

## INVESTMENT REVIEW

### FISCAL YEAR 2016

It was a “Groundhog Year”: another tepid and below average year for the second year in a row. It also behaved and felt like the previous fiscal year (2015): a hole dug through a tough Fall and Winter, almost saved by a robust Spring rally that hinted at better times, only to be disappointed at the end by yet another European crisis.

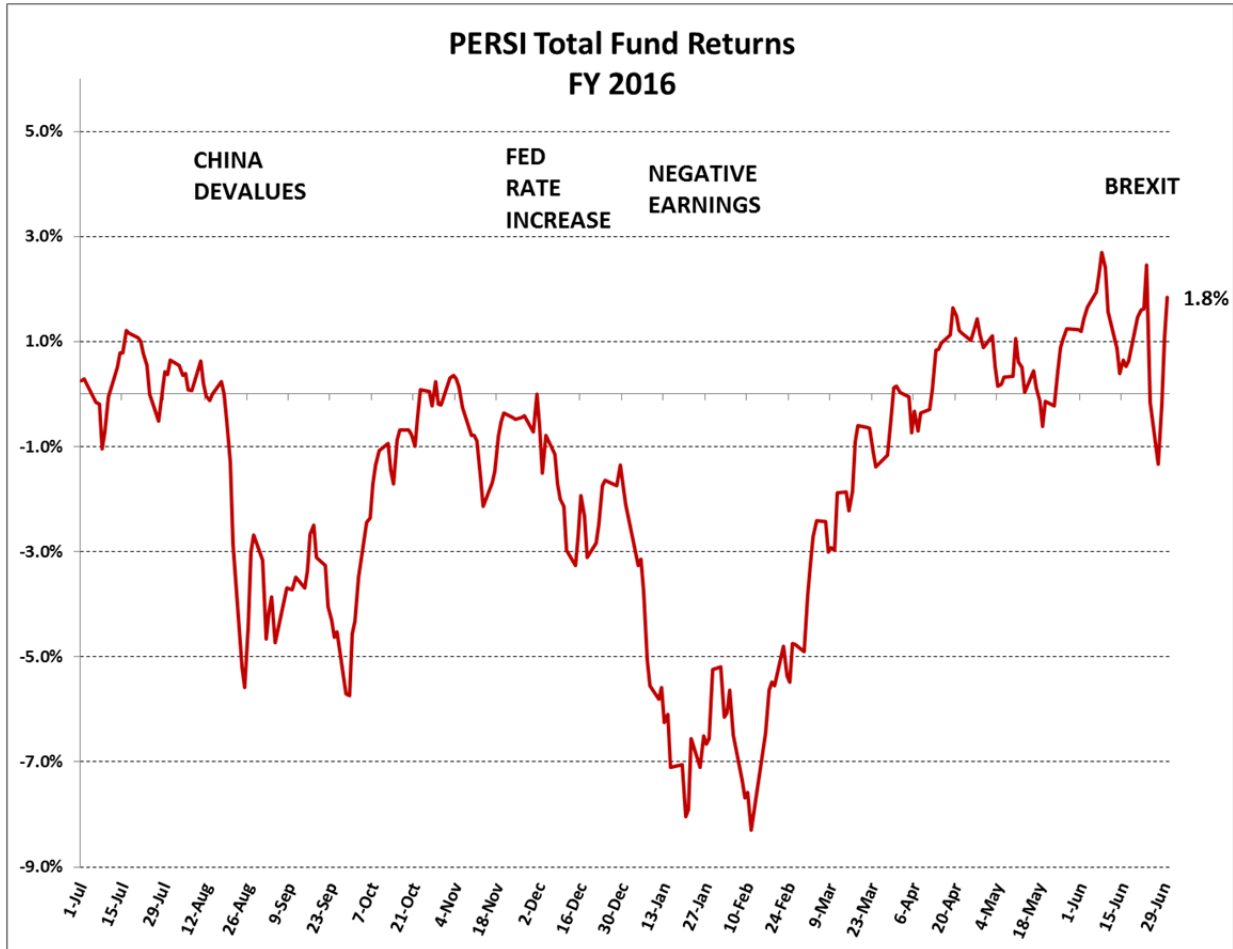
With returns to the main Defined Benefit/Total Return fund of +1.85% (gross, +1.53% net) and assets of \$14.846 billion, the double digit market advances of the post 2008-2009 crash are becoming a distant memory. The Sick Leave Fund, which is purely passively indexed to 55% R3000, 15% EAFE, and 30% Barclays Aggregate (PERSI’s basic reference benchmark), ended the year with a gross return of +1.84% and assets of \$410 million.

