Ronald Ryan, CEO, CFA

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

The Ryan ALM Pension Letter

December 31, 2013

Index	Returns YTD 2013	Weights
Pension Liabilities:		
Market (Tsy STRIPS)	-12.59%	100 %
ASC 715 (FAS 158)	-8.61	
PPA (MAP 21 = 3 Segments)	6.79	
PPA (Spot Rates)	-9.29	
GASB / ASOP (8% ROA)	8.00	
Pension Assets:		
Ryan Cash	0.15 %	5 %
Barclay (Lehman) Aggregate	-2.02	30
S&P 500	32.35	60
MSCI EAFE Int'l	23.54	5
Asset Allocation Model	19.04 %	100 %
Pension Assets – Liabilities:		
Market	31.63%	
ASC 715 (FAS 158)	27.65	
PPA (MAP 21 = 3 Segments)	12.25	
PPA (Spot Rates)	28.33	
GASB / ASOP (8% ROA)	11.04	

Using the Asset Allocation above, the difference in pension asset growth vs. liabilities in 2013 was: **31.63%** (market valuation STRIPS), **27.65%** (ASC 715), **12.25%** (PPA – 3 segment rates), **28.33%** (PPA-Spot Rates) and **11.04%** (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 -120.74%** 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	-76.75	-64.60	-181.57	-106.94

	2010	2011	2012	2013
Assets	11.89	3.27	11.79	19.04
Liabilities	10.13	33.77	4.46	-12.59
Difference:				
Annual	1.76	-30.50	7.33	31.63
Cumulative	-115.67	-195.73	-194.30	-120.74

2013… A Great Year for Pensions

2013 proved to be the second best year in pension history (since FAS 87 was effective starting in 1987) using market or economic valuations. GASB and the PPA-MAP 21 discount rates are not market rates and cause severe distortions in the calculation of liability growth rates. Rising interest rates in 2013 should have produced negative growth on liabilities:

	Growth Rate
GASB	**8.00%**
ASC 715	**- 8.61**
PPA Spot Rates	**- 9.29**
PPA MAP-21 (3 segments)	**6.79**
Market Rates (Treasury STRIPS)	**- 12.59**

We estimate pension asset growth of about 19.04% based on the asset allocation on the first page. As a result, pension assets should have outperformed liability growth by 31.63%. Based on market valuations, we calculate that funded ratios should have improved by as much as 13% (if 50% funded) to 24% (if fully funded) over the year. The ***Ryan ALM Pension Funded Ratio*** went from **47.46%** to **60.48%** in 2013 starting at 100.00 in 12/31/99 (see graphs on page 5):

	2009	2013	1999	1996
Assets	**19.43%**	**19.04**	**13.69%**	**15.21**
Liabilities	**- 19.52**	**- 12.59**	**- 12.70**	**- 3.70**
	38.95	**31.63**	**26.39**	**18.91**

Gold Loses 28% in 2013

Gold futures settled at $1,202.30 an ounce representing a 28% loss for the year. This was Gold's first annual loss since 2000 and its worst loss since 1984.

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 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 curves are used and accepted by a major 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.

Detroit Bankruptcy Ruling Unprecedented

Judge Steven Rhodes accepted Detroit's petition to seek Chapter 9 bankruptcy protection which would legally allow for a reduction of public pension benefits. Pensions were always considered sacra sync or untouchable under Michigan's constitution which stipulates that state pension plans should not be impaired or diminished. Judge Rhodes' ruled that municipal pension rights are contract rights. Because the State of Michigan authorized the filing of this case, municipal pension rights can be impaired. The judges' ruling came on the same day (Dec. 6) as Illinois passed a wide-ranging pension reform bill designed to save $160 billion over the next 30 years to include COLA reductions, increasing retirement ages and capping salaries. This case may be appealed but in the end will set precedent for every state in the union… anyone for dominos!

