

Arizona State Retirement System

Board of Trustees

Investment Program Updates

December 5, 2014

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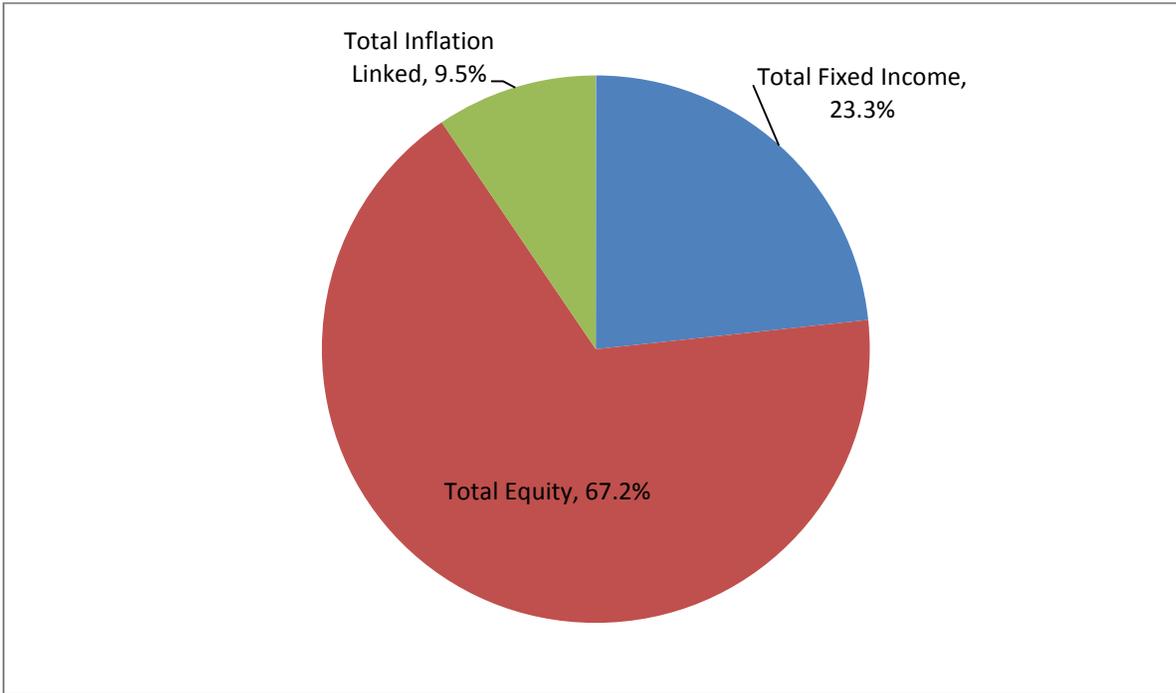


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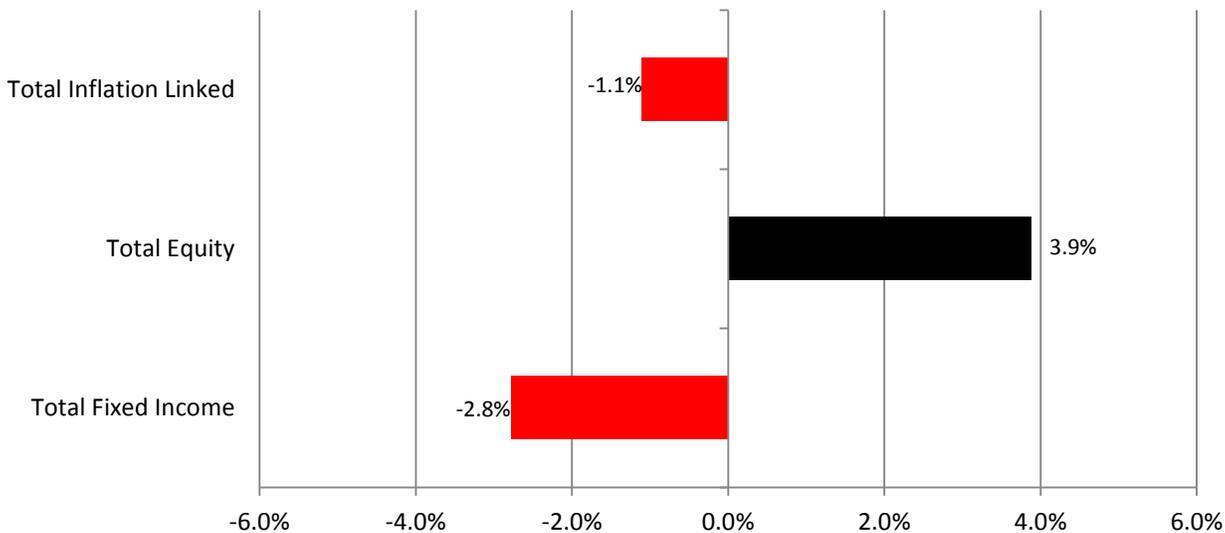
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TOTAL FUND POSITIONING – 10/31/14

ACTUAL PORTFOLIO



ACTUAL PORTFOLIO (ASSUMED GTAA ALLOCATION VS. ADJUSTED SAA POLICY *)



*Real Estate and Private Equity actual weight is equal to policy weight during the implementation of the asset class.

*Over/Underweights include both GTAA positions as well as IMD tactical considerations.

Note: Opportunistic & Private Debt, Opportunistic Private Equity, Farmland & Timber, Real Estate and Private Equity market values are reported on a quarter-lag and adjusted to include the current quarter's cash flows. Within the Assumed GTAA Allocation vs. Adjusted SAA Policy chart, Real Estate was prorated to domestic equity, international equity and fixed income. Private Equity was prorated to domestic equity.

Pension (Plan, System, HBS Assets) ASRS Market Value Report As of: Friday, October 31, 2014

Account Manager	Account Manager Style	Fixed Income		Equity		Inflation Linked		Total	Pct of Fund
		Active	Enh/Passive	Active	Enh/Passive	Active	Enh/Passive		
State Street B&T: Boston	Master Cash & Pension Acct.		139,949,815					139,949,815	0.41%
	Cash Total							\$139,949,815	0.41%
GTAA Managers (2)	Active GTAA	1,203,488,536						1,203,488,536	3.54%
Blackrock: San Francisco	Passive (Intermediate Gov Credit)		24,068,300					24,068,300	0.07%
ASRS: Phoenix	Enhanced Passive F2		1,857,004,177					1,857,004,177	5.46%
Blackrock: San Francisco	Passive (US Debt Index)		436,393,709					436,393,709	1.28%
	Core Fixed Income Total							\$3,520,954,721	10.35%
	Core Fixed Income Policy								13.00%
Columbia: Minneapolis	Active	800,233,171						800,233,171	2.35%
JP Morgan: Indianapolis	Active	479,531,046						479,531,046	1.41%
	High Yield Fixed Income Total							\$1,279,777,971	3.76%
	High Yield Fixed Income Policy								5.00%
	US Fixed Income Total							\$4,800,732,693	14.11%
	US Fixed Income Policy Range: 8% - 28%								18.00%
PIMCO (local): Newport Beach	Active	342,695,180						342,695,180	1.01%
Ashmore (blended): London	Active	408,658,763						408,658,763	1.20%
	EM Debt Total							\$751,353,943	2.21%
	EM Debt Policy								4.00%
	Opportunistic Debt							\$1,044,838,387	3.07%
	Opportunistic Debt Policy Range: 0% - 10%								0.00%
	Private Debt Total							\$1,188,130,250	3.49%
	Private Debt Policy								3.00%
	Fixed Income Total							\$7,925,005,087	23.29%
	Total Fixed Income Policy Range: 15% - 35%								25.00%
Intech: FL	Active (Growth)			479,878,854				479,878,854	1.41%
LSV: Chicago	Active (Value)			815,752,195				815,752,195	2.40%
GTAA Managers (2)	Active GTAA			1,182,442,770				1,182,442,770	3.48%
ASRS: Phoenix	Passive E2				5,060,275,797			5,060,275,797	14.87%
ASRS: Phoenix	Enhanced Passive E7				792,681,069			792,681,069	2.33%
ASRS: Phoenix	Enhanced Passive E8				522,429,531			522,429,531	1.54%
ASRS: Phoenix	Risk Factor Portfolio				530,039,708			530,039,708	1.56%
	Large Cap Equity Total							\$9,383,523,136	27.58%
	Large Cap Policy								23.00%
Wellington: Boston	Active (Core)			414,839,641				414,839,641	1.22%
CRM: New York	Active (Value)			99,536,956				99,536,956	0.29%
ASRS: Phoenix	Passive E3 (Growth)				503,880,810			503,880,810	1.48%
ASRS: Phoenix	Passive E4 (Value)				518,787,403			518,787,403	1.52%
	Mid Cap Equity Total							\$1,537,044,810	4.52%
	Mid Cap Policy								5.00%
TimesSquare: New York	Active SMID (Growth)			455,402,792				455,402,792	1.34%
DFA: Santa Monica	Active (Value)			387,795,183				387,795,183	1.14%
Champlain: Vermont	Active (Core)			94,242,950				94,242,950	0.28%
ASRS: Phoenix	Passive E6				483,432,942			483,432,942	1.42%
	Small Cap Equity Total							\$1,420,873,868	4.18%
	Small Cap Policy								5.00%
	U.S. Equity Total							\$12,341,441,814	36.27%
	US Equity Policy Range: 26% - 38%								33.00%
Brandes: San Diego	Active (Value)			555,792,068				555,792,068	1.63%
GTAA Managers (2)	Active GTAA			970,852,483				970,852,483	2.85%
American Century	Active (EAFE)			504,254,064				504,254,064	1.48%
Trinity Street	Active (EAFE)			319,197,235				319,197,235	0.94%
Thompson Siegel Walmsley	Active (EAFE)			149,461,786				149,461,786	0.44%
Blackrock: San Francisco	Passive (EAFE)				2,242,053,905			2,242,053,905	6.59%
	Large Cap Developed Non-US Equity Total							\$4,743,881,098	13.94%
	Large Cap Developed Policy								14.00%
AQR: Greenwich	Active (EAFE SC)			168,872,394				168,872,394	0.50%
DFA: Santa Monica	Active (EAFE SC)			203,557,202				203,557,202	0.60%
Franklin Templeton: San Mateo	Active (EAFE SC)			381,936,483				381,936,483	1.12%
Blackrock: San Francisco	Passive (EAFE SC)				429,068,181			429,068,181	1.26%
	Small Cap Developed Non-US Equity Total							\$1,183,437,141	3.48%
	Small Cap Developed Policy								3.00%
William Blair: Chicago	Active (EM)			471,729,230				471,729,230	1.39%
Eaton Vance: Boston	Active (EM)			503,691,983				503,691,983	1.48%
LSV: Chicago	Active (EM)			305,336,528				305,336,528	0.90%
Blackrock: San Francisco	Passive (EM)				676,449,623			676,449,623	1.99%
	Emerging Markets Equity Total							\$1,957,207,364	5.75%
	Emerging Markets Policy								6.00%
	Non-US Equity Total							\$7,884,525,603	23.17%
	Non-US Equity Policy Range: 16% - 28%								23.00%
	Private Equity Total							\$2,263,046,571	6.65%
	Private Equity Policy Range: 5% - 9%								7.00%
	Opportunistic Equity							\$378,826,455	1.11%
	Opportunistic Equity Policy Range: 0% - 3%								0.00%
	Equity Total							\$22,867,840,443	67.21%
	Total Equity Policy Range: 53% - 73%								63.00%
Gresham: New York	Active GTAA					760,895,604		760,895,604	2.24%
GTAA Managers (2)	Active GTAA					298,223,444		298,223,444	0.88%
	Commodities Total							\$1,059,119,048	3.11%
	Commodities Policy Range: 1% - 7%								4.00%
GTAA Manager (1)	Active GTAA					43,035,958		43,035,958	0.13%
	Real Estate Total							\$2,027,414,647	5.96%
	Real Estate Policy Range: 6% - 10%								8.00%
	Infrastructure Total							\$0	0.00%
	Infrastructure Policy Range: 0% - 3%								0.00%
	Farmland & Timber Total					146,009,309		\$146,009,309	0.43%
	Farmland & Timber Policy Range: 0% - 3%								0.00%
	Opportunistic Inflation Linked Total							\$0	0.00%
	Opportunistic I/L Policy Range: 0% - 3%								0.00%
	Inflation Linked Total							\$3,232,543,004	9.50%
	Inflation Linked Policy Range: 7%-15%								12.00%
	TOTAL Amounts	\$4,422,750,700	\$3,502,254,387	\$11,108,718,262	\$11,759,122,182	\$3,378,552,313	\$0	\$34,025,388,534	Total Fund
	TOTAL Percent	13.00%	10.29%	32.65%	34.56%	9.93%	0.00%		

Asset Class	Actual Portfolio	SAA Policy: Target (Range)	Rebalancing		Assumed - Adjusted		Policy Band check	Passive Min	Passive Actual
			Assumed Port	Adj Policy	% diff	\$ diff			
Cash	0.41%								
Core	10.35%	13%						50%	69%
High Yield	3.76%	5%							
US Fixed Income	14.11%	18% (8-28%)	14.03%	18.57% (9-29%)	-4.54%	-\$1,546,416,474	OK		
EM Debt	2.21%	4%		4.00%					
Opportunistic Debt	3.07%	0% (0-10%)	3.07%	0% (0-10%)	3.07%	\$1,044,838,387	OK		
Private Debt	3.49%	3%		3.00%					
Total Fixed Income	23.29%	25% (15-35%)	22.80%	25.57% (16-36%)	-2.77%	-\$943,871,092	OK		
Large Cap	27.58%	23%							
Mid Cap	4.52%	5%							
Small Cap	4.18%	5%							
US Equity	36.27%	33% (26-38%)	37.47%	34.23% (27-39%)	3.24%	\$1,103,363,706	OK	50%	66%
Developed Large Cap	13.94%	14%							
Developed Small Cap	3.48%	3%							
Emerging Markets	5.75%	6%							
Non-US Equity	23.17%	23% (16-28%)	23.04%	23.51% (17-29%)	-0.47%	-\$161,309,553	OK	30%	49%
Private Equity	6.65%	7% (5-9%)	6.65%	6.65% (5-9%)	0.00%	\$0	OK		
Opportunistic Equity	1.11%	0% (0-3%)	1.11%	0% (0-3%)	1.11%	\$378,826,455	OK		
Total Equity	67.21%	63% (53-70%)	68.27%	64.39% (54-71%)	3.88%	\$1,320,880,608	OK		
Commodities	3.11%	4% (1-7%)	2.67%	4.08% (1-7%)	-1.41%	-\$479,982,867	OK		
Real Estate	5.96%	8% (6-10%)	5.83%	5.96% (4-8%)	-0.13%	-\$43,035,958	OK		
Infrastructure	0.00%	0% (0-3%)	0.00%	0% (0-3%)	0.00%	\$0	OK		
Farmland & Timber	0.43%	0% (0-3%)	0.43%	0% (0-3%)	0.43%	\$146,009,309	OK		
Opportunistic I/L	0.00%	0% (0-3%)	0.00%	0% (0-3%)	0.00%	\$0	OK		
Total Inflation Linked	9.50%	12% (8-16%)	8.93%	10.04% (6-14%)	-1.11%	-\$377,009,516	OK		
Total	100.00%	100%	100.00%	100.00%	0.00%	\$0		30%	42%
Total GTAA								\$9,738,491,730	29%
Bridgewater	\$3,104,443,768	9.1%							
Windham	\$593,599,424	1.7%							
Total	\$3,698,043,191	10.9%							
Policy	10% ±5%	OK							

Opportunistic definitions:
1) Tactical in nature: Function of market dislocation AND
2a) Outside SAA benchmark, OR
2b) Within SAA benchmark but absolute return oriented

(Notable changes from the previous month are highlighted in RED)

DECEMBER 2014

U.S. EQUITIES

Primary Market Metrics & Indicators:

1. Fundamentals: **POSITIVE**
 - Economic data suggests stable, sub-trend growth into 2015.
 - U.S. unemployment, persistently high until recently is displaying sustained improvement although income growth has not despite some anecdotal evidence of isolated upward pressure on wages.
 - At risk longer term due to stimulus measures, inflation remains generally subdued.
 - Liquidity remains ample; Federal Reserve policy remains accommodative without its asset purchases program.
 - Overall U.S. corporate profits are still growing, but with decelerating momentum; revenues have begun trending up modestly although high profit margins are no longer expanding.