World capital markets have essentially moved sideways since the end of quantitative easing in the Fall of 2014, and no clear direction yet appears in sight. This past fiscal year saw the first (and still tentative) US interest rate increase, a continued oil market crash and partial recovery, overseas economic woes lead by a marked slowdown in the Chinese economy and attended by yet another European crisis [this time the vote in the UK to separate from the European Union (“Brexit”)], another cold winter (at least economically) and an advancing dollar. All of these events combined keep the capital markets stalled.

It was another year where diversification hurt rather than helped overall fund returns. U.S. equities, both public and private, gave up their leading position to both bonds and real estate, with the Russell 3000 ending up only +2.1%, and private equity flat at +0.1%. The stellar performing capital market was real estate, both public and private, with REITs returning +21.7% and private real estate close behind at +18.0%. The worst was again emerging market equities, with returns of -11.2%, only slightly worse than general developed markets (EAFE) at -9.7%. Against all expectations, interest rates dropped over the year, and investment grade bonds had a very good year with returns of +6.1%.

All in all, the markets mostly sputtered during the year, with steep drops and recoveries characterizing much of the year, with a final drop at the end as the UK voted to pull out of the European Union (“Brexit”). The major capital market events were the marked slowdown in the Chinese economy with an accompanying devaluation of the yuan in the Fall, the implementation of the Federal Reserve’s first interest rate increase in a decade in December, the

collapse of corporate earnings in the Winter, and the continuation of European quantitative easing throughout the year: As a result, the PERSI fund, with a couple of steep setbacks, crawled back to essentially even over the year – hitting bottom in early February and peaking in early June:



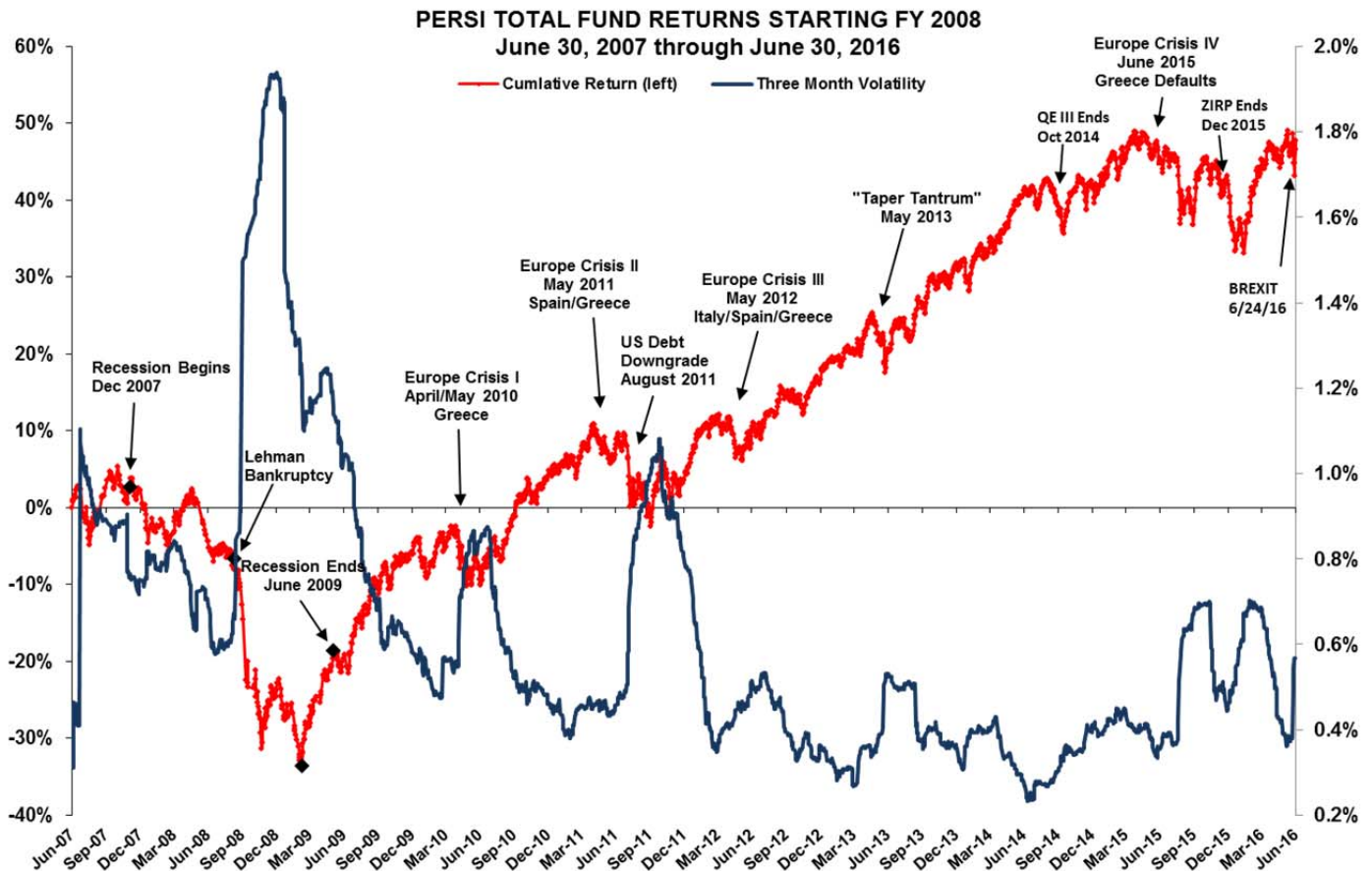
The fiscal year began with the US equity markets hitting a “correction” level (defined as a 10% drop), as China stumbled, devaluated its currency, and its stock market continued its collapse. Commodities also collapsed, and emerging markets fell in conjunction. The market rebounded in October as the expected Fed interest rate increase was delayed and a US debt default was avoided.. Overseas the markets continued to be concerned with a decelerating China, a moribund Europe, and even weaker emerging markets.

Winter was characterized by the first Fed rate increase in a decade, disappointing corporate revenues, and weak commodity prices (oil