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™

September 30, 2015

Index	Returns YTD 2015	Weights
Pension Liabilities:		
Market (Tsy STRIPS)	1.29%	100 %
ASC 715 (FAS 158)	2.71	
PPA (MAP 21 = 3 Segments)	5.21	
PPA (Spot Rates)	2.06	
GASB / ASOP (8% ROA)	5.91	
Pension Assets:		
Ryan Cash	0.23 %	5 %
Barclay (Lehman) Aggregate	1.13	30
S&P 500	-5.29	60
MSCI EAFE Int'l	-4.80	5
Asset Allocation Model	-2.96 %	100 %
Pension Assets – Liabilities:		
Market	-4.25%	
ASC 715 (FAS 158)	-5.67	
PPA (MAP 21 = 3 Segments)	-8.17	
PPA (Spot Rates)	-5.02	
GASB / ASOP (8% ROA)	-8.87	

Using the Asset Allocation above, the difference in pension asset growth vs. liabilities in 2015 was: **4.25%** (market valuation STRIPS), **5.67%** (ASC 715), **-8.17%** (PPA 3 segment rates), **-5.02%** (PPA-Spot Rates) and **-8.87%** (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** **-188.05%** 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	-2.96
Liabilities	10.13	33.77	4.46	-12.59	24.35	1.29
Difference:						
Annual	1.76	-30.50	7.33	31.63	-14.61	-4.25
Cumulative	-115.67	-195.73	-194.30	-120.74	-177.14	-188.05

Stock Market Has Hurt Pension Funded Ratios

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. According to the Ryan ALM Liability benchmark (Treasury STRIPS) liabilities have grown only **1.29%** this year. Using our ASC 715 discount rates liability growth is **2.71%**. With the S&P 500 return YTD at **-5.29%**, pension assets have grown around **-2.96%** YTD (see first page asset allocation assumptions). This results in assets underperforming liability growth by about **-4.25%** YTD and by **-48.87%** since 1999.

Death by Pension

The American Spectator ran a special report on California and their Public Employees Retirement System (CalPERS). CalPERS is the largest pension fund in America with $257 billion in assets. The report suggests that pension benefits throughout the state seem to be egregious and unaffordable. Most public employees are under the 3% at 50' plan which is a formula that provides benefits accruing at 3% of final pay times the number of years worked which becomes available at age 50. Many public servants receive as much in annual pension benefits than their average salaries over their last 3 years of employment. State law guarantees these benefits such that they cannot be reduced. Most cities in CA are in crisis mode as thery cannot afford these rising pension costs. Raising taxes and cutting city services has been the reaction of cities in critical shape (i.e. San Bernardino, Stockton and Vallejo). This results in a decaying city infrastructure and an exodus of taxpayers… not a pretty picture.

States with Highest Debt

Accounting to a recent report by Truth in Accounting (non-profit group) the states with the highest debt load per resident are:

	NJ	CT	IL	KY	MA
Total Debt	**$185.6b**	**$72.2b**	**$213.8b**	**$53.3b**	**$87.4b**
Unfunded Pension	**$85b**	**$26.3b**	**$111.5b**	**$31.4b**	**$27.8b**
Debt per resident	**$52,300**	**$48,600**	**$45,000**	**$32,600**	**$27,400**

State Zombie Index

Truth in Accounting developed a zombie index to identify states most likely to engage in more aggressive risk taking. The index is based on three main criteria: taxpayer burden (50%), amount of total liabilities not disclosed (25%) and timeliness of annual report (25%). The top 10 states are:

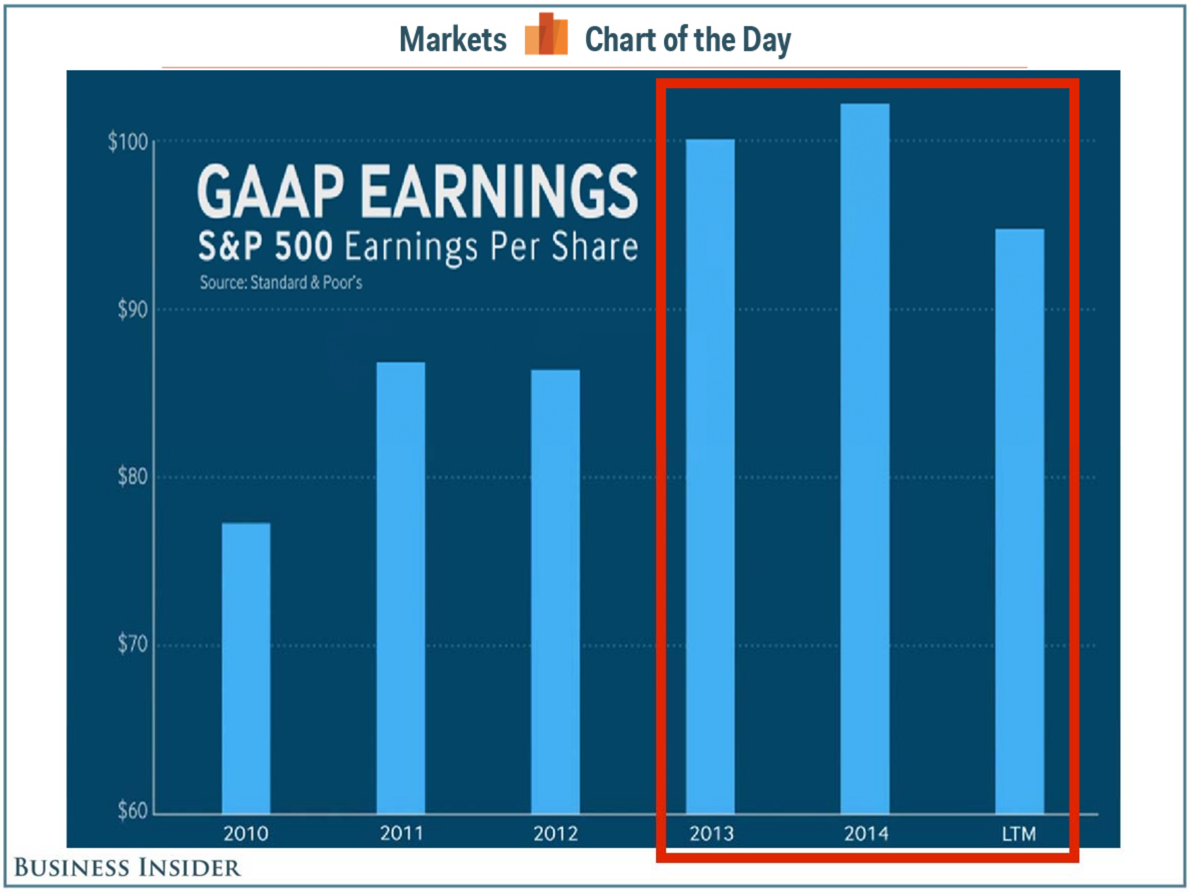
1.	Connecticut	1.880	6.	California	.783
2.	Illinois	1.871	7.	Delaware	.681
3.	Hawaii	1.607	8.	Michigan	.655
4.	New Mexico	1.134	9.	Kentucky	.592
5.	New Jersey	1.006	10.	West Virginia	.581

Yield Spreads have Widen on Credits and Maturities

The yield spread between BBB and AA corporates are the widest in three years based on the Merrill Lynch long corporate indexes. They are now over 120 bps. Also the Ryan 2-year vs 30-year Treasury indexes widen from 209 bps on 12/31/14 to 224 bps as of 9/30/15. Ryan ALM has the most complete statistics on U.S. Treasury yields and returns since 1973. Please contact us at **Contact@RyanALM.com** for more info.

Stock Market EPS Looks Stalled

The basic fundamental driver of stock market growth (appreciation) is EPS growth. According to S&P and reported by Business Insider, there has been declining EPS growth in 2015 YTD. Should the S&P 500 finish the year with no growth or negative growth this may create an actuarial loss vs.projected pension asset growth of 6.5% to 7.5% (ROA) for most companies with a DB plan. Actual total pension asset growth vs. the ROA (minus a 10% corridor) is amortized over the life of the pension. Due to the size of pension assets this small % actuarial loss may be meaningful in $ and results in a direct hit to EPS over the period amortized.



