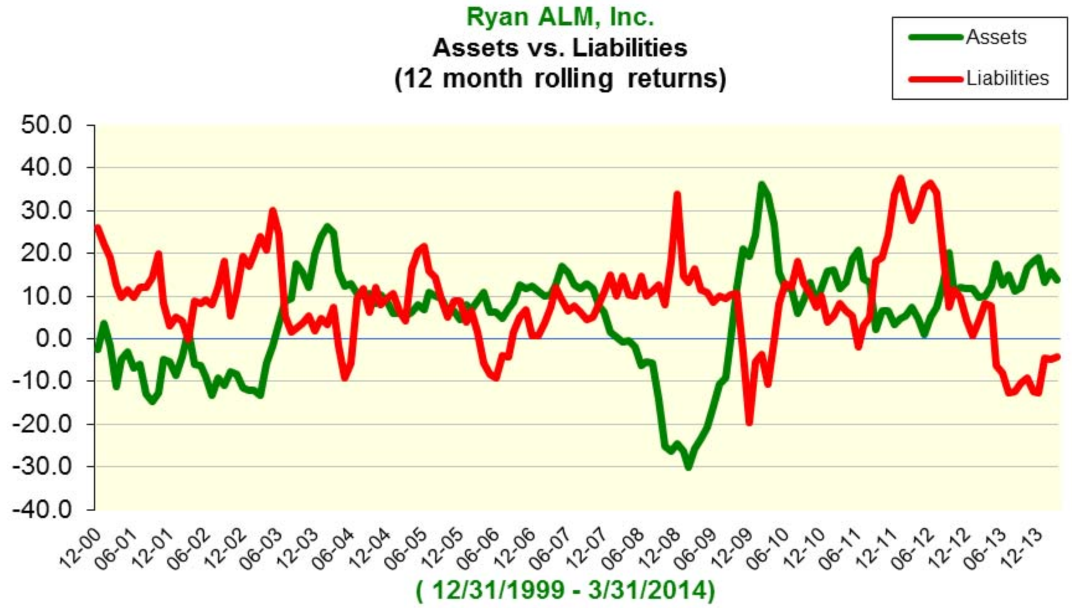
Required implementation of GASB 68 is effective for plan fiscal years beginning after June 15, 2014. The new GASB statement requires a liability for pension obligations, known as the net pension liability (NPL), to be recognized. Projected benefit payments are required to be discounted to their actuarial present value using the ROA (return on asset assumption) as a single discount rate up to extent that pension assets are sufficient to pay benefits. Any projected benefit payments left will be discounted at a tax-exempt, high quality municipal bond rate. Such a process is expected to offer an indication of the extent to which the total pension liability is covered by resources held by the pension plan. This Statement replaces the requirements of Statement No. 27 and No. 50.

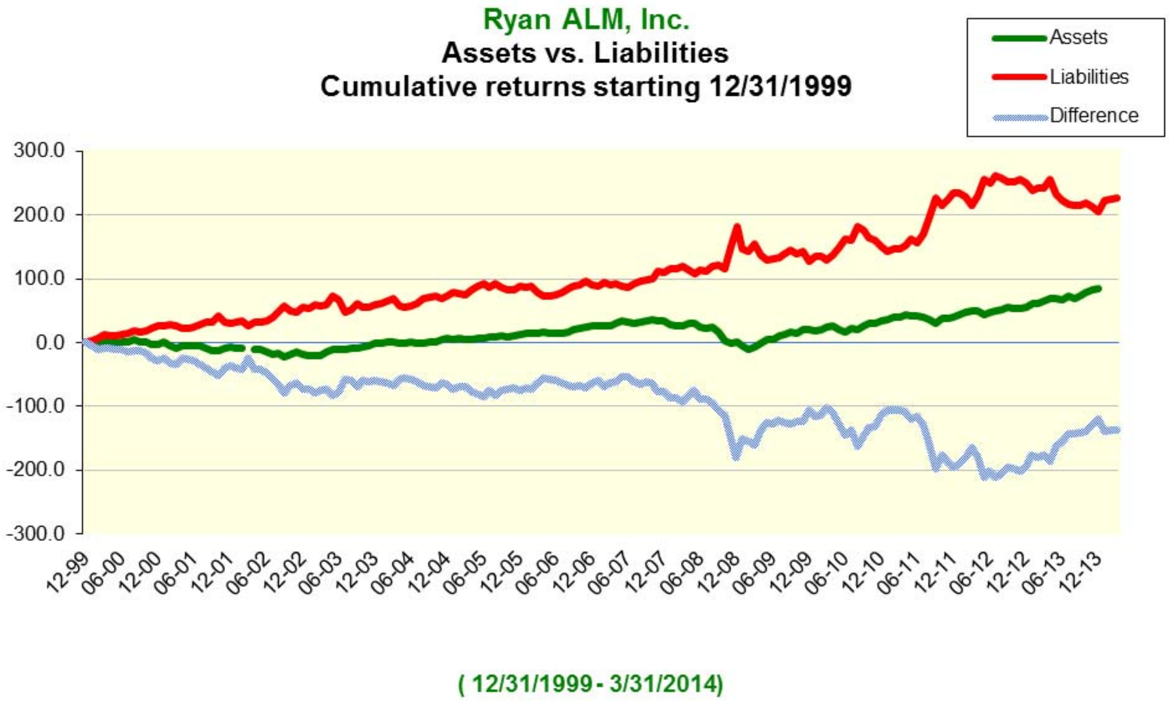
Pension Watch Dog: Kamp Consulting Solutions, LLC

I am always looking for prudent and logical approaches to solving pension issues. Kamp Consulting Solutions, LLX was established in 2011 to help plan sponsors address the challenges impacting them and their beneficiaries. They have a highly experienced team which produces a series of monthly Fireside Chats and White Papers that focus on solving topical pension issues. Pension plan sponsors would be wise to KCS at their web site:
www.kampconsultingsolutions.com

Ryan ALM Pension Scoreboard

The graphs below show asset vs. liability rolling 12 month and cumulative growth since 1999. Ryan ALM Benchmark Liability Index = **226.99%** growth while pension assets = **87.95%** growth for a difference of **–139.04% suggesting any pension Funded Ratio below 173.98% in 1999 has a deficit today on a *market weighted* basis. The Ryan ALM Pension Funded Ratio = 67.48%.**





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

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 (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 thereby reducing the cost and volatility of contributions.