dropping into the \$20s) – with the worst start in history to a new calendar year for the U.S. stock market. Fears of a looming worldwide recession began to make the economic rounds.

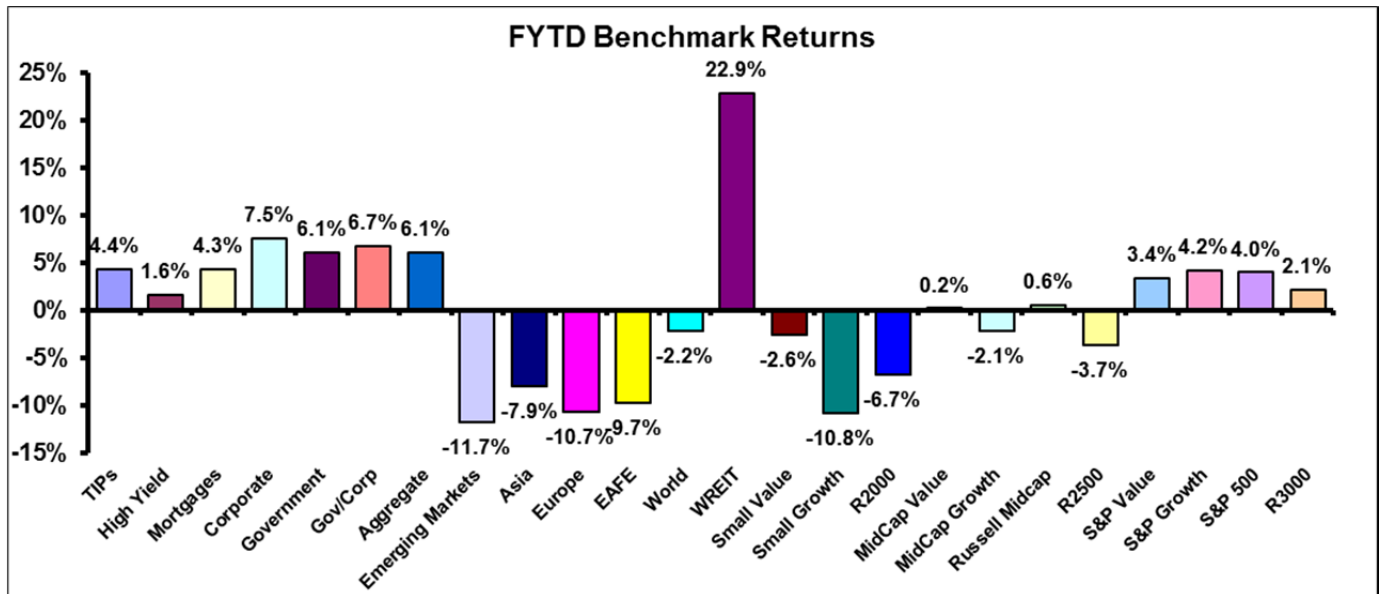
Spring, however, erased these concerns, as a strong labor market, continued US growth (although slow), recovering oil markets, and easing financial conditions triggered a strong “relief rally”. The fund enjoyed one of the top ten months in its history with a March return of +5.3%. The advance generally continued until the fund hit an all-time return high on June 8<sup>th</sup>.before hitting the wall of “Brexit” and the accompanying collapse in mid to late June.