Public Pension Meltdown: 10 Most Dire Cities

According to a recent Pew Charitable Trusts Study of 61 cities whose population exceeded 500,000 or were the largest city in the state, they ranked the 10 worst funded pensions:

Charleston, West Va.	24%	Wilmington, DE	59%
Omaha, Nebraska	43%	Boston, MA	60%
Portland, Oregon	50%	Atlanta, GA	60%
Chicago, IL	52%	Manchester, NH	60%
Little Rock, Arkansas	59%	New Orleans, LA	61%

However, these funded ratios were based on GASB accounting which values liabilities on a discount rate equal to the ROA assumption (@7.50% - 8.00%). If liabilities were priced at market rates (Treasury STRIPS) liabilities would be about 50% higher and the reported funded ratio would be about 20% to 30% lower (e.g. from 60% to 40%).

States Pension Deficit over $4 trillion (State Budget Solutions Study)

A recent report by State Budget Solutions estimates that the pension underfunding of state employee retirement plans are at $4.1 trillion if liabilities were priced and valued at 15-year US Treasury market rates. Combined state public pension plans would then be just 39% funded. The worst states are: **Illinois (24%), Connecticut (29%), Kentucky (27%), Kansas (29%) with Mississippi, New Hampshire, and Alaska tied at 30%**

State Budget Solutions (SBS) has apparently joined my 30 year crusade to get public pensions to discount their liabilities at market rates. They cited the Wisconsin Retirement System (WRS) who reported a 99% funded ratio. If their liabilities were to be priced at the 15-year Treasury yield (3.225%) instead of the ROA rate (7.2%) SBS estimates the economic funded ratio would be closer to 57%. Just like a doctor, pensions need to understand the economic truth if they plan to cure their pension deficits. It starts with pricing liabilities at the market followed by a *Custom Liability Index* which will then monitor and measure liability growth as a monthly benchmark. This would allow public plan sponsors to know the true Funded Ratio so asset allocation, benefit and contribution decisions can be made with current and accurate information.

US Treasury Selling Last of GM shares = $10 billion Loss

The US Treasury announced at the end of November its plan to sell 31.1 million shares of GM by year end. The government received 912 million shares in exchange for a $49.5 billion bailout in 2008 and 2009. So far the government has recovered $38.4 billion. With this sale estimated at $1.2 billion the government stands to lose about $10 billion on the GM bailout. Taxpayers' initially bought 61% of GM in exchange for the bailout. The Canadian government still owns about 8% of GM stock. Once the US government divests of all its stock, GM will be free of restrictions on executive pay. Although profitable for 15 straight quarters and $26.8 in cash, GM hasn't paid federal income taxes since leaving bankruptcy due to write-offs from accumulated net losses.

Dutch Prostitutes Seek Football Pension

According to the BBC news, prostitutes in the Netherlands are lobbying the tax authorities for the same pension rights as footballers. They argue that they do difficult physical work in the prime of their lives and their careers are short lived. Footballers enjoy a pension under which they are allowed to save 5,000 euros ($7,000) tax-free per month. Prostitution was legalized in the Netherlands in 2002. Women working in the trade must register at the chamber of commerce and pay taxes.

<u>Happy Tax Year… Many New Taxes in 2014</u>

There are estimated $1.1 trillion in new taxes over the next 10 years through numerous new taxes, increases in existing taxes, reductions in tax deductions, etc. Obamacare alone has 20 new or higher taxes:

$158b = Income Earned Overseas

$123b = 3.8% surtax on investment income on individuals earning > $200,000

Increases unearned income tax from 35% to 43.4%

Increases Capital Gains Tax from 15% to 23.8%

Increases Dividend tax from 15% to 43.4%

$86b = Medicare payroll tax hike on earnings > $200,000 from 1.45% to 2.35%

$78b = Raising the tax on inheritance

$78 = Increase Federal tax on cigarettes (from $1.01 to $1.95 per pack)

$65b = Individual/Employer Mandate Excise Tax on Obamacare of 1%

(goes to 2% in 2014 and 2.5% in 2016+)

$60b = Tax on Health Insurers

$32b = Excise Tax on Comprehensive Health Insurance Plans

$23.6b = Black-liquor tax hike (bio-fuel)