2. Valuations: **NEUTRAL**
 1. Mixed macro data and concerns about Ebola couldn't restrain U.S. equity market coming out of October. As 3Q2014 earnings reports started solidly, all major indices, led by small-caps, saw major gains.
 - Though marginally rich, they remain near historic averages: S&P 500, 14.7x-16.2x, S&P MID, 1635x-18.8x; S&P SC600, 16.3x-20.0x.
 - Historic P/Es imply advances of 5-10% for mid and small caps; 9-12% for S&P 500.
 - Still rising earnings and low yields on 10-Yr Treasury notes combine for equity risk premiums that are favorably above the 4.0% long-range average for large caps, but market advances have trimmed those of mid- and small-caps to near 3.0%.

3. Sentiment: **NEUTRAL**
 - Short-term caution has moved up a notch following the sustained advance of equity markets throughout 2013 and ¾ of 2014 without a significant pullback.
 - Lessened near-term equity market volatility (i.e., VIX Index) still reflects growing acceptance of risk-oriented assets.
 - Assets are continuing to flow toward equities, and decidedly to U.S. equities classes.

Commentary:

Throughout 1Q2014, Staff systematically pared back the allocation of U.S. stocks to address capital calls in the Plan's private equity and real estate asset classes. Proportionally more was withdrawn from the smallcap and midcap sub-classes. Strong price advances in 2013 outpaced earnings growth in those categories to the extent that their short-run risk premiums became less compelling than the larger-cap counterparts. Until October, this was also reflected in the waning performance of smallcap stocks *relative* to largecap and midcap counterparts. Following October's gains Smallcaps rose about 2.1% YTD; largecaps and midcaps rose 9.2% and 5.7%, respectively.

Valuations of domestic equities are full, but generally don't exceed long-term average valuations by much. Business conditions are constructive if not vibrant. Moreover, the equity markets have been resilient in spite of unsettling political events and have rebounded on shallow dips over 2014 in anticipation of a sustainably higher long-term trend. There are reasons:

A strong USD is often a counterpart for weak USD commodity prices; this seems to be the case now. Whether driven by cyclical forces or secular factors, prices of commodities overall, are suppressed most visibly the energy-related. These soft prices confirm a low inflation setting, which, together with responsible monetary policy is helping to firm-up the USD despite a tepid economic setting. Robust investment flows into equities from outside the U.S., substantiated by anecdotal evidence, are more than counterbalancing whatever headwinds the USD makes for corporations.

The recent Federal Reserve Board senior loan officers' survey suggests supportive commercial and industrial credit conditions for capital spending, profit margins, employment and ultimately, GDP growth. The takeaway is that both the business and the equity cycles will be longer than most expect.

Demographics factor in as well. The collective experience of most institutional investors today barely extends more than 15 years, certainly not to 30. They have not experienced a non-inflationary investment environment in which policy embraces gradually higher interest rates. Thus the prospect of the Federal Reserve moving to some policy other than "rates at zero bound" is disquieting. Historically, those concerns have been misplaced.

The "NEUTRAL" opinions on Sentiment and Valuations are unchanged as is the "POSITIVE" opinion on Fundamentals.

CURRENT PORTFOLIO POSTURE: *Overweight vs. SAA target*

NON – U.S. EQUITIES

Primary Market Metrics & Indicators:

1. Fundamentals: **NEUTRAL**
 - Eurozone GDP growth remains subpar and that of the lesser-developed economies also remains off pace. Mid-year comparative strength has faltered.
 - Relatively inexpensive and available money supports a shift toward risk assets.
 - Monetary and economic policies are focused on controlling economic growth and fiscal stability.
2. Valuations: **POSITIVE**
 - Reasonable global valuations relative to U.S.; price-to-book values of **1.5x - 1.7x**; P/Es of **13.5x – 16.5x** on trend earnings.
 - Dividend yields are incrementally more favorable -ranging from 1.5x to 1.6x that of the S&P500.
3. Sentiment: **POSITIVE**
 - Money flows continue toward both U.S. and developed markets non-U.S. equities; excepting the emerging economies markets, investors are less guarded and remain constructive on global risks.
 - **Major non-U.S. markets performance has trailed the U.S. although selected regions are keeping pace.**

Commentary:

The global equity indexes, with the exception of Europe, rallied in October on strong macro and earnings data. The European region was hurt by an economic slowdown and lack of further monetary stimulus. For the month, the MSCI World index was up 1.14%, MSCI EAFE was down 0.29%, and MSCI EM was up 1.42% (in local currency with net dividends reinvested). The strong second-half rally masked a weak start to the month from disappointing European and US manufacturing data, protest in Hong Kong, and weaker outlooks on world economic growth by both the International Monetary Fund and the European Central Bank. The markets firmed on a strong US employment report, a dovish policy inference from the FOMC minutes, and a positive start to the earnings season pared some of the losses. Encouraging statements by the president of the St. Louis Federal Reserve Bank and better than expected results from ECB stress tests by banks helped extend the markets' turnaround.

Global growth is languishing in the low 3% range and is destined for some time to grow slowly. Of the big economies, the US and UK look most solid. Japan is suffering from adverse demographics, the euro area from poor past policy. China is slowing and might be weaker than it looks. Lower oil prices will subdue inflation for now. USD strength and weaker-than-forecast Chinese demand threaten commodity exporters. The US is the ray of hope among the advanced countries, followed by the UK; both are moving towards higher interest rates in mid-2015.

With little growth, no inflation and scant job creation, the Eurozone is subject to political risk. Although the most acute part of the crisis has passed, European Central Bank chair Mario Draghi is trying valiantly to move the ECB towards true Quantitative Easing. The likely size will probably undershoot the amount needed to reach the ECB's target of a 2% annual inflation rate, but it would be positive psychologically and make it easier to enact any needed follow-on QE programs.

Japan's aggressive QQE has driven down its bond yields and supported the Japanese stock markets, driven further by the directive that Japanese pension funds are to increase allocations to equities. However, rising inflation and investor concern about where the monetization may ultimately lead seem certain to boost yields over time. The increasing share of BOJ holdings in the stock of JGBs, however, will clearly constrain how far this can go. It would seem that the BOJ will cap the 10-year JGB at around 2% to keep debt funding costs down.

There are risks for emerging markets, that as the Fed hikes rates in 2015, the flows into emerging markets of recent years will try to exit and find a narrow doorway, causing more emerging-market volatility than might currently be forecast. Those countries with the greatest internal and external imbalances and those seeing an erosion of central-bank credibility are at greatest risk. Some Latin American countries look to be among the most exposed from a terms-of-trade perspective. Brazil's economy has stalled amid high inflation and looks vulnerable to shocks. Mexico, having embraced structural reform and with strong links to the US economy, looks far more insulated. South Africa faces labor problems, consumer debt shortages and budgetary and credit-rating problems. While India has slowed and inflation expectations are still high, it looks to have turned the corner and the central bank is gaining, not losing, credibility.

For the capital markets, the diverging growth prospects of the US, on one hand, and the Eurozone and Japan, on the other, add up to one thing: dollar strength. Add to that, that the Fed will be tightening rates while the BOJ and ECB will be on a balance-sheet expansion tack, then the scope for considerable and extended USD strength is magnified. With the Fed likely to raise rates more slowly than in previous cycles, stock values and bond yields will move according to the USD. US risk assets are likely to continue attracting investment in lieu of non-U.S. markets.

The paradox is that available liquidity is supportive for re-rating equity risk premiums. Equity risk premiums on international stocks of over 5% exceed those of the U.S. by about 100 basis points. Both imply ample compensation for investment, more so for the former. Falling yields among high-yield bonds and other compressions of credit spreads are further magnifying the relative advantage available in current equity risk premiums.

Emerging markets (EM) overall, are enigmatic, but of late are trading more favorably. Having undergone two years of price correction, valuations for the most part remain attractive as compared to those of the developed economies. But an inherent “value trap” persists, as economic fundamentals continue to shift about for the larger countries, weaken for those with large external debt balances, yet are surprisingly solid for many others. Up until recently, capital was withdrawn indiscriminately from EM equity markets, despite select opportunities at the specific company level. As discussed above, risks of capital flight from EM lingers. Therefore, Staff intends to maintain the modest underallocation versus SAA policy target while these countervailing forces play out.

Staff has kept U.S. and overall Non-U.S. equities allocations more neutral to SAA policy since late 4Q2013. It had wanted to see sustainably stronger global economic growth relative to that of the U.S. before increasing the relative proportion of Non-U.S. equities. As those preconditions have yet to materialize, it will continue the current allocations.

CURRENT PORTFOLIO POSTURE: Underweight vs. SAA target

FIXED INCOME

Primary Markets Metrics & Indicators:

1. Fundamentals: **NEUTRAL**

- Over the past few years, fundamentals in the fixed income markets have been dominated by an extremely accommodative monetary policy by the Federal Reserve. This has included massive, unprecedented bond buying programs of both treasury bonds and agency MBS securities known as “quantitative easing” that began in 2009 during the credit crisis and continues to this day. While the Fed has now ended its monthly purchases, it will continue to reinvest the principal payments it receives from its massive portfolio of treasury bonds and agency MBS securities with additional purchases; as a consequence, the bond buying program is not over. While these policies have kept interest rates artificially low, the complete cessation of bond buying activities along with an improving U.S. economic outlook could lead to higher interest rates over an intermediate to long-term time frame.
- Despite the potential for higher rates, long-term interest rates have fallen in 2014 in response to a combination of factors including some disappointing economic data, concerns about global growth, some geopolitical uncertainty (ex. Ukraine), subdued inflation expectations, falling rates in other developed countries, and possible short covering by investors positioned for rising rates.

2. Valuations: **NEGATIVE**

- The core fixed income market is relatively unattractive due to low overall yields as Treasury rates remain at low levels, investment-grade credit spreads are relatively tight and spreads on agency MBS are somewhat compressed due to aggressive buying by the Fed. Ultimately, we believe the Fed will end its aggressive bond buying, and Treasury rates will rise over the intermediate-term from artificially low levels in the current market. That being said, core fixed income remains a safe haven in times of market turbulence and tends to perform well when risky assets such as equities sell off.
- With a benign outlook for corporate defaults and an overall demand in the market for yield, the valuation of high yield bonds has substantially compressed since mid-2012. As a result, the market has lost much of its return potential relative to prior years and will likely achieve low to mid-single-digit returns this year. Recently, the high yield market has become more attractive as both spreads and yields have increased due to technical selling pressure **and a sharp drop in oil prices which hurt the outlook for bonds in the energy sector. In late October, we reallocated \$300 million of funds from core fixed income to high yield to take advantage of the improved valuations in high yield; this reallocation reduced our underweight by approximately 90 bps.**
- While emerging market debt denominated in local currencies offers attractive yields, it comes with the added risk that emerging market currencies depreciate in value relative to the U.S. dollar resulting in poor returns as happened both in 2013 and in the third quarter of this year. Of most concern is the potential for a sustained period of US dollar appreciation as has occurred periodically in the past (such as the 1990's) that could adversely affect the returns of EM local currency debt going forward.
- Private debt offers the most attractive opportunity in the fixed income markets with double-digit yields readily available for investors willing to accept illiquidity.
- Select areas of opportunistic debt such as distressed debt (both corporate and structured credit) and excess mortgage-servicing rights ("MSRs") also offer opportunities to potentially achieve double-digit returns.

3. Sentiment: **NEUTRAL**

- Following a multi-decade period of declining interest rates, IMD has modest concerns that investors sentiment is shifting away from fixed income. That being said, going forward, IMD believes demand will continue for income producing assets particularly those which offer a yield premium.

Commentary:

IMD remains underweight in its overall fixed income target due to the relatively low yields offered in the public fixed income markets as well as the risk of potentially higher treasury rates. ASRS is currently underweight in its SAAP target for core fixed income, high yield and emerging market debt. While core fixed income offers important defensive characteristics to potentially balance out the overall risks of the total fund portfolio, low levels of U.S. Treasuries and generally tight spreads in the investment-grade bond markets make it generally unattractive.

Furthermore, IMD remains concerned about the potential for higher Treasury rates and the impact on returns for core fixed income, should the Fed completely end its quantitative easing programs. In high yield, which historically is less sensitive to higher interest rates, spreads have compressed to levels which make potential returns much less compelling than in prior years. In emerging market debt, we are concerned about the currency risk embedded in the local currency bond markets of this asset class.

IMD sees the most attractive opportunities in fixed income in select credit markets -- particularly private debt and opportunistic debt -- where compelling yield and total return opportunities exist. Opportunistic debt includes a number of mandates such as distressed debt and structured asset-backed securities that are likely to provide very attractive returns.

CURRENT PORTFOLIO POSTURE: UNDERWEIGHT vs. SAA target

REAL ESTATE

Primary Market Metrics & Indicators:

1. Fundamentals: **POSITIVE**

- Improved levels of demand and easing credit conditions, combined with broad improvement in the economy, are supportive of continued expansion of commercial lending and building. Better levels of occupancy while there is a lack of construction has resulted in rising rents.
- Our review of property market fundamentals leads to emphasize apartments, industrial properties, medical office buildings, senior housing self-storage, and student housing in our current investing efforts for demographic and macro policy reasons.
- There are relatively few foreclosures on high quality property, but there continues to be pressures on refinancing of legacy leverage structures and we participate in those transactions through several of our manager relationships.
- Single family housing continues to exhibit tight supply and moderate demand driven by healing household balance sheets, improved employment conditions, and continued affordability. This should lead to reacceleration of new construction and continued moderate price increases. Recovery in construction and NOI has been led by apartments to date.

2. Valuations: **NEUTRAL**

- On a total market basis, valuations have recovered from recession lows but are still about 5% below prior peak. However, coastal markets have rebounded more strongly than interior markets.
- High quality coastal market properties are trading at historic low cap rates; however these cap rates still reflect approximately a normal spread to treasury. The financing market for assets of this quality has recovered and supports these valuations by providing fixed rate financing that mitigates the risk of later cap rate expansion. International investors looking for safe assets have contributed to demand in the coastal markets.
- Recent increases in treasury rates do not appear to have affected commercial real estate valuations. Many observers believe that ~100bps of rate increase was already discounted into cap rates.
- At the end of **October**, REITs are trading at a **6% premium** to NAV with an average dividend yield of **3.7%**. This reflects a 130bps spread to the 10 year treasury, which is a bit higher than the historical average of 108bps.

3. Sentiment: **POSITIVE**

- U.S. focused real estate fund raising rose 13% to \$76 billion per year. U.S. focused dry powder has trended down to approximately \$80 billion.
- Global commercial real estate transaction volume peaked at around \$700 billion in 2007, but dropped to about a third of that during the global financial crisis. Current volume of approximately \$550 billion is double the recession trough, but still well below the peak.
- Debt availability has improved considerably since the depth of the recession, but is still tight by historic standards for all but the most desirable properties. Construction financing remains a considerable challenge, even for well justified projects.

Commentary:

IMD continues to implement its separate account real estate strategic manager program. ASRS 2014 real estate pacing plan called for \$500 million in new commitments; including \$350M allocated to niche and tactical opportunities. **The 2015 pacing plan will be presented to the Private Market Committee in December.**

CURRENT PORTFOLIO POSTURE: Underweight vs. SAA target (in program funding/build-out phase)

PRIVATE EQUITY

Primary Market Metrics & Indicators:

1. Fundamentals: **POSITIVE**

- The U.S. economy continues to show steady improvement.
 - ◇ The energy sector is dynamic with massive new investment in “tight oil” and related infrastructure and services, with supply improvements also resulting in improved energy efficiency particularly of benefit to manufacturers.
 - ◇ Healthcare is being reshaped to implement the requirements of “Obamacare”
 - ◇ The U.S. continues to be a global leader in technology innovation.
- Europe continues to struggle in recovering from the financial crisis **with the ECB looking to increase its stimulus efforts**. Its problems are exacerbated by a unified currency without unified fiscal policy and it is expected to experience a very slow recovery.
- Emerging markets have slowed while the largest emerging markets are transitioning to focus on domestic consumption.