The surprise of the year, however, was the continued remarkable drop in worldwide interest rates, with shorter term and even 10 year yields turning negative for a large part of the developed world. US government yields once again dropped below 2% to end the year at 1.5%. Almost all of Europe, including Spain, and Japan spent the year with even lower interest rates than the U.S (with ten year yields in Switzerland, Germany, and Japan entering negative territory). These events resulted in a continued strong dollar.

This fiscal year saw the definite stalling of the remarkable capital market advancement since the fiscal crisis of 2008-2009. It also saw the reintroduction of capital market volatility after a period of relative calm following the U.S. debt downgrade of 2011.



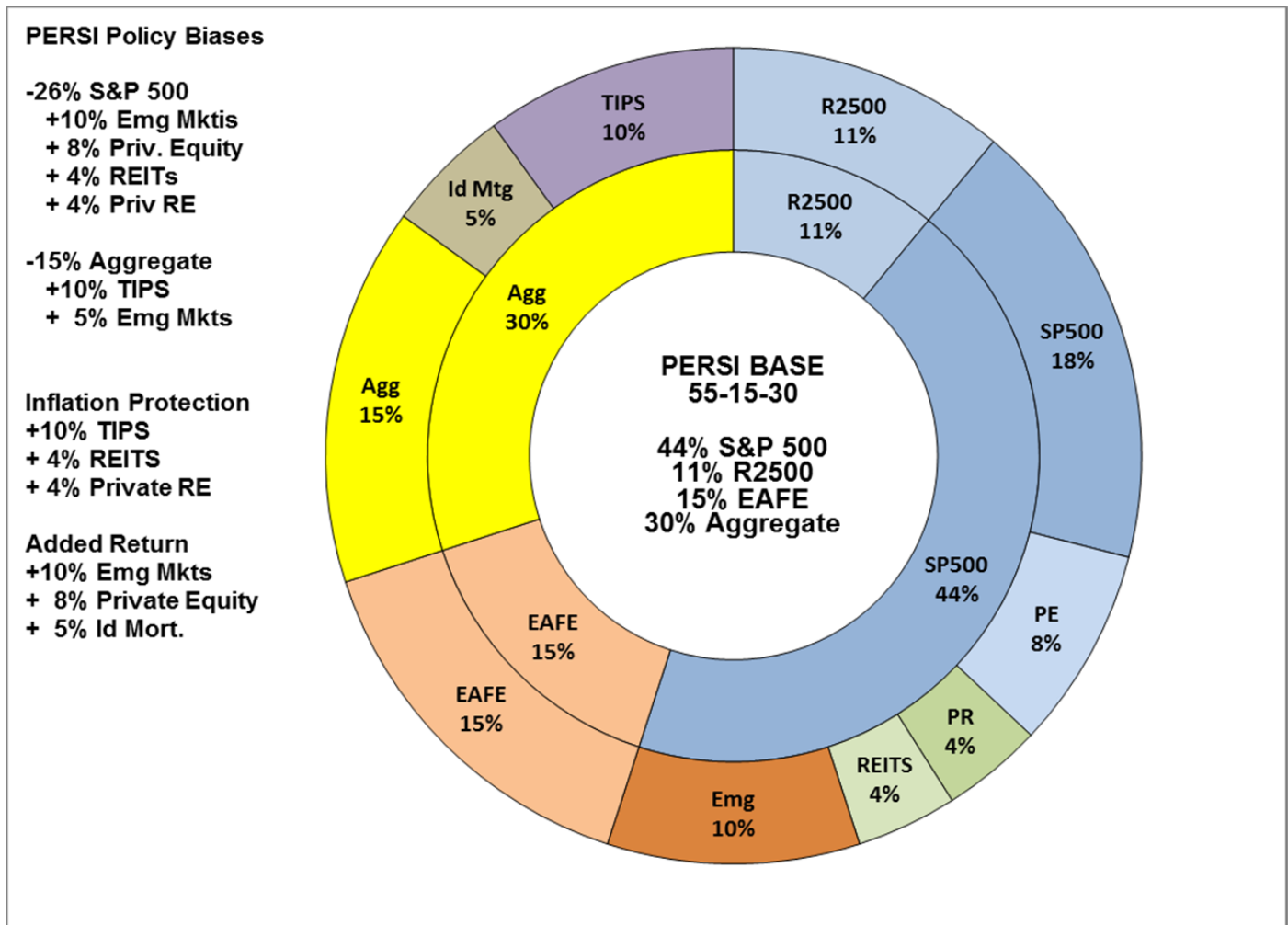
The equity markets had a mixed and mostly poor year. The S&P 500 returned +4.0% and the Russell 2500 mid/small cap lost -3.7%, resulting in an overall R3000 return of +2.1%. Large cap “growth” stocks outpaced large cap “value” stocks for the year, but the situation was reversed for mid and small cap U.S. stock, with small cap growth stocks losing -10.8%. MSCI EAFE (developed markets) had a very poor year with -9.7% returns, with Europe significantly underperforming Asia. Emerging markets, as has been the case for the past 5 years, noticeably underperformed the developed markets with losses of -11.7%. Private equity (+0.1%) also underperformed the public markets. The brightest spot was real estate, both public and private, which returned 22.9% in the public market and 18.0% privately. Investment grade bonds (6.1%) had a great year and TIPS [Treasury Inflation Protected Securities] fared only slightly worse with gains of +4.4%.



These markets, in fact, explain another feature of this fiscal year – that PERSI actual returns again trailed the reference 55% Russell 3000, 15% MSCI EAFE, 30% Barclay’s Aggregate benchmark [“55-15-30”] by -0.13%.

As with fiscal year 2014 and 2015, this “underperformance” exactly reflects PERSI’s intended structure – one that has been in place for the past two decades. PERSI’s strategic biases have consistently reduced the 55-15-30 benchmark’s bias to the S&P 500 by -26% (from a 44% weighting to an 18% weight). That money has been shifted to Emerging Markets (10% weight), Private Equity (8% weight), Private Real Estate (4% weight), and REITS (4% weight). The other major shift, with smaller return consequences, has been to take 15% of the monies from the Barclay’s Aggregate 30% reference weight and shifted to a 10% general weighting of TIPS, and 5% weight in the Idaho Commercial Mortgage program. These biases account for all of the disparity between actual returns and the 55-15-30 return.

[PERSI’s weighting to small cap equities and EAFE is the same as the 55-15-30 reference benchmark, with an 11% weighting to mid/small cap US stocks, and a 15% weighting to MSCI EAFE stocks. All of these weightings “look through” the activities of the active managers, and account for their biases (such as a tendency to overweight small cap stocks) in individual portfolio construction. Staff monitors active manager portfolios to assure that overall portfolio characteristics remain consistent with our long-term strategic biases].