Volkswagen Former CEO Pension is $32 Million

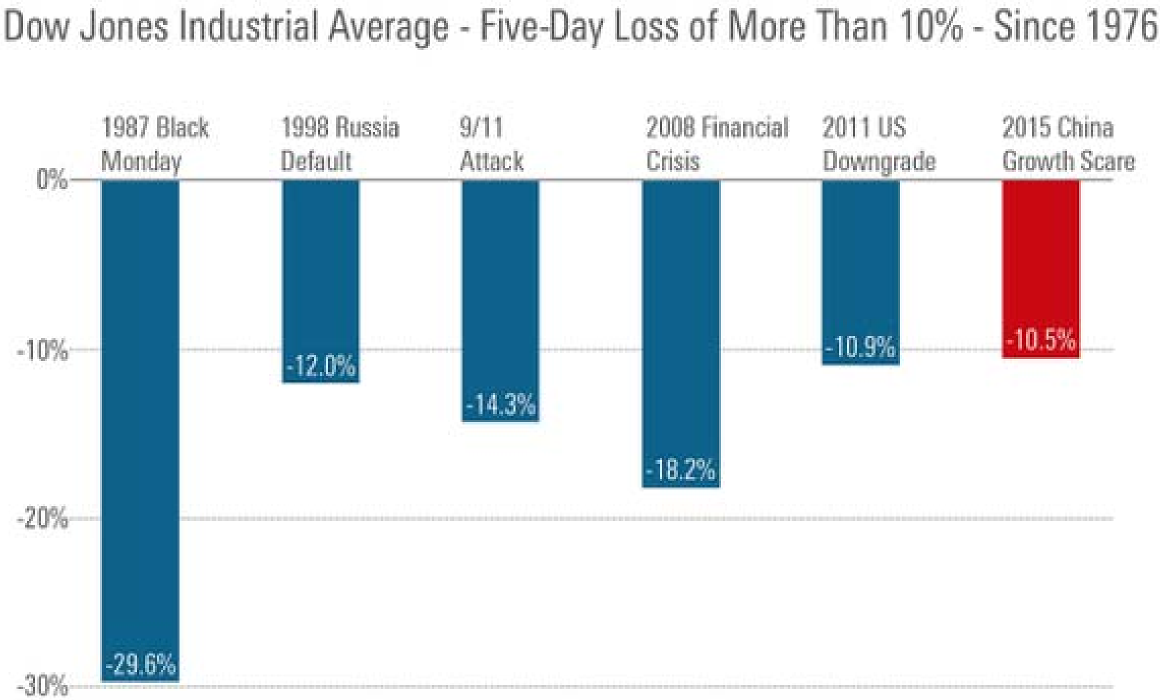
Martin Winterkorn, former VW CEO, has a pension valued at $32 million as of 2014. In addition he may get two years of severance pay for stepping down. He received total compensation of $18.7 million last year. In the words of Alfred E. Neuman… "what me worry".

"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 or visit our web site for purchase info www.RyanALM.com.**