1. Valuations: **NEUTRAL**

- Purchase price multiples in 2013 (through Q3) were 8.4x, roughly flat from 2012 levels and below 2007 peak valuations. Over the course of 2013, large deal multiples rose from 10x to 11x while small deals fell from 4.0x to 2.5x.
- The leveraged loan and high yield debt markets were active in 2013 reaching multi-year highs for net issuance, albeit principally for refinancing. Single B high yield spreads have **widened to ~415bps**.
- Total leverage in 2013 (through Q3) ticked up to 5.3x from 5.1x in 2012, although still down ~0.8x turn from the 2007 peak.

2. Sentiment: **NEUTRAL**

- Globally, year-to-date **\$334B (688 funds)** have closed through Q3 2014 compared to **\$348B (802 funds)** **at this time a year ago**. Dry powder of nearly \$1.2T globally **has remained flat**.
- The global number of buyout deals **fell** from 816 in Q2 to **803** in Q3 2014 while the aggregate value of deals **ticked up slightly from \$80B to \$84B**.
- **Exits were steady in Q3 2014 at 403 while the aggregate value of \$105B dropped from the Q2 2014 level of \$133B**.
- The IPO market in Q2 2014 **remained strong (\$20B) but was down from Q2 2014 levels**.

Commentary:

Areas of emphasis are U.S middle market buyout with focus on managers with strong operational capability. Vertical strategies in energy, healthcare and technology are under consideration. IMD will reduce emphasis on large buyout strategies though larger managers with specialized deal flow remain of interest. IMD will continue to monitor Europe for a favorable reentry point. IMD's pacing plan called for \$550M in commitments for 2014. **The 2015 pacing plan will be presented to the Private Markets Committee in November.**

CURRENT PORTFOLIO POSTURE: slightly Underweight vs. SAA target (in program funding/build-out phase)

COMMODITIES

Primary Market Metrics & Indicators:

1. Fundamentals: **NEGATIVE**

- The Fed **ended its tapering program in November but** reiterated that inflation continues to run below the FOMC's long-term objective. **As Europe has begun to deal with its economic weakness with stimulus, the US dollar has strengthened on a relative basis.**
- Most commodity sectors appear well supplied, particularly for the current global growth environment.
- **Corn and wheat stockpiles have recently hit multi-year highs while world food prices continue to slide.** Energy markets reflect the continued growth in US production as **WTI and Brent prices have fallen by more than \$20 from their June highs.** Metals have **weakened as precious metals have suffered from US dollar strength** while industrial metals still exhibit weak demand.

2. Valuations: **NEUTRAL**

- The index rose to nearly 280 in April 2014 but has steadily sold off to its current level of **235.**
- YTD: coffee, **cattle**, & hogs have been the leaders; **gas oil and silver** are the biggest laggards.
- The index on a year-to-date basis is **down 7.7% as all of the index sub-groups have posted negative returns.**

3. Sentiment: **NEGATIVE (from Neutral)**

- The moderate growth and **weak** inflation environment in the U.S. year-to-date has tempered investor enthusiasm for commodities and resulted in **outflows from** commodities.
- Exogenous geopolitical shocks have not resulted in price spikes; weather has been favorable.
- Looking across the individual commodities, most remain well supplied, which has been reflected in prices as inflationary fears have abated.

Commentary:

IMD has maintained a tactical underweight relative to the SAAP during 2013 and into 2014 after recognizing the potential effects of Fed tapering and Chinese transition. IMD recognizes that Fed's **actions** will be data dependent but **the QE program has ended.**

The North American shale play has resulted in increased US energy production and represents a long-term phenomenon. China's **growth rate is also moderating** and the era of infrastructure build-out which fueled a portion of the demand for commodities (**particularly industrial metals**) is abating. **Precious metals may also be challenged as the US has moved to the front of the global recovery and other countries' stimulus should result in US dollar strength at the margin.** While grains are currently well supplied, the **unpredictability of weather inhibits long-term forecasting.**

IMD will closely monitor the growth and inflation dynamics globally with improving economic conditions and inflationary pressures serving as a catalyst which may initiate a neutral position.

CURRENT PORTFOLIO POSTURE: Underweight vs. SAA target

OPPORTUNISTIC INVESTMENTS

IMD continues to monitor and assess co-investment flow from real estate, private equity and debt managers for select opportunistic investments with favorable capital market dynamics. Opportunistic investments are tactical in nature AND are outside ASRS SAAP benchmarks or absolute return oriented.

CURRENT PORTFOLIO POSTURE: Approx. 4.1% of ASRS TOTAL MARKET VALUE

GLOSSARY

Commentary: Provides verbiage on 1) the current asset class market environment and possible changes to this environment and 2) ASRS asset class portfolio positioning relative to ASRS SAA policy, its rationale for positioning and anticipated changes which may occur in such positioning.

Current Portfolio Posture: Indicates ASRS asset class position relative to its asset allocation policy weight. “Overweight” indicates an asset class weight is greater than its policy target, “Neutral” indicates an equal weight and “Underweight” indicates a lesser weight than its policy target.

Investment House Views: Synthesizes IMD’s current and forward-looking investment perspectives and tactical positioning in asset classes and investment strategies in which the ASRS invests.

Primary Market Metrics and Indicators: Broadly-defined metrics (Fundamentals, Valuations, and Sentiments) applied universally to ASRS asset classes and used collectively to evaluate existing market conditions. Indicators (“Positive,” “Neutral” and “Negative”) reflect IMD’s existing views of these metrics and, in addition to other factors, generally determine the basis for the existing (and possible future changes) to ASRS aggregate portfolio position relative to or within ASRS SAA policy targets.

2014 ASSET CLASS COMMITTEE AND IC MEETINGS

2014		Asset Class Committees				Board Committee		Grand Totals	
		Private Market Committee (PRIVMC)		Public Market Committee (PUBMC)		Investment Committee (IC)			
Quarter	Month	Dates		Total	Dates		Total		
1 st	January	1/15	1/31	2	1/31		1	9	
	February	2/21		1	2/20 2/24		2		
	March	3/24		1	3/27		1		
2 nd	April	04/22		1	04/17		1	9	
	May	05/12	05/27	3					
		05/28							
June	06/19	06/26	2	06/23		1			
3 rd	July	07/01	07/14	3				7	
		07/21							
	August	08/08	08/20	2	08/18		1		
September	09/23		1						
4 th	October	10/17	10/23	2	10/20		1	4	
	November				11/13		1		
	December								
Totals				18			4	7	29

PUBLIC MARKETS COMMITTEE (PUBMC)

11/13/14:

➤ Public Market Program

- The Investment Management Division discussed their perspectives on the market.
- Mr. Underwood characterized the current equity market as net positive, with larger capitalization segments relatively stronger than smaller-capitalization counterparts. Staff remains constructive toward equities but recognized that in the short-run, valuations appear full, but not grossly overextended.
- Mr. Alaimo provided an update on the performance of the various public market fixed income asset classes and managers within those asset classes. The Committee discussed ASRS blended emerging market debt mandate and the currency risks of emerging market corporate debt. Mr. Alaimo provided an overview of the F2 portfolio whose excess return has favorably contributed to the fixed income asset class.
- Mr. Polen reported on his attendance at the International Farming Partners annual meeting and current information about the agriculture market. He noted the following major trends in the industry: a) a glut of grains impacting Midwest farming, b) drought in California is having major impact and c) Florida farms affected by a citrus disease.

PRIVATE MARKETS COMMITTEE (PRIVMC)

10/17/14:

➤ Real Estate Investments

- The Committee approved a \$100 million commitment in a separately managed account focused on value add office buildings as part of the niche-tactical real estate program. Final legal negotiations are pending.
- The Committee approved granting Pierce Education Properties a variance permitting investment in a property located near Georgia Tech.

➤ Real Estate Program

- The Committee approved up to \$200 million investment in a special situations real estate credit fund. Final legal negotiations are pending,

➤ Private Equity Program

- The Committee authorized detailed diligence on a firm investing in platforms of real estate asset managers.
- The Committee confirmed the following future meeting dates: November 19, December 18, 2014 and January 23, 2015

10/23/14:

➤ **Ad-Hoc Meeting**

- The Committee approved a C\$12.5 million co-investment solely in the Holding Company PIK notes and Delayed Draw Notes of GFL Environmental and not in its equity.

TACTICAL PORTFOLIO POSITIONING

Asset class tactical positioning is a function of Investment House Views and an assessment of relative value between ASRS asset classes and their positioning to ASRS Strategic Asset Allocation Policy (SAAP).

Following an increase in spreads in the high yield market that primarily began in September and was exacerbated by market volatility in mid-October, we reallocated \$300 million from core fixed income to high yield in late October with an additional \$150 million each allocated to our two high yield managers, Columbia and JP Morgan. The incremental funding to high yield reduced our underweight in this asset class by approximately 90 bps to 3.8% vs. a 5.0% SAAP target while increasing our underweight in core fixed income to 10.3% vs. a 13.0% SAAP target.

In Infrastructure (0% SAAP target with a 0-3% range), the fund in which the ASRS is committed called ASRS commitment of \$300M, which will represent 0.9% of the total fund. The IFM fund is open-end and invests globally in developed markets' transportation, energy, communication, and utilities infrastructure projects.

The more notable SAA policy underweights reside in high yield, EM debt relative and commodities. The CIO will discuss these tactical portfolios repositioning in more detail at the IC meeting.

Note: tactical portfolio positioning is captured in the ASRS Asset Allocation report; the performance results of tactical positioning (vs. policy targets) are reflected in the ASRS Quarterly Total Fund Performance Attribution Analysis.

IMD (INVESTMENT MANAGEMENT DIVISION) ACTIVITIES, PROJECTS AND RESEARCH INITIATIVES

- Research and discussions continue regarding ASRS Asset Allocation Policy Study. As part of this process, ASRS/NEPC developed capital market assumptions for both a short-to-intermediate (3, 5-7yrs) and long-term (30 years) and various “strawman” asset allocation mixes. NEPC and IMD will discuss these at the December IC meeting; a subsequent meeting(s) with the IC will occur and, upon their recommendation, it is expected to be presented to the full Board for approval in Q1-15.
- The redesigned ASRS securities lending program was implemented on October 1st after final contract negotiations with State Street. The program includes two parts: ‘agency lending’ via State Street to create a conservative strategic lending program and ‘opportunistic lending’ to profit from relatively large or one-off individual lending transactions, the latter of which will be evaluated and approved on a case-by-case basis by the Director and CIO.
- ASRS enhanced cash management program is in the process of being implemented. The goals of the program are to provide required Fund liquidity, mitigate cash drag, minimize transaction costs and optimize manager portfolios rebalancing. The CIO and Asst. Equity Portfolio Manager are scheduled to make a presentation at the next IC meeting.
- At an ad-hoc Nov 21 PRVMC meeting, the Committee will be discussing the merits of and possibly investment in a separately managed account in European direct lending. Providing capital in primarily first lien senior secured loans to middle market companies has attractive risk/returns attributes and is viewed as a complement to other existing ASRS private debt mandates.
- IMD will hold an investment seminar on bankruptcy. Newton Glassman, founder of Catalyst Capital, will lead the discussion. Catalyst Capital is a Toronto based private equity firm which specializes in investing in companies experiencing distress. ASRS is an investor in Catalyst funds III and IV. Mr. Glassman is experienced in distressed and bankruptcy deals across North America and Europe.
- As a standard course of business, IMD meets with both incumbent and potential investment managers to discuss macro-economies and capital markets as well as providing a means to review new initiatives, relationships and new strategy offerings. Since the last IC meeting, IMD has met via conference call or in-person with a total of 76 investment managers: Private markets (RE, PE, Debt) – 47 and Public markets (Equity and Debt) – 29.
- IMD internally manages 7 public equities and fixed income portfolios which had an aggregate market value of over \$9.7 billion or 29% of Total Fund. For the 1-year ending October August 31, 4 of 7 met or exceeded their benchmarks, and 7 of 7 portfolios met or exceeded their benchmarks on an inception-to-date basis.

Executive Presentation

To: Arizona State Retirement System

truView Risk Report September 30, 2014

Produced by State Street Investment Analytics, Risk Services

Monthly Reallocation Summary*

Month Ending September 30, 2014

Portfolio Reductions

- TOTAL US EQUITY
 - \$16.5M – E2 Large Cap
 - \$6M – E7 (US Large Cap)
 - \$2.9M – E8 (US Large Cap)
 - \$2.2M –E3 (US Mid Cap)
 - \$2.2M –E4 (US Mid Cap)
 - \$0.5M – E6 (US Small Cap)
- TOTAL FIXED INCOME
 - \$ 70M – F2 (Core)
- **TOTAL REDUCTIONS****
 - **\$100.3M**

Portfolio Additions

- TOTAL MASTER CASH
 - \$100.3M – MASTER CASH
- **TOTAL ADDITIONS****
 - **\$100.3M**

*Based on State Street accounting records for public markets and therefore exclude private market drawdowns.

**Reductions and additions do not include plan distributions.

Monthly Reallocation Summary*

Month Ending October 31, 2014

Portfolio Reductions

- TOTAL FIXED INCOME
 - \$ 285M – BGI US DEBT FUND (Core)
 - \$ 15M – F2 (Core)
- TOTAL REDUCTIONS**
 - \$300M

Portfolio Additions

- TOTAL FIXED INCOME
 - \$ 150M – COLUMBIA MANAGEMENT (High Yield)
 - \$ 150M – JP MORGAN (High Yield)
- TOTAL ADDITIONS**
 - \$300M

*Based on State Street accounting records for public markets and therefore exclude private market drawdowns.

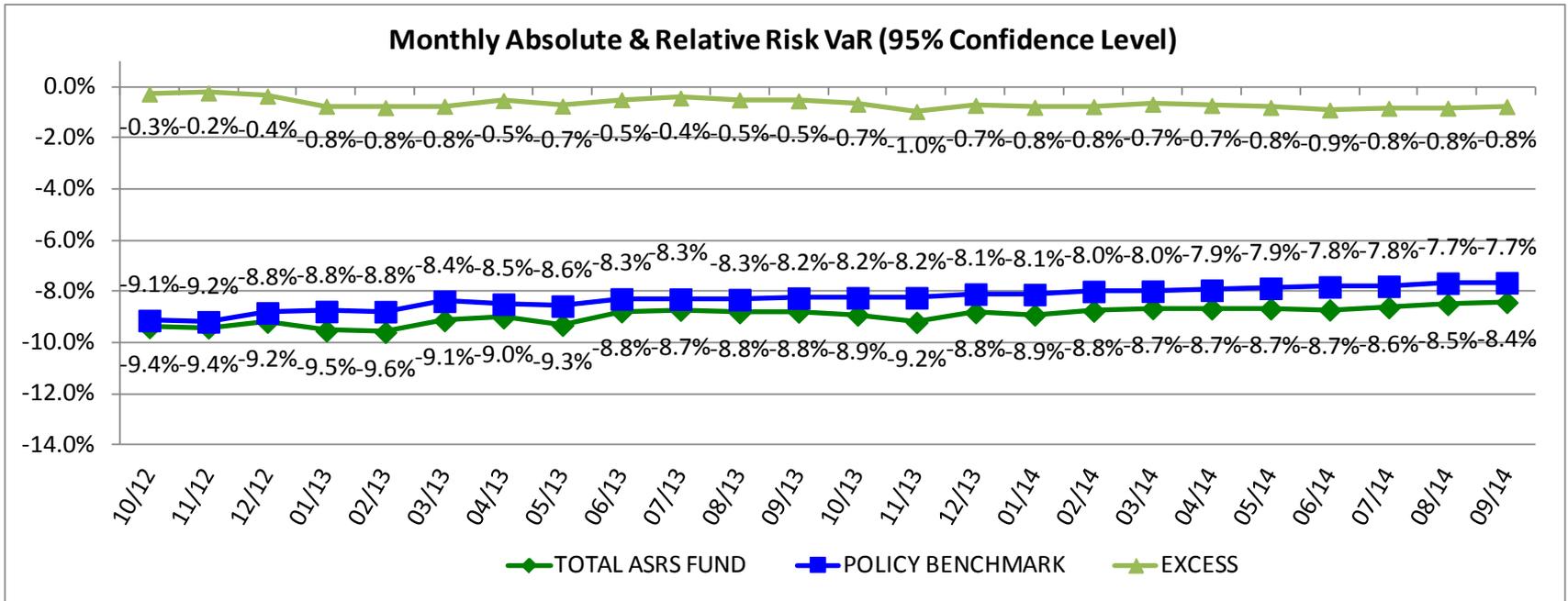
**Reductions and additions do not include plan distributions.