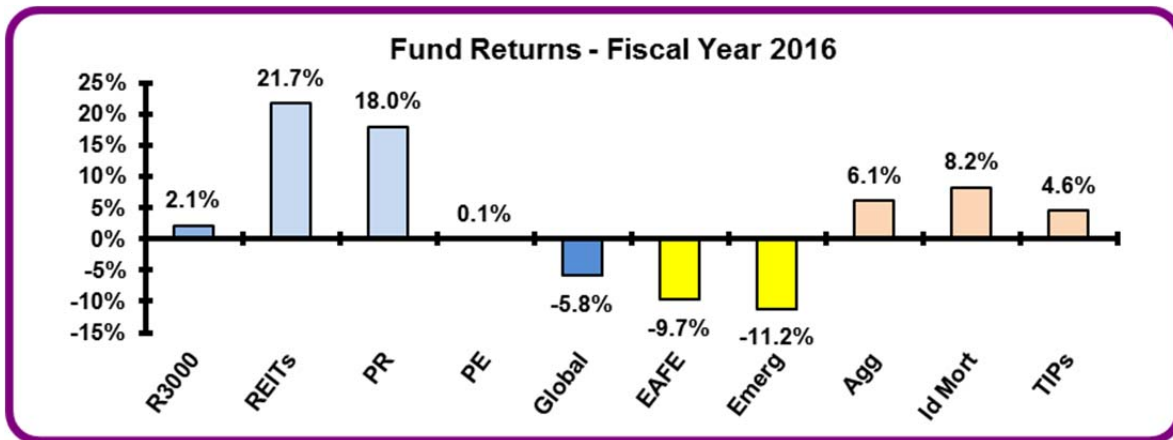
These shifts have been a basic feature of PERSI's strategic structure for at least the past two decades, and have been responsible for practically all of PERSI's relative performance both to peers and to the base reference 55-15-30 benchmark – both when PERSI is a top performing fund and also when it lags its peers.

The central idea is that when the S&P 500 is one of the best performing capital markets in the world, PERSI will normally have no problem meeting its funding goals (as occurred in the mid-1990s and recently). The problem PERSI faces is when the S&P 500 is a mediocre or terrible market both absolutely and relatively that PERSI needs protection – as occurred in the first decade of the 2000s.

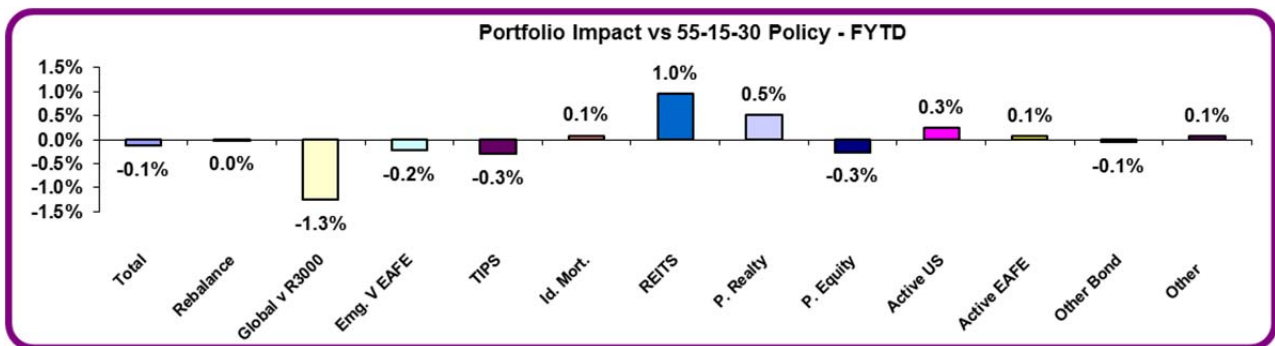
Besides additional diversification, PERSI has shifted money to other areas for purposes of increased inflation protection (S&P 500 to REITS and Private Real Estate, Barclay's Aggregate to TIPS) and long-term added return (S&P 500 to emerging markets and private equity, Barclay's Aggregate to private debt in the

Idaho Commercial Mortgage Program). All of these strategic biases go back decades, (private real estate began in 1981, the small cap and emerging market bias has been in place since the late 1980s, the Idaho Commercial Mortgage program began in the late 1980s, and the REIT and TIPS biases were added in 1997-1998).