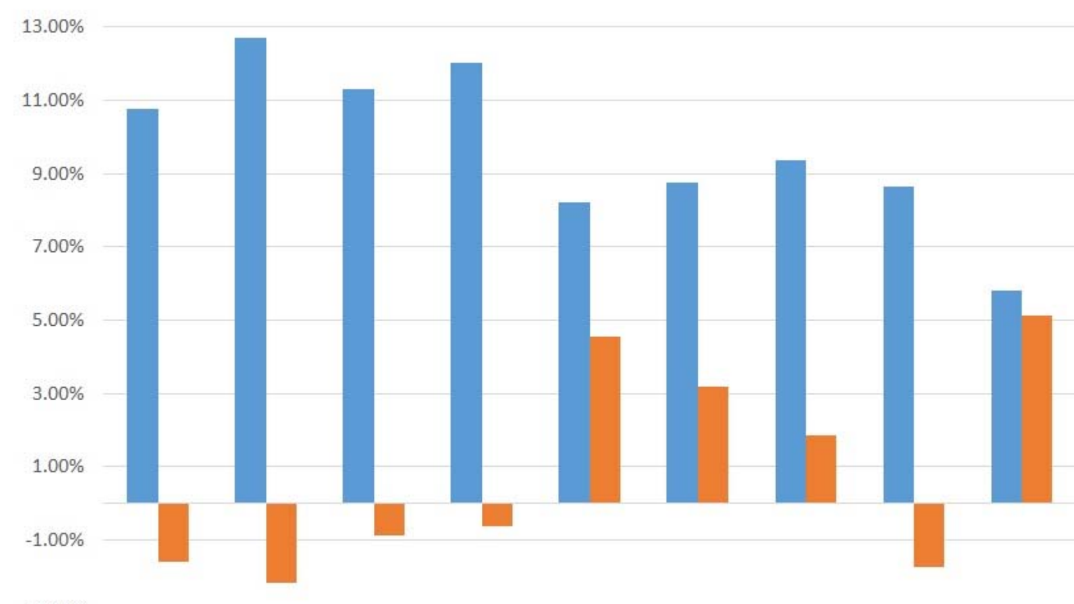
Stock Market Plunge Historic

According to Business Insider, the recent Dow Jones market correction of -10.5% between August 19 to August 25 was epic. Since 1976 there have been only five moments when the Dow fell by more than 10% in five trading days, usually due to major events:



Are Stocks Seasonal?

According to S&P data since 1/1/84 thru 8/1/15 there is a significant increase in returns during the six months of Nov. thru April vs. May thru October. Good news is on its way?

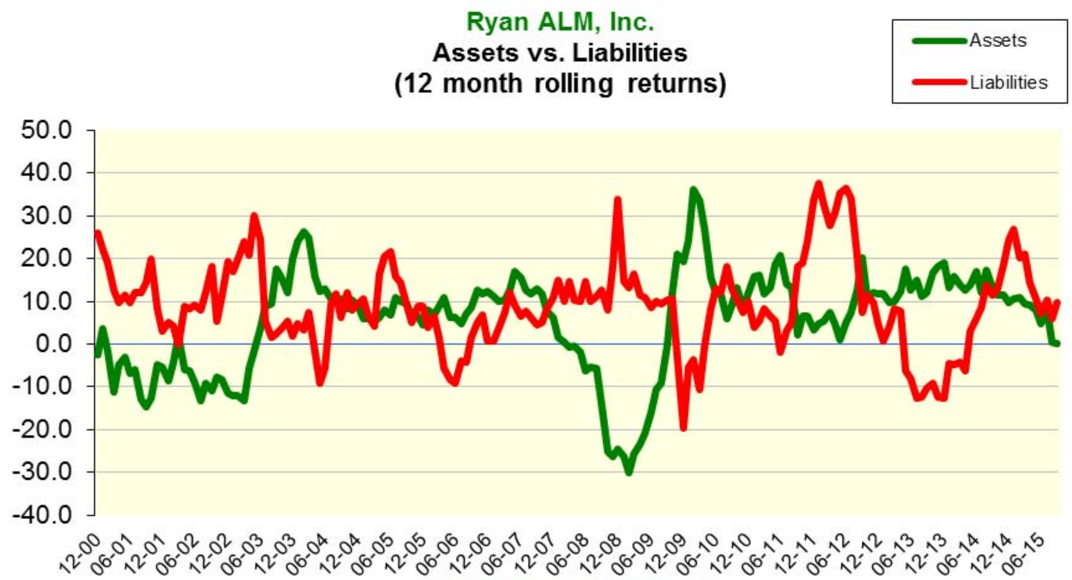


	Energy	Materials	Industr	Discrtnry	Staples	Healthcare	Financials	Technlgy	Utilities
Nov-Apr	10.77%	12.72%	11.30%	12.02%	8.21%	8.77%	9.36%	8.63%	5.79%
May-Oct	-1.60%	-2.17%	-0.87%	-0.61%	4.54%	3.19%	1.87%	-1.73%	5.13%

Ryan ALM Pension Scoreboard

The graphs below show asset vs. liability rolling 12 month and cumulative growth since 1999. Ryan ALM Benchmark Liability Index = **284.80%** growth while pension assets = **96.76%** growth for a difference of **–188.04% suggesting any pension Funded Ratio below 195.57% in 1999 has a deficit today on a *market weighted* basis. The Ryan ALM Pension Funded Ratio = 51.13%.**

(12/31/1999 - 9/30/2015)



(12/31/1999 - 9/30/2015)

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 ASC 715 (formerly FAS 158) Discount Rates

In 2006, Ryan ALM designed the FAS 158 yield curve index that prices any private pension liabilities in conformity to FAS 158 standards. We provide four distinct yield curves of AA corporate zero-coupon bonds in conformity to ASC 715.

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

To view all Ryan Indexes data go to: www.RyanIndex.com

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.