Monthly Risk Summary

Month Ending September 30, 2014

Month-end Risk Profile

- For another month, Historical Risk (95% VaR) for all asset classes remain relatively constant from prior months with minimal changes. Total Plan risk decreased 8bps and the Policy Benchmark had a corresponding decrease of 2bps. A steady market environment has helped produce a stable risk profile since the beginning of this year.
- Excess risk over the Policy Benchmark remains unchanged at -0.8%.



ARIZONA STATE RETIREMENT SYSTEM

TOTAL PLAN EXPOSURE OVERVIEW

As of September 30, 2014

Sector (Public US Equity Only)	\$ Value	% Value	**Blended US BM	Difference
CONSUMER NON-CYCLICAL	\$ 2,367,266,559	21.9%	22.4%	(0.6%)
FINANCIAL	\$ 1,673,580,249	15.5%	16.7%	(1.2%)
TECHNOLOGY	\$ 1,276,403,777	11.8%	13.6%	(1.8%)
INDUSTRIAL	\$ 1,228,021,515	11.3%	10.3%	1.0%
CONSUMER CYCLICAL	\$ 1,041,862,369	9.6%	9.2%	0.4%
ENERGY	\$ 936,514,027	8.6%	9.7%	(1.0%)
COMMUNICATIONS	\$ 916,538,835	8.5%	11.9%	(3.5%)
FUNDS	\$ 513,331,177	4.7%	0.0%	4.7%
BASIC MATERIALS	\$ 379,897,099	3.5%	3.2%	0.3%
UTILITIES	\$ 352,606,246	3.3%	3.0%	0.3%
CASH	\$ 106,137,529	1.0%	0.0%	1.0%
GOVERNMENT	\$ 28,118,853	0.3%	0.0%	0.3%
INDEX	\$ 8,498,992	0.1%	0.0%	0.1%
DIVERSIFIED	\$ 2,105,988	0.0%	0.0%	(0.0%)
GRAND TOTAL	\$ 10,830,883,215	100.0%	100.0%	0.0%

Country Category (Total Plan)	\$ Value	% Value	*Blended TOTAL BM	Difference
NORTH AMERICA	\$ 25,809,467,457	76.4%	66.7%	9.7%
EUROPE DEVELOPED	\$ 3,699,604,559	11.0%	14.3%	(3.4%)
ASIA DEVELOPED	\$ 1,868,836,713	5.5%	9.1%	(3.6%)
ASIA EM	\$ 1,230,659,635	3.6%	4.4%	(0.8%)
LATIN AMERICA	\$ 637,640,926	1.9%	3.1%	(1.2%)
AFRICA	\$ 270,898,193	0.8%	0.9%	(0.1%)
EUROPE EM	\$ 124,942,644	0.4%	0.9%	(0.6%)
MIDDLE EAST	\$ 123,021,596	0.4%	0.5%	(0.1%)
GRAND TOTAL	\$ 33,765,071,722	100.0%	100.0%	0.0%

Market Cap^ (Public Equities Only)	\$ Value	% Value	*Blended TOTAL BM	Difference
1) 0 - 100M	\$ 3,569,020	0.0%	0.0%	0.0%
2) 100M - 500M	\$ 541,010,778	2.8%	1.5%	1.2%
3) 500M - 1B	\$ 517,552,523	2.6%	3.7%	(1.1%)
4) 1B - 5B	\$ 3,237,819,758	16.5%	22.7%	(6.2%)
5) 5B - 10B	\$ 2,138,914,910	10.9%	10.1%	0.8%
6) 10B - 50B	\$ 5,724,283,430	29.2%	27.7%	1.5%
7) >50B	\$ 7,442,946,846	38.0%	34.2%	3.7%
GRAND TOTAL	\$ 19,606,097,265	100.0%	100.0%	100.0%

*Excludes cash and non-traded securities

Top 20 Issuer (Total Plan)	\$ Value	% Value	Market Cap	Sector	Industry Group
1 CASH***	\$ 1,590,688,876	4.7%		CASH	Cash
2 SPDR S&P 500 ETF TRUST	\$ 1,329,727,384	3.9%	7) 50B+	FUNDS	EQUITY FUND
3 US TREASURY N/B	\$ 954,814,651	2.8%		GOVERNMENT	SOVEREIGN
4 TREASURY BILL	\$ 722,938,394	2.1%		GOVERNMENT	SOVEREIGN
5 FANNIE MAE	\$ 720,345,864	2.1%		MORTGAGE SECURITIES	FNMA COLLATERAL
6 APPLE INC	\$ 227,965,514	0.7%	7) 50B+	TECHNOLOGY	COMPUTERS
7 MICROSOFT CORP	\$ 177,372,108	0.5%	7) 50B+	TECHNOLOGY	SOFTWARE
8 FREDDIE MAC	\$ 173,037,074	0.5%		MORTGAGE SECURITIES	FGLMC COLLATERAL
9 EXXON MOBIL CORP	\$ 172,641,566	0.5%	7) 50B+	ENERGY	OIL&GAS
10 JOHNSON & JOHNSON	\$ 138,174,109	0.4%	7) 50B+	CONSUMER NON-CYCLICAL	PHARMACEUTICALS
11 VANGUARD TOTAL STOCK MARKET ET	\$ 131,901,344	0.4%	6) 10B - 50B	FUNDS	EQUITY FUND
12 ISHARES MSCI USA MOMENTUM FACT	\$ 130,777,920	0.4%	2) 100M - 500M	FUNDS	EQUITY FUND
13 ISHARES MSCI USA QUALITY FACTOR I	\$ 130,158,217	0.4%	3) 500M - 1B	FUNDS	EQUITY FUND
14 ISHARES MSCI USA VALUE FACTOR ET	\$ 128,878,360	0.4%	2) 100M - 500M	FUNDS	EQUITY FUND
15 ISHARES MSCI USA SIZE FACTOR ETF	\$ 123,516,680	0.4%	2) 100M - 500M	FUNDS	EQUITY FUND
16 CHEVRON CORP	\$ 115,352,013	0.3%	7) 50B+	ENERGY	OIL&GAS
17 ISHARES MSCI EMERGING MARKETS E	\$ 108,459,423	0.3%	6) 10B - 50B	FUNDS	EQUITY FUND
18 VANGUARD FTSE DEVELOPED MARKE	\$ 107,539,849	0.3%	6) 10B - 50B	FUNDS	EQUITY FUND
19 PFIZER INC	\$ 103,528,562	0.3%	7) 50B+	CONSUMER NON-CYCLICAL	PHARMACEUTICALS
20 PROCTER & GAMBLE CO/THE	\$ 99,770,683	0.3%	7) 50B+	CONSUMER NON-CYCLICAL	COSMETICS/PERSONAL CARE

*Blended TOTAL BM: 26% SP500, 5% SP400, 5% SP600, 5% R2000, 14% MSCI EAFE, 6% MSCI EM, 3% MSCI Sml Cap, 17% BC US AGG, 5% BC US HY, 6% FTSE NAREIT GLOBAL, 4% DJ-UBS COMMODITY, 4% JPM EMBI.

**Blended US BM: 72% SP500, 14% SP400, 14% SP600.

***Cash does not represent an IMD tactical view; Cash includes the ASRS Master Cash balance, manager- level portfolio cash & equivalents and cash collateralizing sundry portfolio-level futures contracts.

ARIZONA STATE RETIREMENT SYSTEM

As of September 30, 2014

Sector (Public Intl Equity Only)	\$ Value	% Value	*Blended NON-US BM	Difference
FINANCIAL	\$ 1,744,151,650	24.9%	25.3%	(0.4%)
CONSUMER NON-CYCLICAL	\$ 1,285,679,397	18.4%	19.0%	(0.6%)
INDUSTRIAL	\$ 901,554,306	12.9%	11.8%	1.1%
CONSUMER CYCLICAL	\$ 875,012,538	12.5%	11.6%	0.9%
COMMUNICATIONS	\$ 607,025,242	8.7%	8.6%	0.0%
ENERGY	\$ 420,463,182	6.0%	7.0%	(1.0%)
BASIC MATERIALS	\$ 410,280,551	5.9%	7.3%	(1.4%)
TECHNOLOGY	\$ 334,459,085	4.8%	4.9%	(0.1%)
UTILITIES	\$ 219,524,607	3.1%	3.5%	(0.3%)
CASH	\$ 96,368,239	1.4%	0.0%	1.4%
DIVERSIFIED	\$ 66,776,204	1.0%	1.0%	(0.1%)
INDEX	\$ 31,898,409	0.5%	0.0%	0.4%
FX	\$ (17,990)	(0.0%)	0.0%	(0.0%)
GRAND TOTAL	\$ 6,993,175,419	100.0%	100.0%	0.0%

Top 20 Industry Groups (Public Intl Only)	\$ Value	% Value	*Blended NON-US BM	Difference
1 BANKS	\$ 924,778,093	13.2%	13.8%	(0.6%)
2 PHARMACEUTICALS	\$ 417,199,382	6.0%	6.7%	(0.7%)
3 TELECOMMUNICATIONS	\$ 391,462,402	5.6%	5.9%	(0.3%)
4 OIL&GAS	\$ 372,355,747	5.3%	6.2%	(0.9%)
5 INSURANCE	\$ 361,484,358	5.2%	4.5%	0.7%
6 FOOD	\$ 305,768,747	4.4%	4.2%	0.2%
7 RETAIL	\$ 257,030,585	3.7%	3.1%	0.6%
8 AUTO MANUFACTURERS	\$ 231,211,176	3.3%	3.1%	0.2%
9 COMMERCIAL SERVICES	\$ 185,350,888	2.7%	1.8%	0.8%
10 CHEMICALS	\$ 175,910,245	2.5%	3.2%	(0.7%)
11 DIVERSIFIED FINAN SERV	\$ 174,206,621	2.5%	2.7%	(0.2%)
12 SEMICONDUCTORS	\$ 163,302,159	2.3%	2.7%	(0.3%)
13 ELECTRIC	\$ 152,982,777	2.2%	2.3%	(0.1%)
14 REAL ESTATE	\$ 150,481,179	2.2%	2.1%	0.0%
15 MINING	\$ 136,508,080	2.0%	2.5%	(0.6%)
16 ENGINEERING&CONSTRUCTIC	\$ 133,852,923	1.9%	1.7%	0.2%
17 BUILDING MATERIALS	\$ 133,775,629	1.9%	1.3%	0.6%
18 BEVERAGES	\$ 120,198,981	1.7%	2.1%	(0.3%)
19 ELECTRONICS	\$ 113,799,144	1.6%	1.7%	(0.0%)
20 MACHINERY-DIVERSIFIED	\$ 113,266,214	1.6%	1.1%	0.6%

*Blended NON-US BM: 61% MSCI EAFE, 26% MSCI EM, 13% MSCI Sml Cap.

INTERNATIONAL EQUITY EXPOSURE OVERVIEW

Country Category (Public Intl Equity Only)	\$ Value	% Value	*Blended NON-US BM	Difference
EUROPE DEVELOPED	\$ 3,271,372,624	46.8%	47.6%	(0.8%)
ASIA DEVELOPED	\$ 1,814,368,127	25.9%	30.9%	(4.9%)
ASIA EM	\$ 1,039,945,590	14.9%	13.1%	1.7%
LATIN AMERICA	\$ 375,243,172	5.4%	4.8%	0.5%
AFRICA	\$ 182,071,304	2.6%	2.0%	0.6%
NORTH AMERICA	\$ 142,801,636	2.0%	0.1%	1.9%
MIDDLE EAST	\$ 97,935,675	1.4%	0.8%	0.6%
EUROPE EM	\$ 69,437,291	1.0%	0.6%	0.4%
GRAND TOTAL	\$ 6,993,175,419	100.0%	100.0%	0.0%

Market Cap** (Public Intl Equities Only)	\$ Value	% Value	*Blended NON-US BM	Difference
1) 0 - 100M	\$ 2,720,339	0.0%	0.0%	0.0%
2) 100M - 500M	\$ 119,238,465	1.7%	0.9%	0.9%
3) 500M - 1B	\$ 237,946,999	3.5%	2.1%	1.4%
4) 1B - 5B	\$ 1,308,403,153	19.2%	15.7%	3.5%
5) 5B - 10B	\$ 896,834,338	13.1%	12.1%	1.0%
6) 10B - 50B	\$ 2,499,645,593	36.6%	36.4%	0.2%
7) >50B	\$ 1,760,849,310	25.8%	32.9%	(7.1%)
GRAND TOTAL	\$ 6,825,638,198	100.0%	100.0%	100.0%

**Excludes cash and non-traded securities

ARIZONA STATE RETIREMENT SYSTEM

TOTAL FIXED INCOME EXPOSURE OVERVIEW

As of September 30, 2014

Sector (Public Fixed Income Only)	\$ Value	% Value	*Blended FI BM	Difference
GOVERNMENT	\$ 1,499,772,303	34.8%	40.3%	(5.5%)
MORTGAGE SECURITIES	\$ 858,511,732	19.9%	20.0%	(0.1%)
FINANCIAL	\$ 397,052,654	9.2%	8.9%	0.3%
COMMUNICATIONS	\$ 319,042,683	7.4%	5.4%	2.0%
CONSUMER NON-CYCLICAL	\$ 280,745,771	6.5%	5.3%	1.2%
ENERGY	\$ 240,396,448	5.6%	6.6%	(1.0%)
CONSUMER CYCLICAL	\$ 167,621,945	3.9%	3.5%	0.4%
INDUSTRIAL	\$ 147,621,604	3.4%	3.1%	0.3%
UTILITIES	\$ 94,771,884	2.2%	2.2%	0.0%
TECHNOLOGY	\$ 74,065,088	1.7%	1.4%	0.3%
CASH	\$ 70,654,648	1.6%	0.0%	1.6%
BASIC MATERIALS	\$ 68,175,789	1.6%	2.4%	(0.8%)
BANK LOANS	\$ 45,190,339	1.0%	0.0%	1.0%
INDEX	\$ 26,856,614	0.6%	0.4%	0.2%
ASSET BACKED SECURITIES	\$ 9,001,596	0.2%	0.3%	(0.1%)
DIVERSIFIED	\$ 8,648,498	0.2%	0.2%	0.0%
FUNDS	\$ 4,196,260	0.1%	0.0%	0.1%
SWAP	\$ (29,798)	(0.0%)	0.0%	(0.0%)
FX	\$ (4,058,490)	(0.1%)	0.0%	(0.1%)
GRAND TOTAL	\$ 4,308,237,569	100.0%	100.0%	0.0%

Top 20 Industry Groups (Public Fixed Income Only)	\$ Value	% Value	*Blended FI BM	Difference
1 SOVEREIGN	\$ 1,423,485,490	33.0%	38.5%	(5.4%)
2 FNMA COLLATERAL	\$ 592,902,150	13.8%	8.5%	5.2%
3 OIL&GAS	\$ 180,120,103	4.2%	4.9%	(0.7%)
4 TELECOMMUNICATIONS	\$ 179,169,999	4.2%	3.1%	1.0%
5 BANKS	\$ 152,237,761	3.5%	5.0%	(1.5%)
6 FGLMC COLLATERAL	\$ 121,684,300	2.8%	5.0%	(2.2%)
7 DIVERSIFIED FINAN SERV	\$ 120,092,146	2.8%	2.3%	0.5%
8 MEDIA	\$ 113,318,109	2.6%	2.0%	0.7%
9 ELECTRIC	\$ 93,805,342	2.2%	2.0%	0.1%
10 COMMERCIAL MBS	\$ 76,033,984	1.8%	1.3%	0.4%
11 CASH	\$ 70,654,648	1.6%	0.0%	1.6%
12 HEALTHCARE-SERVICES	\$ 66,340,875	1.5%	1.2%	0.4%
13 RETAIL	\$ 59,377,695	1.4%	1.3%	0.1%
14 COMMERCIAL SERVICES	\$ 46,428,722	1.1%	0.8%	0.2%
15 PHARMACEUTICALS	\$ 46,428,615	1.1%	0.9%	0.2%
16 PIPELINES	\$ 46,098,701	1.1%	1.2%	(0.1%)
17 BANK LOANS	\$ 45,190,339	1.0%	0.0%	1.0%
18 SOFTWARE	\$ 45,137,504	1.0%	0.6%	0.4%
19 MUNICIPAL	\$ 44,856,836	1.0%	0.6%	0.4%
20 GNMA2 COLLATERAL	\$ 41,824,015	1.0%	3.8%	(2.8%)