The overall impacts of each of the PERSI strategic biases were largely neutral, with global equities the major negative detractor and real estate the greatest positive influence::



Weighting these returns by the amount of money invested in those areas generates the relative contribution of each area (and active management) to portfolio returns relative to the 55-15-30 reference portfolio.



PERSI’s institutional peer returns for the fiscal year have been good: handily above the median institutional and public fund. Long term returns (ten years plus) also continue to be significantly above average: Medium term returns (3-7 years), however, are more “in the pack” and reflect the significant underperformance of emerging markets, private real estate, REITs and TIPS

over those medium term years (March returns are the latest available at this time):

**RANKINGS IN MELLON MASTER TRUST  
MELLON PUBLIC FUNDS and CALLAN PUBLIC FUND UNIVERSES  
March 31, 2016  
Percentile Rankings over Period  
(1 is highest, 100 is lowest)**

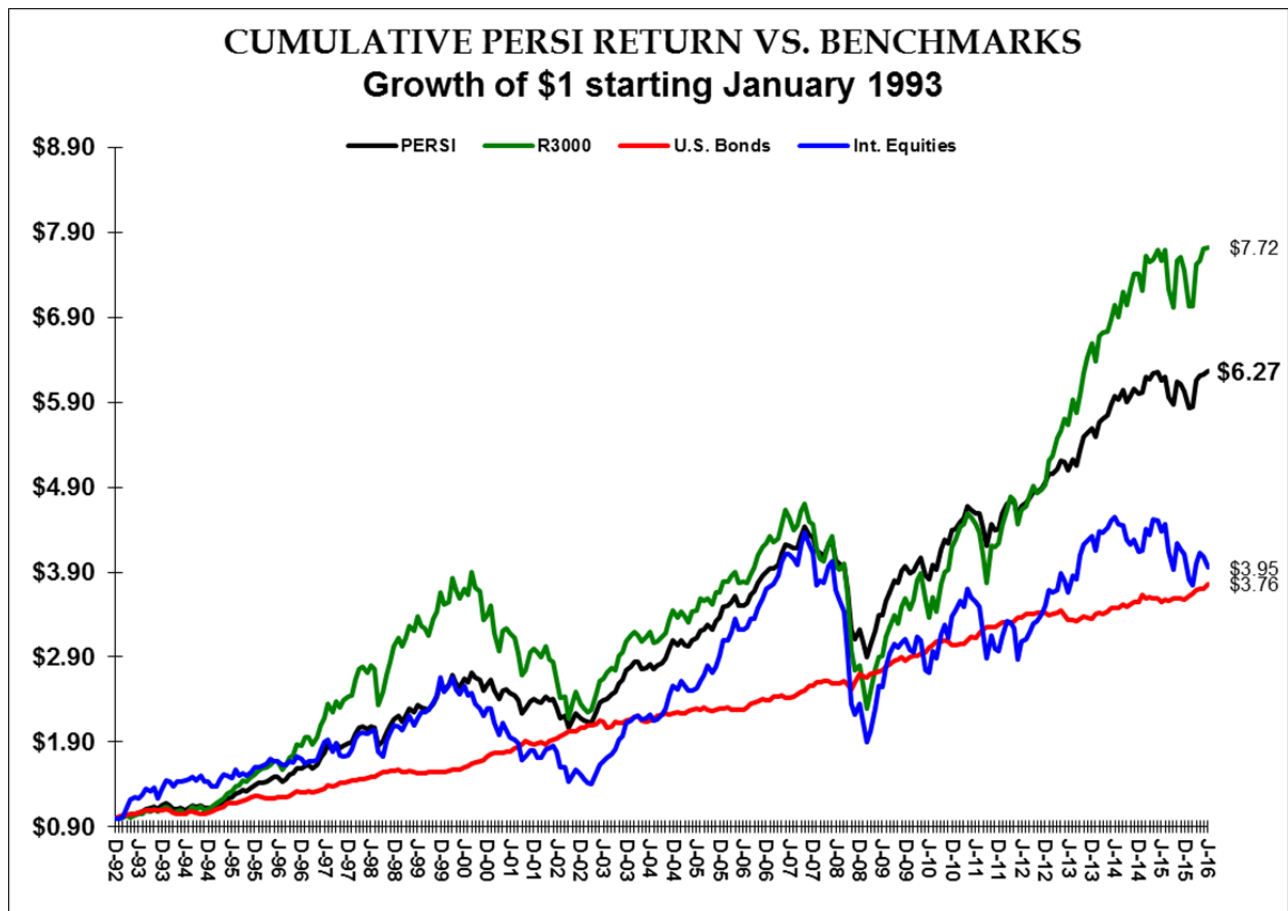
	<b>1Yr</b>	<b>2Yrs</b>	<b>3Yrs</b>	<b>5Yrs</b>	<b>10Yrs</b>	<b>20 Yrs</b>
<b>Return (%)</b>	<b>0.0</b>	<b>4.0</b>	<b>6.4</b>	<b>6.4</b>	<b>5.7</b>	<b>7.5</b>
Mellon Median Master	-1.5	2.8	5.8	6.3	5.4	
Mellon Median Public	-0.7	2.9	6.2	6.5	5.5	
Callan Median Public	-1.0		6.0	6.4	5.4	7.1