$22.2b = Tax on Innovator Drug Companies

$20b = 2.3% Excise Tax on Medical Device Manufacturers

$15.2b = High Medical Bills Tax

$13.2b = Flexible Spending Account Cap of $2500 on special needs kids

$5.0b = Medicine Cabinet Tax

$4.5b = Elimination of tax deduction for employer provided drug coverage

$2.7b = Tax on Indoor Training Services

$1.4b = HAS Withdrawal Tax Hike

$0.6b = $500,000 Annual Executive Compensation Limit for Health Insurance

$0.4b = Blue Cross/Blue Shield Tax Hike

$0.1 = Excise Tax on Charitable Hospitals

$0.1b = Employer Reporting of Insurance on W-2

Social Security FICA Tax of 6.2% rises from salary of $113,700 to $117,000

Cap of $3 million per tax-deferred accounts

Expiration of 50 tax credits

Raising Estate Tax

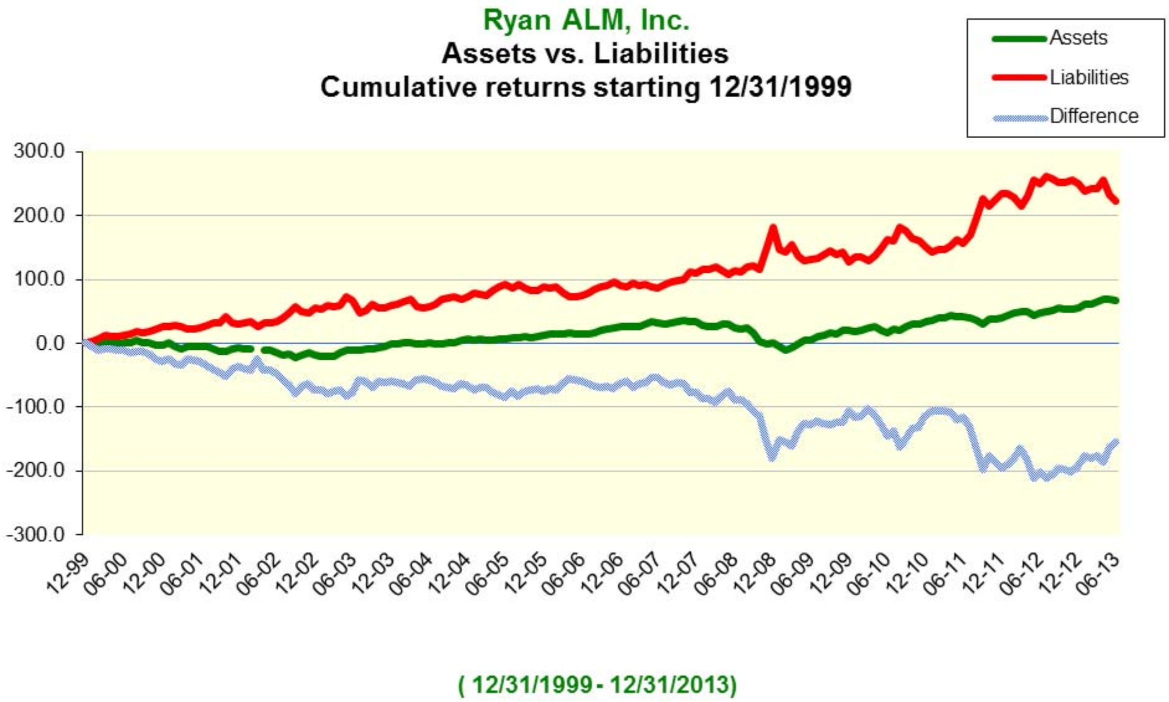
New Tax on energy companies, banks and brokerage firms

End Bush tax cuts: payroll of 2%, individuals > $250,000, couples > $300,00

Many reductions in tax deductions

Ryan ALM Pension Scoreboard

The graphs below show asset vs. liability rolling 12 month and cumulative growth since 1999. Ryan ALM Benchmark Liability Index = **205.51%** growth while pension assets = **84.76%** growth for a difference of **–120.74% suggesting any pension Funded Ratio below 181.61% in 1999 has a deficit today on a *market weighted* basis. The Ryan ALM Pension Funded Ratio = 60.48%.**



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

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 (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.