Credit Rating Group** (Public Fixed Income Only)	\$ Value	% Value	*Blended FI BM	Difference
01) AAA	\$ 1,936,872,650	45.0%	47.1%	(2.2%)
02) AA	\$ 153,636,434	3.6%	3.7%	(0.1%)
03) A	\$ 499,881,695	11.6%	9.4%	2.2%
04) BBB	\$ 585,818,904	13.6%	14.7%	(1.1%)
05) BB	\$ 474,437,409	11.0%	11.9%	(0.9%)
06) B	\$ 430,307,799	10.0%	9.2%	0.8%
07) CCC	\$ 137,263,321	3.2%	3.1%	0.1%
08) CC	\$ -	0.0%	0.0%	(0.0%)
09) C	\$ -	0.0%	0.0%	(0.0%)
10) D	\$ -	0.0%	0.0%	0.0%
11) Not Rated	\$ 90,019,358	2.1%	0.7%	1.4%
GRAND TOTAL	\$ 4,308,237,569	100.0%	100.0%	0.0%

Maturity Bucket (Public Fixed Income Only)	\$ Value	% Value	*Blended FI BM	Difference
0-1Y	\$ 154,418,472	3.7%	1.2%	2.5%
1Y-3Y	\$ 645,499,590	15.5%	18.3%	(2.8%)
3Y-5Y	\$ 678,712,170	16.3%	16.7%	(0.3%)
5Y-10Y	\$ 1,511,903,377	36.4%	30.3%	6.1%
10Y-15Y	\$ 192,852,407	4.6%	5.6%	(0.9%)
15Y+	\$ 1,096,423,545	26.4%	28.0%	(1.6%)
GRAND TOTAL	\$ 4,279,809,561	100.0%	100.0%	100.0%

*Blended TOTAL BM: 66% BC US AGG, 19% BC US HY, 15% JPM EMBI.

ARIZONA STATE RETIREMENT SYSTEM
As of September 30, 2014

TOTAL PLAN RISK OVERVIEW

Strategy	\$ Value	% Value	Historical VaR 95%	HVaR Contri 95%	HVaR Contri % to Total	Parametric VaR 95%	PVaR Contri 95%	PVaR Contri % to Total	Exp Tail Loss 95%	Exp Tail Loss Contri 95%	Exp Tail Loss Contri % to Total	Max Loss	Std Dev	Downside Risk (8%)	Downside Risk Contri (8%)	Downside Risk Contri (8%) to Total
MONTHLY RISK																
MASTER CASH	\$ 365,370,874	1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	(0.6%)	(0.0%)	0.0%
TOTAL FIXED INCOME	\$ 4,308,237,569	13%	(2.6%)	(0.1%)	1.2%	(2.2%)	(0.1%)	1.7%	(3.8%)	(0.2%)	1.5%	(6.0%)	1.3%	(1.4%)	(0.1%)	1.9%
US EQUITY	\$ 10,830,883,215	32%	(9.8%)	(3.2%)	38.0%	(8.9%)	(2.8%)	36.4%	(16.1%)	(5.1%)	37.3%	(30.6%)	6.2%	(4.5%)	(1.4%)	36.4%
INTERNATIONAL EQUITY	\$ 6,993,175,419	21%	(10.8%)	(2.0%)	23.5%	(10.2%)	(2.0%)	26.4%	(16.7%)	(3.4%)	24.7%	(37.2%)	6.9%	(4.9%)	(1.0%)	25.5%
REAL ESTATE	\$ 1,785,062,021	5%	(13.0%)	(0.7%)	8.4%	(11.6%)	(0.6%)	7.6%	(20.7%)	(1.0%)	7.6%	(39.1%)	7.6%	(5.8%)	(0.3%)	7.5%
FARMLAND & TIMBER	\$ 116,218,612	0%	(9.6%)	(0.0%)	0.4%	(8.4%)	(0.0%)	0.4%	(15.5%)	(0.1%)	0.4%	(29.8%)	5.6%	(4.5%)	(0.0%)	0.4%
PRIVATE EQUITY	\$ 2,183,121,273	6%	(12.7%)	(0.8%)	9.7%	(11.1%)	(0.7%)	8.9%	(19.5%)	(1.2%)	9.1%	(36.1%)	7.3%	(5.6%)	(0.4%)	9.0%
PRIVATE DEBT	\$ 1,241,879,438	4%	(7.5%)	(0.2%)	2.9%	(6.6%)	(0.2%)	3.0%	(12.6%)	(0.4%)	3.2%	(25.1%)	4.4%	(3.5%)	(0.1%)	3.1%
OPPORTUNISTIC EQUITY	\$ 338,837,763	1%	(11.9%)	(0.1%)	1.4%	(10.3%)	(0.1%)	1.3%	(18.3%)	(0.2%)	1.3%	(34.3%)	6.8%	(5.2%)	(0.1%)	1.3%
OPPORTUNISTIC DEBT	\$ 1,052,998,542	3%	(6.1%)	(0.2%)	2.1%	(5.8%)	(0.2%)	2.2%	(11.4%)	(0.3%)	2.5%	(23.4%)	4.0%	(3.2%)	(0.1%)	2.4%
GLOBAL INFLATION LINKED	\$ 769,188,044	2%	(7.9%)	(0.1%)	1.7%	(7.8%)	(0.1%)	1.6%	(12.6%)	(0.2%)	1.7%	(26.2%)	4.9%	(3.9%)	(0.1%)	1.7%
GTAA	\$ 3,780,098,951	11%	(8.2%)	(0.9%)	10.6%	(7.3%)	(0.8%)	10.5%	(13.0%)	(1.4%)	10.6%	(26.7%)	4.8%	(3.8%)	(0.4%)	10.8%
GRAND TOTAL	\$ 33,765,071,722	100%	(8.4%)	(8.4%)	100.0%	(7.7%)	(7.7%)	100.0%	(13.6%)	(13.6%)	100.0%	(28.2%)	5.2%	(3.9%)	(3.9%)	100.0%
INTERIM POLICY BENCHMARK			(7.7%)			(7.1%)			(12.2%)			(25.7%)	6.2%	(3.6%)		

ANNUALIZED RISK																
MASTER CASH	\$ 365,370,874	1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	N/A	0.0%	(2.2%)	(0.0%)	0.0%
TOTAL FIXED INCOME	\$ 4,308,237,569	13%	(9.1%)	(0.4%)	1.2%	(7.7%)	(0.5%)	1.7%	(13.2%)	(0.7%)	1.5%	N/A	4.6%	(4.9%)	(0.3%)	1.9%
US EQUITY	\$ 10,830,883,215	32%	(34.0%)	(11.1%)	38.0%	(30.8%)	(9.7%)	36.4%	(55.7%)	(17.6%)	37.3%	N/A	21.5%	(15.6%)	(5.0%)	36.4%
INTERNATIONAL EQUITY	\$ 6,993,175,419	21%	(37.5%)	(6.9%)	23.5%	(35.4%)	(7.0%)	26.4%	(57.8%)	(11.6%)	24.7%	N/A	24.0%	(17.1%)	(3.5%)	25.5%
REAL ESTATE	\$ 1,785,062,021	5%	(45.0%)	(2.4%)	8.4%	(40.2%)	(2.0%)	7.6%	(71.6%)	(3.6%)	7.6%	N/A	26.2%	(19.9%)	(1.0%)	7.5%
FARMLAND & TIMBER	\$ 116,218,612	0%	(33.3%)	(0.1%)	0.4%	(29.2%)	(0.1%)	0.4%	(53.7%)	(0.2%)	0.4%	N/A	19.5%	(15.4%)	(0.1%)	0.4%
PRIVATE EQUITY	\$ 2,183,121,273	6%	(44.1%)	(2.8%)	9.7%	(38.6%)	(2.4%)	8.9%	(67.5%)	(4.3%)	9.1%	N/A	25.3%	(19.3%)	(1.2%)	9.0%
PRIVATE DEBT	\$ 1,241,879,438	4%	(26.0%)	(0.8%)	2.9%	(22.8%)	(0.8%)	3.0%	(43.5%)	(1.5%)	3.2%	N/A	15.3%	(12.1%)	(0.4%)	3.1%
OPPORTUNISTIC EQUITY	\$ 338,837,763	1%	(41.2%)	(0.4%)	1.4%	(35.6%)	(0.3%)	1.3%	(63.4%)	(0.6%)	1.3%	N/A	23.4%	(18.1%)	(0.2%)	1.3%
OPPORTUNISTIC DEBT	\$ 1,052,998,542	3%	(21.3%)	(0.6%)	2.1%	(20.1%)	(0.6%)	2.2%	(39.4%)	(1.2%)	2.5%	N/A	13.9%	(11.2%)	(0.3%)	2.4%
GLOBAL INFLATION LINKED	\$ 769,188,044	2%	(27.4%)	(0.5%)	1.7%	(27.0%)	(0.4%)	1.6%	(43.5%)	(0.8%)	1.7%	N/A	16.9%	(13.7%)	(0.2%)	1.7%
GTAA	\$ 3,780,098,951	11%	(28.3%)	(3.1%)	10.6%	(25.3%)	(2.8%)	10.5%	(45.1%)	(5.0%)	10.6%	N/A	16.6%	(13.3%)	(1.5%)	10.8%
GRAND TOTAL	\$ 33,765,071,722	100%	(29.2%)	(29.2%)	100.0%	(26.7%)	(26.7%)	100.0%	(47.1%)	(47.1%)	100.0%	N/A	18.1%	(13.7%)	(13.7%)	100.0%
INTERIM POLICY BENCHMARK			(26.5%)			(24.5%)			(42.3%)			N/A	21.4%	(12.4%)		

Strategy	\$ Value	% Value	Beta SP500	Corr SP500	Beta MSCI EAFE	Corr MSCI EAFE	Duration	Convexity	Notional Exposure	Gross Exposure	Gross Leverage
MASTER CASH	\$ 365,370,874	1%	0.00		0.00				\$ 365,370,874	\$ 365,370,874	100.0%
TOTAL FIXED INCOME	\$ 4,308,237,569	13%	0.09	0.36	0.09	0.47	4.91	0.061	\$ 4,073,506,945	\$ 4,906,132,547	113.9%
US EQUITY	\$ 10,830,883,215	32%	1.08	0.99	0.84	0.91	0.12	0.000	\$ 10,949,883,381	\$ 10,830,883,215	100.0%
INTERNATIONAL EQUITY	\$ 6,993,175,419	21%	1.11	0.90	1.03	0.98	(0.07)	(0.000)	\$ 6,993,651,853	\$ 7,021,107,339	100.4%
REAL ESTATE	\$ 1,785,062,021	5%	1.23	0.91	1.03	0.91			\$ 1,785,062,021	\$ 1,785,062,021	100.0%
FARMLAND & TIMBER	\$ 116,218,612	0%	1.00	1.00	0.77	0.91			\$ 116,218,612	\$ 116,218,612	100.0%
PRIVATE EQUITY	\$ 2,183,121,273	6%	1.24	0.96	0.95	0.86			\$ 2,183,121,273	\$ 2,183,121,273	100.0%
PRIVATE DEBT	\$ 1,241,879,438	4%	0.73	0.93	0.59	0.88	0.43	0.002	\$ 1,242,977,592	\$ 1,242,088,058	100.0%
OPPORTUNISTIC EQUITY	\$ 338,837,763	1%	1.18	0.98	0.90	0.88			\$ 338,837,763	\$ 338,837,763	100.0%
OPPORTUNISTIC DEBT	\$ 1,052,998,542	3%	0.68	0.95	0.54	0.89			\$ 1,052,998,542	\$ 1,052,998,542	100.0%
GLOBAL INFLATION LINKED	\$ 769,188,044	2%	0.29	0.67	0.26	0.70	0.29	0.001	\$ 1,538,568,416	\$ 769,188,044	100.0%
GTAA	\$ 3,780,098,951	11%	0.43	0.97	0.35	0.95	4.45	(0.436)	\$ 7,362,751,125	\$ 7,342,442,185	194.2%
GRAND TOTAL	\$ 33,765,071,722	100%	0.80	0.98	0.66	0.95	4.19	0.011	\$ 38,002,948,398	\$ 37,953,450,474	112.4%

GLOSSARY	DEFINITION	INTERPRETATION
Historical VaR 95%	A risk metric that is derived from a full revaluation historical simulation of the risk factors impacting a portfolio, <u>making no assumption of the tail distribution</u> , and reporting the largest loss likely to be suffered over a holding period (1Month for ASRS) 5 times out of 100, or 1 month out of 20	Value at Risk is a number, measured in price units or as percentage of portfolio value, which tells you that in a defined large percentage of cases (usually 95% or 99%) your portfolio is likely to not lose more than that amount of money. Or said the other way around, in a defined small percentage of cases (5% or 1%) your loss is expected to be greater than that number.
HVaR Contri 95%	This is the decomposition of the VaR, making it an additive measure, showing positive values where risk is decreased and correlations are negative.	
HVaR Contri % to Total	This is the VaR contribution displayed in percent.	
Parametric VaR 95%	A risk metric that is derived from a full revaluation historical simulation of the risk factors impacting a portfolio, <u>making a Normal distribution assumption of the tail distribution</u> , and reporting the largest loss likely to be suffered over a holding period (1Month for ASRS) 5 times out of 100, or 1 month out of 20.	Value at Risk is a number, measured in price units or as percentage of portfolio value, which tells you that in a defined large percentage of cases (usually 95% or 99%) your portfolio is likely to not lose more than that amount of money. Or said the other way around, in a defined small percentage of cases (5% or 1%) your loss is expected to be greater than that number.
PVaR Contri 95%	This is the decomposition of the VaR, making it an additive measure, showing positive values where risk is decreased and correlations are negative.	
PVaR Contri % to Total	This is the VaR contribution displayed in percent.	
Exp Tail Loss 95%	Also known as Conditional VaR or ETL, it is derived by taking a weighted average between the VaR and losses exceeding the VaR. If VaR is reported at 95.0%, then ETL will average the losses between 95.1% to 99.9%. It is a risk measure that assesses the risk beyond VaR and into the tail end of the distribution of loss.	A measure that produces better incentives for traders than VaR is expected shortfall. This is also sometimes referred to as Conditional VaR, or tail loss. <u>Where VaR asks the question 'how bad can things get?', expected shortfall asks 'if things do get bad, what is our expected loss?'</u>
Exp Tail Loss Contri 95%	This is the decomposition of the ETL making it an additive measure, showing positive values where risk is decreased and correlations are negative.	
Exp Tail Loss Contri % to Total	This is the ETL contribution displayed in percent.	
Max Loss	The maximum projected loss.	
Downside Risk (8.7%)	A risk metric that distinguishes between "good" and "bad" returns by assigning risk only to those returns below a return specified by an investor. Downside risk is considered a more effective risk measure than standard deviation (volatility) for two important reasons: 1) it is investor specific, and 2) it identifies return distributions that have higher probabilities for negative ("left tail") market events. Downside risk is also referred to as downside deviation or target semi-deviation.	A 5 % downside risk with an 8.7% MAR means that the conditional average underperformance (below 8.7% annual) is 5%, adjusted for a positive skew (greater than the MAR). Effectively, downside risk amplifies a big loss (by squaring the distance of that loss to the target) and smoothes out the risk measure by taking into account the gains setting them up to be equal to the target MAR.
Downside Risk Contri (8.7%)	This is the decomposition of the downside risk, making it an additive measure, showing positive values where risk is decreased and correlations are negative.	
Downside Risk Contri (8.7%) to Total	This is the downside risk contribution displayed in percent.	