**PERSI Rank (Percentile)**

<b>Mellon All Funds</b>	<b>23</b>	<b>25</b>	<b>34</b>	<b>50</b>	<b>37</b>	
<b>Mellon Public Funds</b>	<b>32</b>	<b>19</b>	<b>42</b>	<b>57</b>	<b>36</b>	
<b>Callan Public Funds</b>	<b>24</b>		<b>36</b>	<b>52</b>	<b>33</b>	<b>26</b>

PERSI's annualized return over the last 20 years has been 7.5% while the 55-15-30 reference benchmark return has returned 7.1%. Since 1993, each dollar then invested in PERSI has returned over six fold, to \$6.27:





PERSI's basic and relatively simple approach has served the fund well both over the past year and over the longer term. It encountered few issues in the turbulent period of the last seven years, and has survived relatively unscathed through all of the crises of the past 20 years.

The overall PERSI US equity component returned +5.5%, markedly outperforming the general US equity market (R3000) which returned +2.1%. Real estate was the outstanding performer after completing a multi-year restructuring, with 19.7% returns (18.0% from private real estate and 21.7% from public real estate). Adelante had returns of 21.1%, trailing the REIT index by -1.8%, while the REIT index fund slightly underperformed with returns of +22.4%.

Mountain Pacific was the star of the rest of the public equity markets, with the best total return of 8.0% as well as the best relative return – beating their midcap index by +11.4%. Peregrine, with a return of +6.6% was next, outperforming their index by +2.4%. Tukman underperformed their large cap mandate with returns of +0.6%, underperforming by -3.4%. Donald Smith returned to form with

returns of +0.9%, outpacing their small cap index by +7.6%. Private equity had a mediocre year with a miniscule +0.1% gain.

Global equity had a poor year, collectively underperforming the MSCI World market index with a loss of -5.8% compared to the index loss of -2.2%. Longview with a loss of -1.0% was the only global manager to outpace the index. Barings (-4.8%), Brandes (-9.1%), Bernstein (-9.7%), and Capital Group (-4.7%) all substantially lagged.

Developed market international equity (MSCI EAFE) lost -9.7% for the year, although outperforming emerging market equity (MSCI Emerging Markets) at -11.7% for the fifth year in a row. Mondrian, our developed markets manager beat the EAFE index with a -6.9% return. Bernstein Emerging (-14.4%) underperformed their index, while Genesis (-6.2%) outperformed.

PERSI fixed income made an unexpectedly strong +6.1%, matching the Barclay's Aggregate index at 1.9%. This return included the SSGA TIPs return of +4.4% and the Western active TIPs account return of +2.2%. Western with its nominal bond portfolio had an index beating return of 8.0%, and Barings only slightly underperformed at 6.0%. Clearwater also slightly underperformed with returns of 5.9%. Idaho Mortgages, which are priced off of the Treasury yield curve, had a very good year and were up 9.4%, while the DBF mortgage backed securities portfolio tracked the general mortgage market with 4.0% returns.

In summary, a slightly positive and tepid overall year for PERSI.