Securities Lending Risk Metrics

	2 – Year Swap Spread (bps)	S&P/ISDA U.S. Financials Select 10 Index	5-Year Financial OAS (bps)	TED Spread (bps)	CBOE VIX Index (vol)	Windham Systemic Risk	Windham Turbulence
10/31/2014	21	59	112	23	14	Low	Moderate
9/30/2014	25	67	107	22	16	Low	Low
8/31/2014	22	53	99	21	12	Low	Low
7/31/2014	20	59	95	22	17	Low	Low
6/30/2014	13	53	96	21	12	Low	Low
5/31/2014	14	54	99	20	11	Low	Low
4/30/2014	12	56	99	20	13	Low	Low
3/31/2014	13	61	103	20	14	Low	Low
2/28/2014	13	60	104	19	14	Low	Low
1/31/2014	13	71	111	22	18	Low	Low
12/31/2013	11	60	109	18	14	Low	Low
11/30/2013	9	68	118	18	14	Low	Low
10/31/2013	12	79	125	21	14	Low	Moderate
9/30/2013	14	90	139	24	17	Low	Moderate
8/31/2013	16	89	142	24	17	Low	High
7/31/2013	17	91	142	23	13	Low	High
6/30/2013	16	106	158	24	17	Low	High
5/31/2013	16	84	134	25	16	Low	Moderate
4/30/2013	14	91	137	23	14	Low	Moderate
3/31/2013	18	101	142	21	13	Low	Low
2/28/2013	15	99	141	18	16	Low	Low
1/31/2013	17	101	146	23	14	Low	Low
12/31/2012	14	116	155	27	18	Low	Low
11/30/2012	12	126	163	23	16	Low	Moderate
10/31/2012	10	130	158	21	19	Low	Moderate
9/30/2012	13	142	179	27	16	Low	Moderate
8/31/2012	18	164	206	35	17	Low	High
7/31/2012	20	179	223	35	19	Low	High
6/30/2012	25	191	253	38	17	Low	Moderate
5/31/2012	35	221	272	40	24	Low	Moderate
4/30/2012	29	179	239	37	17	Low	Moderate
3/31/2012	25	158	227	40	16	Low	Moderate
2/29/2012	26	171	245	41	18	Low	Moderate
1/31/2012	30	186	278	49	19	High	Moderate
12/31/2011	48	248	337	57	23	High	Moderate
11/30/2011	42	263	349	53	28	High	Moderate
10/31/2011	33	219	281	44	30	High	Moderate
9/30/2011	33	268	332	35	43	High	Moderate

LEGEND

RISK FACTORS		Green	Yellow	Red
1	2 – Year Swap Spread	< 40 bps	40 - 60 bps	> 60 bps
2	S&P/ISDA US Financial Select 10	< 100 bps	100 - 200 bps	> 200 bps
3	5-Year Financial OAS	< 125 bps	125 - 200 bps	> 200 bps
4	TED Spread	< 50 bps	50 - 100 bps	> 100 bps
5	CBOE VIX Index	< 25 Vol	25 - 35 Vol	> 35 Vol
6	Windham Systemic Risk	Low	n/a	High
7	Windham Turbulence	Low	Moderate	High

2 – Year Swap Spread	The spread paid by the fixed-rate payer of an interest rate swap over the rate of the 2-year Treasury. The reported 2-year swap spread from Bloomberg is a composite price - calculated average of best bid/ask pricing.
S&P/ISDA US Financial Select 10	The S&P/ISDA US Financial Select 10 tracks major domestic financial 5-year CDS rates. The Index uses an average weighting methodology of the current liquid, "on the run" active contract.
5-Year Financial OAS	The Barclay's U.S. Aggregate Financial Average Option Adjusted Spread; the option adjusted investment grade financial corporate bond spread over 5-year Treasury bonds.
TED Spread	The TED Spread is calculated as the difference between three-month LIBOR expressed in USD and the corresponding yield on 3 month Treasury Bills, expressed in basis points.
CBOE VIX Index	The Chicago Board Options Exchange VIX Index measures the weighted average implied volatility of the S&P 500 using call and put prices over the front two months with a wide range of strike prices.
Windham Systemic Risk	Windham Capital's proprietary measure of the extent to which markets are unified or tightly coupled, called the absorption ratio. When markets are tightly coupled, they are more fragile and negative shocks propagate more quickly and broadly than when markets are loosely linked. Windham reports Systemic Risk as High or Low; there is no Moderate designation for
Windham Turbulence	Windham Capital's proprietary measure of the statistical unusualness of a set of returns given their historical pattern of behavior; including extreme price moves, decoupling of correlated assets and convergence of uncorrelated assets. Windham reports Turbulence as High, Moderate, or Low.



NEPC, LLC

To: Mr. Tom Manos, Chair, Arizona State Retirement System (ASRS) Board

From: Mr. Allan Martin, Partner, Consultant, NEPC
Mr. Dan LeBeau, Consultant, NEPC

Date: November 24, 2014

Subject: **Agenda Item #9:** Presentation, Discussion and Appropriate Action Regarding Independent Reporting, Monitoring and Oversight of the ASRS Investment Program – Includes Total Fund Q3-14

Purpose

To present and discuss information regarding the independent reporting, monitoring and oversight of the ASRS Investment Program.

Recommendation

Informational only; no action required.

Background

NEPC is responsible for providing an independent reporting, monitoring and oversight function from the Investment Program information which is presented by the CIO and IMD.

As a result, NEPC has developed reports for both the Investment Committee and Board designed to 1) provide the appropriate level of investment information for the purposes of independent oversight (ASRS SAAP compliance, Asset Class Committee minutes review, investment selection due diligence packet compliance, etc.); 2) provide ASRS investment program performance relative to its goals/objectives (presented quarterly); and 3) communicate NEPC's perspectives on the market environment, investment outlook or other initiatives or topics they believe are important to convey to the Board.

As of September 30, 2014 the Total Fund's market value was approximately \$34.1 billion.

For the one-year period ending September 30, 2014, the Total Fund returned 10.8% (net of fees), outperforming the Interim SAA Policy by 1.2%. For the three-year period, the Total Fund produced a return of 14.2% per annum, outperforming the Interim SAA Policy by 0.5%. Over the past ten years, the Total Fund has returned 7.4% per annum, and since inception, the portfolio's performance is 9.9%.

NEPC will provide a review of Total Fund performance and an independent assessment of the ASRS investment program.

Attachments:

- NEPC's Independent Reporting, Monitoring and Oversight reports

Arizona State Retirement System

Independent ASRS Investment Program Oversight for the Period Ending September 30, 2014

December 5, 2014

Allan Martin, Partner, NEPC
Dan LeBeau, Consultant, NEPC



- ASRS Investment Objectives/Performance
- Independent Oversight/Compliance
 - SAA Policy Compliance
 - Total Fund and Asset Class Analysis
 - Asset Class Committee Monitoring
- Market Environment Update and Outlook
- Appendix: SAA Policy History

ASRS Investment Objectives/Performance

Note: All of the data shown on the following pages is as of September 30, 2014 and reflects the deduction of investment manager fees, unless otherwise noted.



Macro

- Objective #1: Achieve a twenty-year rolling annual total fund net rate of return equal to or greater than the actuarial assumed interest rate.
- Objective #2: Achieve one- and three-year rolling annual total fund net rates of return equal to or greater than the return of the ASRS Strategic Asset Allocation Policy (SAAP) Benchmark.
- Objective #3: Achieve one- and three-year rolling annual net rates of return for ASRS strategic asset classes that are equal to or greater than their respective strategic asset class benchmarks.
- Objective #4: Ensure sufficient monies are available to meet pension benefits, health insurance, member refunds, administrative payments, and other cash flow requirements.

Micro

Source: ASRS Strategic Plan, March 2013

- Objective #1: Achieve a twenty-year rolling annual total fund net rate of return equal to or greater than the actuarial assumed interest rate.

	<u>20 Year Annualized Return</u>
Total Fund	8.7%
Constant 8%	<u>8.0%</u>
Excess Return	0.7%

Goal Met: Yes

- Objective #2: Achieve one- and three-year rolling annual total fund net rates of return equal to or greater than the return of the ASRS Strategic Asset Allocation Policy (SAAP) Benchmark.

	Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception (6/30/75)
Total Fund	-1.3%	10.8%	14.2%	11.1%	7.4%	9.9%
Interim SAA Policy¹	-1.9%	9.6%	13.7%	10.5%	7.0%	9.7%
Excess Return	0.6%	1.2%	0.5%	0.6%	0.4%	0.2%

1 Year Goal Met: Yes
3 Year Goal Met: Yes

¹Composition of SAA Policy can be found in the appendix.

Arizona State Retirement System
Total Fund Attribution Analysis

Total Plan	1 Year	3 Years	5 Years
Allocation Effect ¹	0.69%	0.64%	0.34%
Manager Selection Effect ²	0.08%	0.09%	0.07%
Interaction Effect ³	0.45%	-0.14%	0.34%
Residual ⁴	-0.04%	-0.07%	-0.11%
Excess Return	1.18%	0.52%	0.64%

The Brinson-Fachler Attribution model explains excess return by identifying the size of contributors or detractors from excess return based on the three effects defined below:

1. Allocation Effect: Measures the impact of the decision to over/under weight assets classes relative to Interim SAAP weights. (Return Asset Class Index – Total Interim Policy Index Return) × (Weight Asset Class Portfolio – Weight Asset Class Interim Policy Index)

2. Manager Selection Effect: Measures the impact of over/under performance of asset classes in the portfolio relative to the asset class benchmarks in the Interim SAAP benchmark. [Weight Asset Class Benchmark × (Return Portfolio Asset Class – Return Asset Class in Interim Policy Index)]

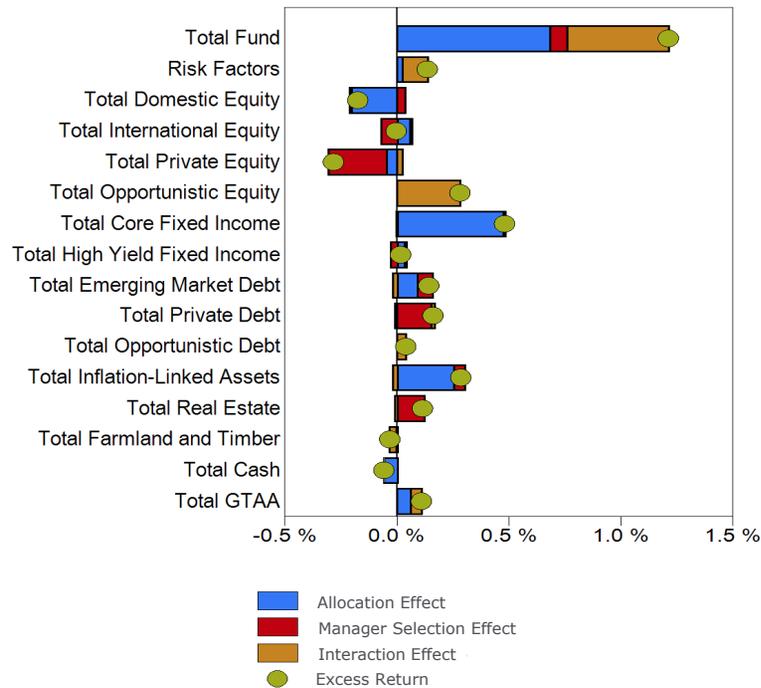
3. Interaction Effect: Measures the impact of over/under weighting decisions and over/under performance. (Return Asset Class Portfolio (Weight Asset Class Portfolio – Weight Asset Class Policy Index)) – (Return Asset Class Index (Weight Asset Class Portfolio – Weight Asset Class Index))

4. Residual: Contribution to excess return not captured in Allocation Effect, Manager Selection Effect and Interaction Effect.

Arizona State Retirement System

Total Fund Attribution Detail

Attribution Effects 1 Year Ending September 30, 2014



1 Year Excess Return: +1.18%

- Allocation Effect: +0.69%
 - Public Markets Fixed Income tactical underweight (+0.61%)
 - Commodities tactical underweight (+0.25%)
 - Domestic Equity tactical underweight (-0.20%)
- Manager Selection Effect: +0.08%
 - Private Debt outperformed due to various managers (+0.16%)
 - Real Estate outperformed due to various managers (+0.12%)
 - Private Equity underperformed due to various managers (-0.26%)
- Interaction Effect: +0.45%
 - Opportunistic Equity outperformed due to various managers (+0.28%)
 - Equity Risk Factor Portfolio outperformed due to various exposures (+0.11%)
- Residual: -0.04%

The Brinson-Fachler Attribution model explains excess return by identifying the size of contributors or detractors from excess return based on the three effects defined below:

Allocation Effect: Measures the impact of the decision to over/under weight assets classes relative to Interim SAAP benchmark weights. $(\text{Return Asset Class Index} - \text{Total Interim Policy Index Return}) \times (\text{Weight Asset Class Portfolio} - \text{Weight Asset Class Interim Policy Index})$

Manager Selection Effect: Measures the impact of over/under performance of asset classes in the portfolio relative to the asset class benchmarks in the Interim SAAP benchmark. $[\text{Weight Asset Class Benchmark} \times (\text{Return Portfolio Asset Class} - \text{Return Asset Class in Interim Policy Index})]$

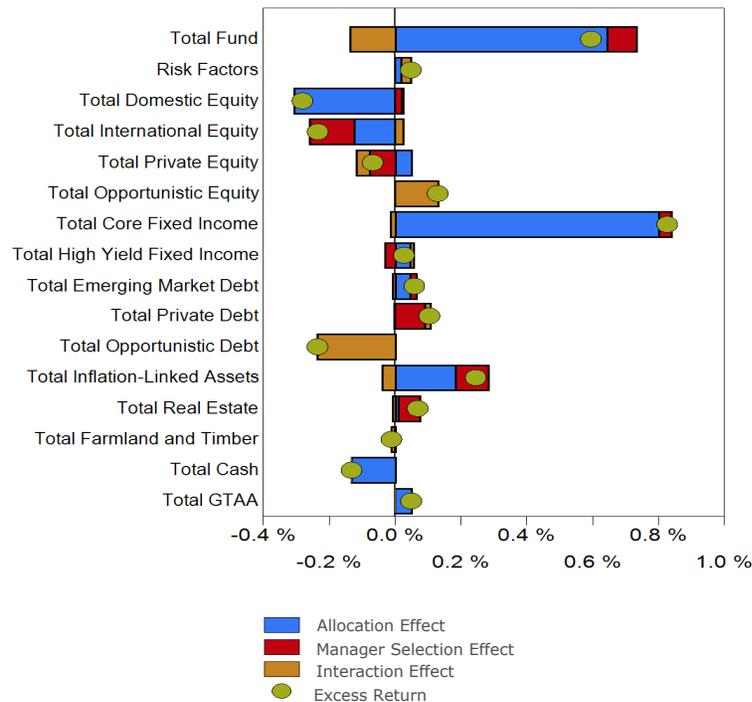
Interaction Effect: Measures the impact of over/under weighting decisions and over/under performance. $(\text{Return Asset Class Portfolio} (\text{Weight Asset Class Portfolio} - \text{Weight Asset Class Policy Index})) - (\text{Return Asset Class Index} (\text{Weight Asset Class Portfolio} - \text{Weight Asset Class Index}))$

Residual: Contribution to excess return not captured in Allocation Effect, Manager Selection Effect and Interaction Effect.

Arizona State Retirement System

Total Fund Attribution Detail

Attribution Effects 3 Years Ending September 30, 2014



3 Year Excess Return: +0.52%

- Allocation Effect: +0.64%
 - Public Markets Fixed Income tactical underweight (+0.90%)
 - Commodities tactical underweight (+0.18%)
 - Domestic Equity tactical underweight (-0.31%)
- Manager Selection Effect: +0.09%
 - Commodities outperformed due to Gresham (+0.10%)
 - Private Debt outperformed due to various managers (+0.09%)
 - International Equity underperformed due to various managers (-0.13%)
- Interaction Effect: -0.14%
 - Opportunistic Equity outperformed due to various managers (+0.13%)
 - Opportunistic Debt underperformed due to various managers (-0.24%)
- Residual: -0.07%

The Brinson-Fachler Attribution model explains excess return by identifying the size of contributors or detractors from excess return based on the three effects defined below:

Allocation Effect: Measures the impact of the decision to over/under weight assets classes relative to Interim SAAP benchmark weights. $(\text{Return Asset Class Index} - \text{Total Interim Policy Index Return}) \times (\text{Weight Asset Class Portfolio} - \text{Weight Asset Class Interim Policy Index})$

Manager Selection Effect: Measures the impact of over/under performance of asset classes in the portfolio relative to the asset class benchmarks in the Interim SAAP benchmark. $[\text{Weight Asset Class Benchmark} \times (\text{Return Portfolio Asset Class} - \text{Return Asset Class in Interim Policy Index})]$

Interaction Effect: Measures the impact of over/under weighting decisions and over/under performance. $(\text{Return Asset Class Portfolio} (\text{Weight Asset Class Portfolio} - \text{Weight Asset Class Policy Index})) - (\text{Return Asset Class Index} (\text{Weight Asset Class Portfolio} - \text{Weight Asset Class Index}))$

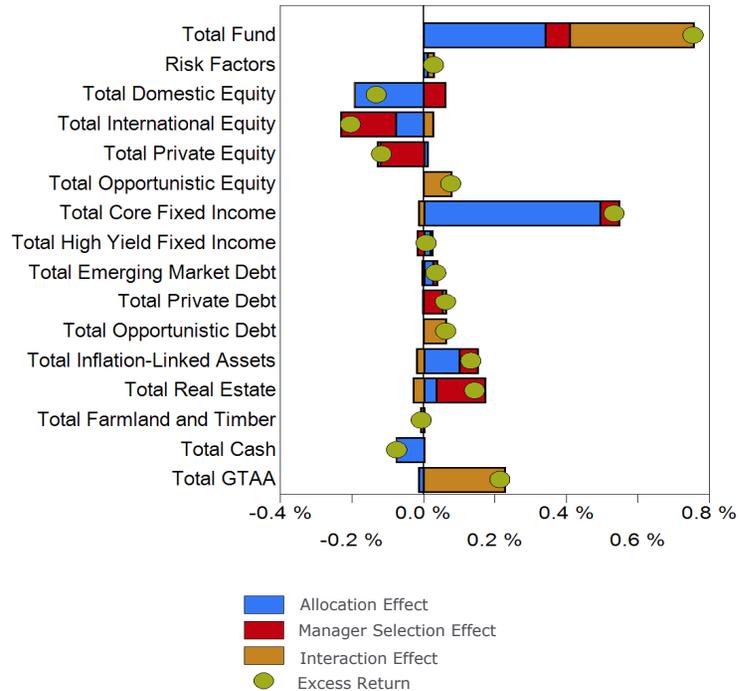
Residual: Contribution to excess return not captured in Allocation Effect, Manager Selection Effect and Interaction Effect.



Arizona State Retirement System

Total Fund Attribution Detail

Attribution Effects
5 Years Ending September 30, 2014



5 Year Excess Return: +0.64%

- Allocation Effect: +0.34%
 - Public Markets Fixed Income tactical underweight (+0.55%)
 - Domestic Equity tactical underweight (-0.19%)
- Manager Selection Effect: +0.07%
 - Real Estate outperformed due to various managers (+0.13%)
 - Domestic Equity outperformed due to various managers (+0.06%)
 - International Equity underperformed due to various managers (-0.15%)
- Interaction Effect: +0.34%
 - GTAA outperformed due to Bridgewater (+0.23%)
 - Opportunistic Equity outperformed due to various managers (+0.08%)
- Residual: -0.11%

The Brinson-Fachler Attribution model explains excess return by identifying the size of contributors or detractors from excess return based on the three effects defined below:

Allocation Effect: Measures the impact of the decision to over/under weight assets classes relative to Interim SAAP benchmark weights. $(\text{Return Asset Class Index} - \text{Total Interim Policy Index Return}) \times (\text{Weight Asset Class Portfolio} - \text{Weight Asset Class Interim Policy Index})$

Manager Selection Effect: Measures the impact of over/under performance of asset classes in the portfolio relative to the asset class benchmarks in the Interim SAAP benchmark. $[\text{Weight Asset Class Benchmark} \times (\text{Return Portfolio Asset Class} - \text{Return Asset Class in Interim Policy Index})]$

Interaction Effect: Measures the impact of over/under weighting decisions and over/under performance. $(\text{Return Asset Class Portfolio} (\text{Weight Asset Class Portfolio} - \text{Weight Asset Class Policy Index})) - (\text{Return Asset Class Index} (\text{Weight Asset Class Portfolio} - \text{Weight Asset Class Index}))$

Residual: Contribution to excess return not captured in Allocation Effect, Manager Selection Effect and Interaction Effect.



Asset Class Performance vs. Benchmark – Public Markets

- Objective #3: Achieve one- and three-year rolling annual net rates of return for ASRS strategic asset classes that are equal to or greater than their respective strategic asset class benchmarks.

	1 Year Return	3 Year Return
ASRS Total Domestic and Int'l Equity ¹	11.6%	19.0%
ASRS Custom Total Equity Benchmark	11.3%	19.1%
Excess Return	0.3%	-0.1%
ASRS Domestic Equity	16.7%	23.0%
ASRS Custom Domestic Equity Benchmark	16.4%	22.9%
Excess Return	0.3%	0.1%
ASRS International Equity	3.9%	11.9%
ASRS Custom Int'l Equity Benchmark	4.2%	12.4%
Excess Return	-0.3%	-0.5%
ASRS Public Markets Fixed Income	3.9%	3.0%
ASRS Custom Fixed Income Benchmark	3.7%	2.8%
Excess Return	0.2%	0.2%
ASRS Inflation-Linked	-5.5%	-3.2%
ASRS Custom Inflation-Linked Benchmark	-6.6%	-5.3%
Excess Return	1.1%	2.1%
ASRS GTAA	10.6%	14.1%
ASRS Custom GTAA Benchmark	10.2%	14.1%
Excess Return	0.4%	0.0%

¹Performance of ASRS Total Domestic and Int'l Equity includes the performance of the ASRS Domestic Equity and ASRS International Equity asset classes and the Equity Risk Factor Portfolio with an inception date of 6/1/2013.

Note: Composition of ASRS Custom Asset Class Benchmarks can be found in the appendix.

**Goal Met:
Partially**

Asset Class Performance vs. Benchmark – Private Markets¹

- Objective #3: Achieve one- and three-year rolling annual net rates of return for ASRS strategic asset classes that are equal to or greater than their respective strategic asset class benchmarks.

	1 Year Return	3 Year Return	IRR Since Inception	Inception Date
ASRS Private Equity	19.5%	15.0%	13.4%	Oct-07
Russell 2000	23.6%	14.6%	15.7%	
Excess Return	-4.1%	0.4%	-2.3%	
ASRS Opportunistic Equity ²	47.4%	28.9%	39.1%	Apr-11
ASRS Private Debt	14.6%	--	15.6%	Jul-12
S&P/LSTA Levered Loan Index + 250 bps	8.1%	--	8.2%	
Excess Return	6.5%	--	7.4%	
ASRS Opportunistic Debt ²	11.6%	9.4%	12.3%	Jan-08
ASRS Real Estate	13.8%	12.4%	6.1%	Oct-05
NFI - ODCE Index	11.7%	11.4%	5.5%	
Excess Return	2.1%	1.0%	0.6%	
ASRS Farmland and Timber	-46.3%	--	1.5%	Jul-13
CPI ex-Food and Energy + 350 bps	5.5%	--	4.2%	
Excess Return	-51.8%	--	-2.7%	

¹Performance of private markets portfolios and corresponding benchmarks is reported on a one quarter lag. Performance shown as of June 30, 2014.

²Net absolute rate of return expectations range from 10-14% per annum.

Note: Time-weighted performance of private markets portfolios shown for the one- and three-year periods to reconcile Total Fund performance as it is reported on a time-weighted basis. Due to the drawdown nature of private markets portfolios in which the investment managers call capital over time, dollar-weighted performance, or internal rate of return (IRR) is a more appropriate measure of the performance of ASRS private markets portfolios.

**Goal Met:
Partially**

- Objective #4: Ensure sufficient monies are available to meet pension benefits, health insurance, member refunds, administrative payments, and other cash flow requirements.

Month	Cash In	Cash Out	Balance as of 1st Business Day
Oct-13	\$404,897,845	(\$190,046,089)	\$200,202,122
Nov-13	\$213,012,636	(\$190,661,495)	\$126,730,318
Dec-13	\$560,544,992	(\$190,590,864)	\$317,630,570
Jan-14	\$386,764,591	(\$190,949,369)	\$352,809,530
Feb-14	\$210,787,413	(\$191,680,149)	\$189,010,112
Mar-14	\$679,587,225	(\$192,454,469)	\$486,243,101
Apr-14	\$455,478,123	(\$192,789,720)	\$246,095,874
May-14	\$328,489,975	(\$193,063,809)	\$162,815,927
Jun-14	\$143,781,061	(\$193,481,152)	\$90,885,762
Jul-14	\$249,555,269	(\$196,223,085)	\$101,745,713
Aug-14	\$196,994,381	(\$198,736,874)	\$141,827,348
Sep-14	\$365,370,874	(\$199,232,408)	\$165,530,449

All Pension Obligations, Capital Calls and Other Requirements Met with Available Cash

Goal Met: Yes

Note:

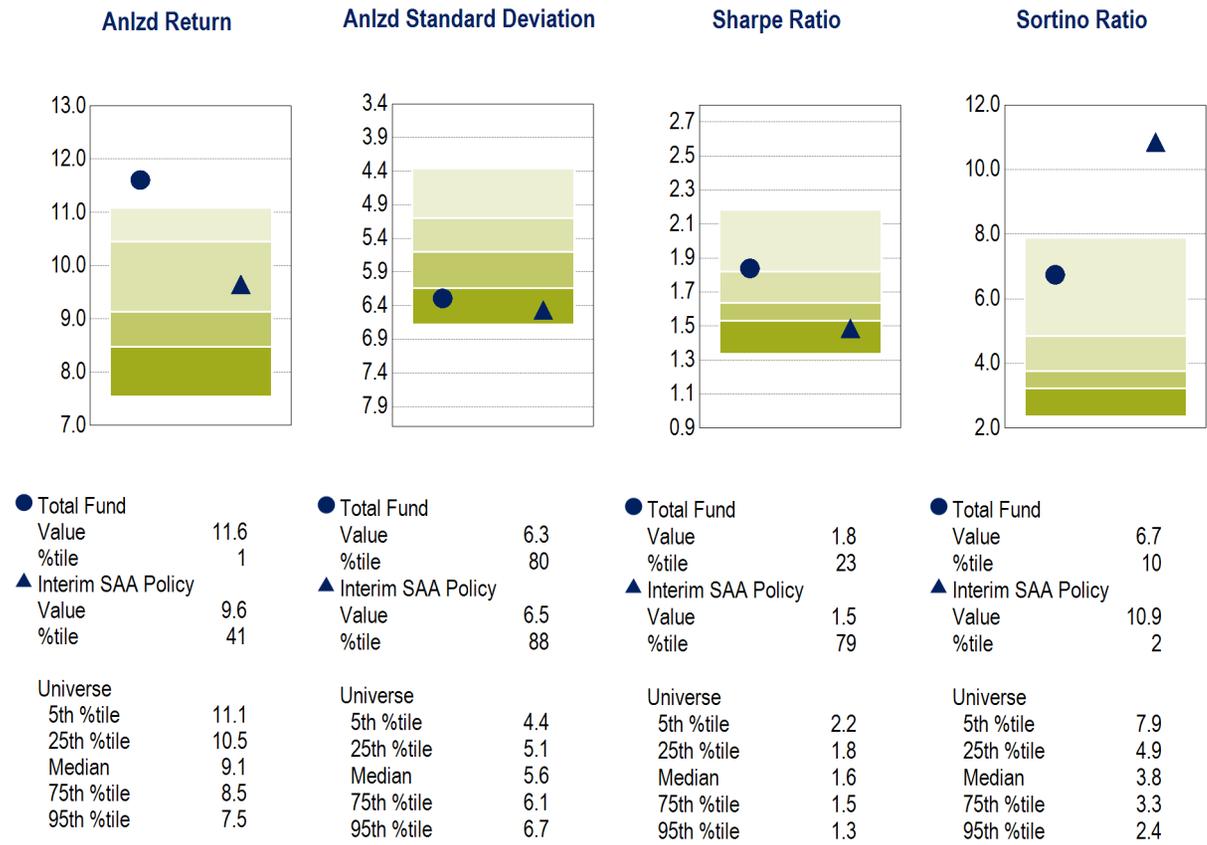
Cash In - The balance as of the business day prior to the monthly pension run payment, comprised of month-to-date contributions and excess cash held to fund manager(s) or as a tactical allocation.

Cash Out - The monthly pension run payment.



Total Fund Risk Statistics vs. Peer Universe

Total Fund vs. IFx Public DB > \$1B Gross(USD)(peer)
1 Year



Note: The information contained herein is for comparison purposes only and is not a Total Fund benchmark. Peer universe comparisons are subject to several limitations, including: peer groups are not comprehensive; several funds are included in multiple peer groups; peer groups are constructed using gross of fee returns; and survivorship bias in that poorly performing funds may no longer report results.

Universes are constructed using gross of fee returns; therefore, ASRS rank is based on gross of fee returns.

Rankings are from highest (1) to lowest (100) in the InvestorForce Public Funds > \$1 Billion Universe.

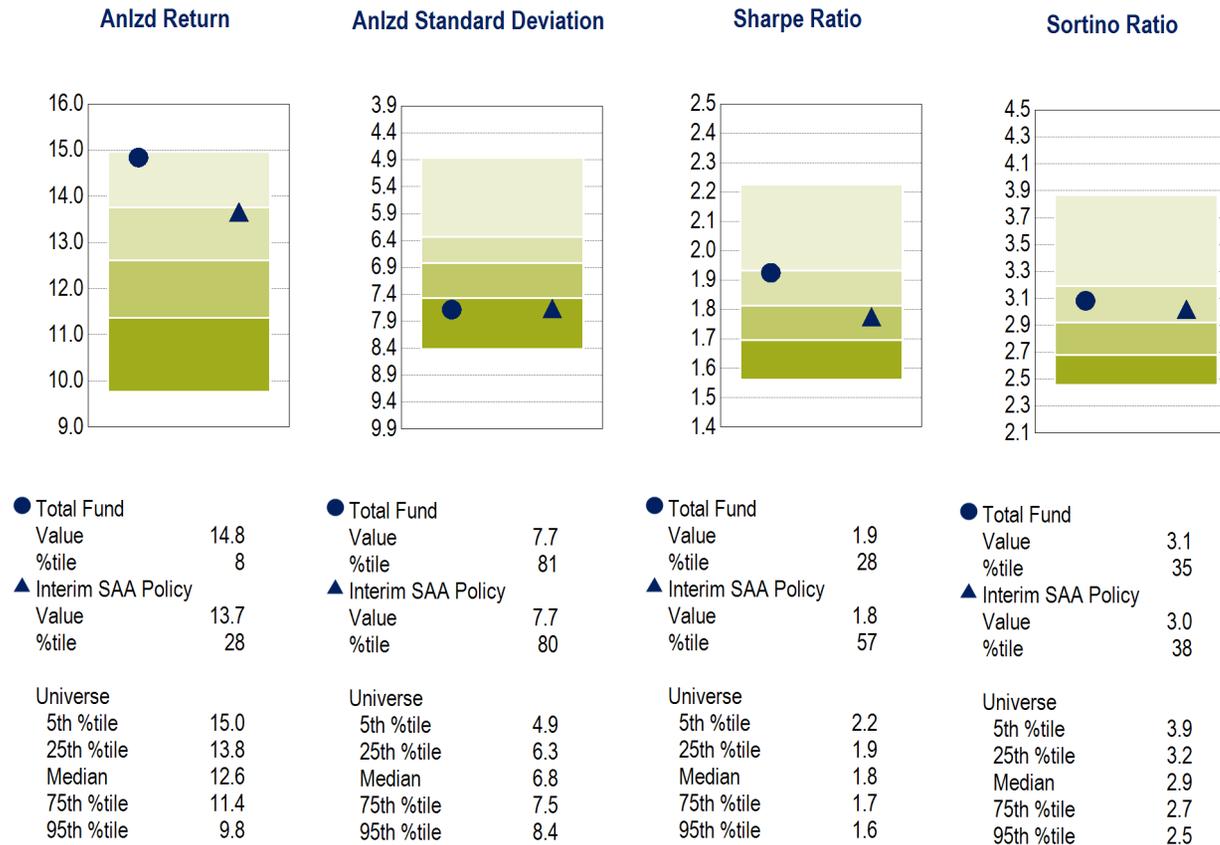
The InvestorForce Public Funds > \$1 Billion Universe contains 57 observations for the period ending September 30, 2014, with total assets of \$530.4 billion.

Composition of Interim SAA Policy can be found in the appendix.

Total Fund Risk Statistics vs. Peer Universe

Total Fund vs. IFx Public DB > \$1B Gross(USD)(peer)

3 Year



Note: The information contained herein is for comparison purposes only and is not a Total Fund benchmark. Peer universe comparisons are subject to several limitations, including: peer groups are not comprehensive; several funds are included in multiple peer groups; peer groups are constructed using gross of fee returns; and survivorship bias in that poorly performing funds may no longer report results.

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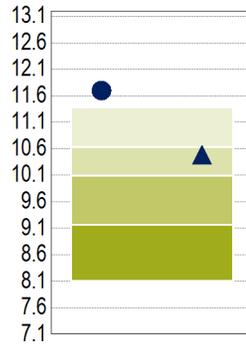
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Total Fund Risk Statistics vs. Peer Universe

Total Fund vs. IFx Public DB > \$1B Gross(USD)(peer)

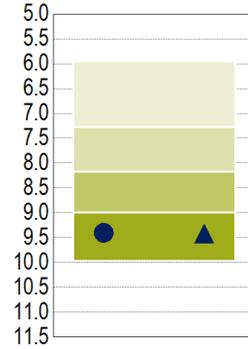
5 Year

Anlzd Return



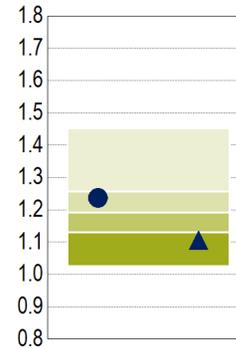
● Total Fund	
Value	11.7
%tile	2
▲ Interim SAA Policy	
Value	10.5
%tile	31
Universe	
5th %tile	11.4
25th %tile	10.6
Median	10.1
75th %tile	9.2
95th %tile	8.1

Anlzd Standard Deviation



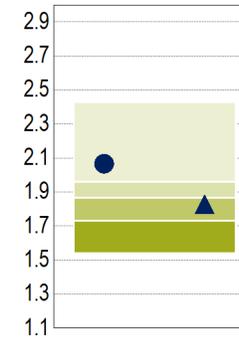
● Total Fund	
Value	9.4
%tile	86
▲ Interim SAA Policy	
Value	9.4
%tile	87
Universe	
5th %tile	6.0
25th %tile	7.3
Median	8.2
75th %tile	9.0
95th %tile	10.0

Sharpe Ratio



● Total Fund	
Value	1.2
%tile	32
▲ Interim SAA Policy	
Value	1.1
%tile	84
Universe	
5th %tile	1.5
25th %tile	1.3
Median	1.2
75th %tile	1.1
95th %tile	1.0

Sortino Ratio



● Total Fund	
Value	2.1
%tile	18
▲ Interim SAA Policy	
Value	1.8
%tile	58
Universe	
5th %tile	2.4
25th %tile	2.0
Median	1.9
75th %tile	1.7
95th %tile	1.5

Note: The information contained herein is for comparison purposes only and is not a Total Fund benchmark. Peer universe comparisons are subject to several limitations, including: peer groups are not comprehensive; several funds are included in multiple peer groups; peer groups are constructed using gross of fee returns; and survivorship bias in that poorly performing funds may no longer report results.

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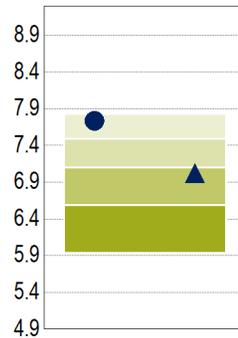
Composition of Interim SAA Policy can be found in the appendix.

Total Fund Risk Statistics vs. Peer Universe

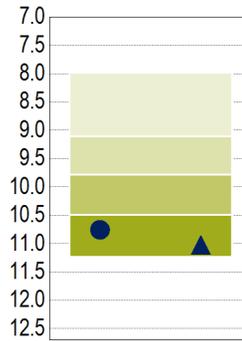
Total Fund vs. IFx Public DB > \$1B Gross(USD)(peer)

10 Year

Anlzd Return



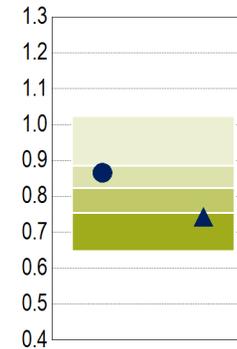
Anlzd Standard Deviation



Sharpe Ratio



Sortino Ratio



● Total Fund

Value 7.7
%tile 10

▲ Interim SAA Policy

Value 7.0
%tile 57

Universe

5th %tile 7.8
25th %tile 7.5
Median 7.1
75th %tile 6.6
95th %tile 5.9

● Total Fund

Value 10.8
%tile 85

▲ Interim SAA Policy

Value 11.0
%tile 89

Universe

5th %tile 8.0
25th %tile 9.1
Median 9.8
75th %tile 10.5
95th %tile 11.2

● Total Fund

Value 0.6
%tile 46

▲ Interim SAA Policy

Value 0.5
%tile 83

Universe

5th %tile 0.7
25th %tile 0.6
Median 0.6
75th %tile 0.5
95th %tile 0.4

● Total Fund

Value 0.9
%tile 35

▲ Interim SAA Policy

Value 0.7
%tile 77

Universe

5th %tile 1.0
25th %tile 0.9
Median 0.8
75th %tile 0.8
95th %tile 0.6

Note: The information contained herein is for comparison purposes only and is not a Total Fund benchmark. Peer universe comparisons are subject to several limitations, including: peer groups are not comprehensive; several funds are included in multiple peer groups; peer groups are constructed using gross of fee returns; and survivorship bias in that poorly performing funds may no longer report results.

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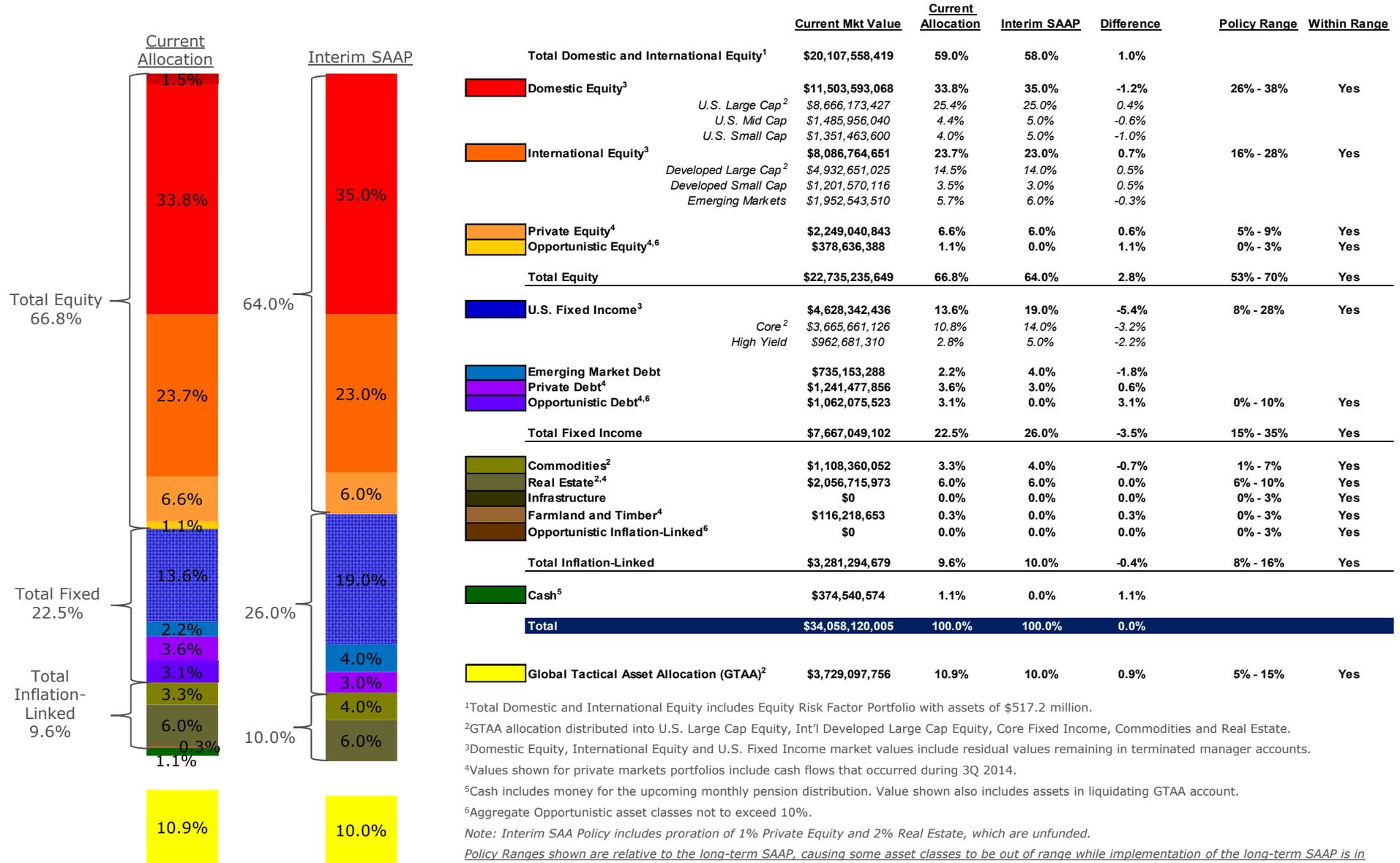
Independent Oversight/Compliance

Note: All of the data shown on the following pages is as of September 30, 2014 and reflects the deduction of investment manager fees, unless otherwise noted.



Arizona State Retirement System

SAA Policy Compliance



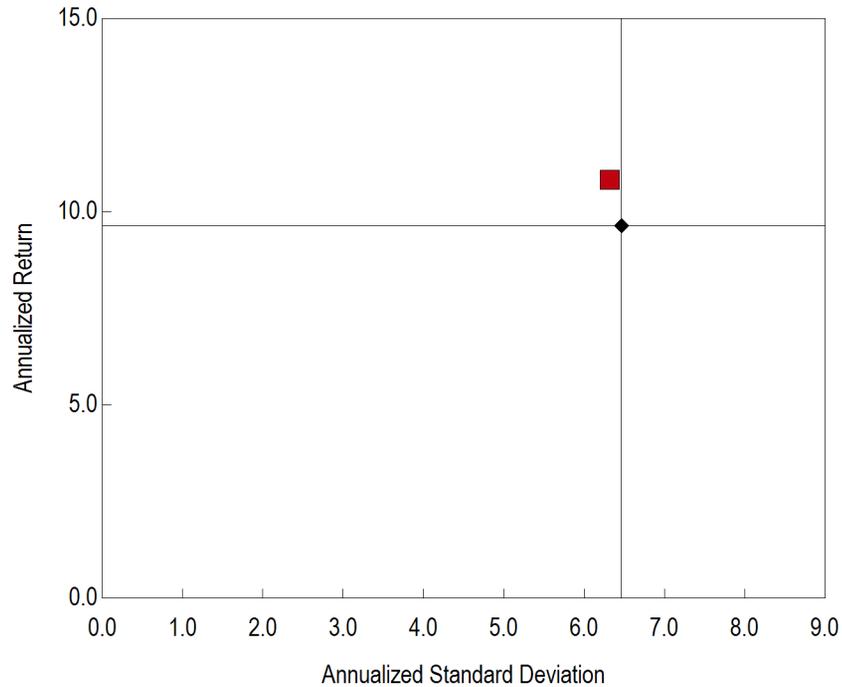
	Current Mkt Value	Current Allocation	Interim SAAP	Difference	Policy Range	Within Range
Total Domestic and International Equity¹	\$20,107,558,419	59.0%	58.0%	1.0%		
Domestic Equity³	\$11,503,593,068	33.8%	35.0%	-1.2%	26% - 38%	Yes
U.S. Large Cap ²	\$8,666,173,427	25.4%	25.0%	0.4%		
U.S. Mid Cap	\$1,485,956,040	4.4%	5.0%	-0.6%		
U.S. Small Cap	\$1,351,463,600	4.0%	5.0%	-1.0%		
International Equity³	\$8,086,764,651	23.7%	23.0%	0.7%	16% - 28%	Yes
Developed Large Cap ²	\$4,932,651,025	14.5%	14.0%	0.5%		
Developed Small Cap	\$1,201,570,116	3.5%	3.0%	0.5%		
Emerging Markets	\$1,952,543,510	5.7%	6.0%	-0.3%		
Private Equity⁴	\$2,249,040,843	6.6%	6.0%	0.6%	5% - 9%	Yes
Opportunistic Equity^{4,6}	\$378,636,388	1.1%	0.0%	1.1%	0% - 3%	Yes
Total Equity	\$22,735,235,649	66.8%	64.0%	2.8%	53% - 70%	Yes
U.S. Fixed Income³	\$4,628,342,436	13.6%	19.0%	-5.4%	8% - 28%	Yes
Core ²	\$3,665,661,126	10.8%	14.0%	-3.2%		
High Yield	\$962,681,310	2.8%	5.0%	-2.2%		
Emerging Market Debt	\$735,153,288	2.2%	4.0%	-1.8%		
Private Debt⁴	\$1,241,477,856	3.6%	3.0%	0.6%		
Opportunistic Debt^{4,6}	\$1,062,075,523	3.1%	0.0%	3.1%	0% - 10%	Yes
Total Fixed Income	\$7,667,049,102	22.5%	26.0%	-3.5%	15% - 35%	Yes
Commodities²	\$1,108,360,052	3.3%	4.0%	-0.7%	1% - 7%	Yes
Real Estate^{2,4}	\$2,056,715,973	6.0%	6.0%	0.0%	6% - 10%	Yes
Infrastructure	\$0	0.0%	0.0%	0.0%	0% - 3%	Yes
Farmland and Timber⁴	\$116,218,653	0.3%	0.0%	0.3%	0% - 3%	Yes
Opportunistic Inflation-Linked⁶	\$0	0.0%	0.0%	0.0%	0% - 3%	Yes
Total Inflation-Linked	\$3,281,294,679	9.6%	10.0%	-0.4%	8% - 16%	Yes
Cash⁵	\$374,540,574	1.1%	0.0%	1.1%		
Total	\$34,058,120,005	100.0%	100.0%	0.0%		
Global Tactical Asset Allocation (GTAA)²	\$3,729,097,756	10.9%	10.0%	0.9%	5% - 15%	Yes

¹Total Domestic and International Equity includes Equity Risk Factor Portfolio with assets of \$517.2 million.
²GTAA allocation distributed into U.S. Large Cap Equity, Int'l Developed Large Cap Equity, Core Fixed Income, Commodities and Real Estate.
³Domestic Equity, International Equity and U.S. Fixed Income market values include residual values remaining in terminated manager accounts.
⁴Values shown for private markets portfolios include cash flows that occurred during 3Q 2014.
⁵Cash includes money for the upcoming monthly pension distribution. Value shown also includes assets in liquidating GTAA account.
⁶Aggregate Opportunistic asset classes not to exceed 10%.

Note: Interim SAA Policy includes proration of 1% Private Equity and 2% Real Estate, which are unfunded.
 Policy Ranges shown are relative to the long-term SAAP, causing some asset classes to be out of range while implementation of the long-term SAAP is in process.
 Market values include manager held cash.

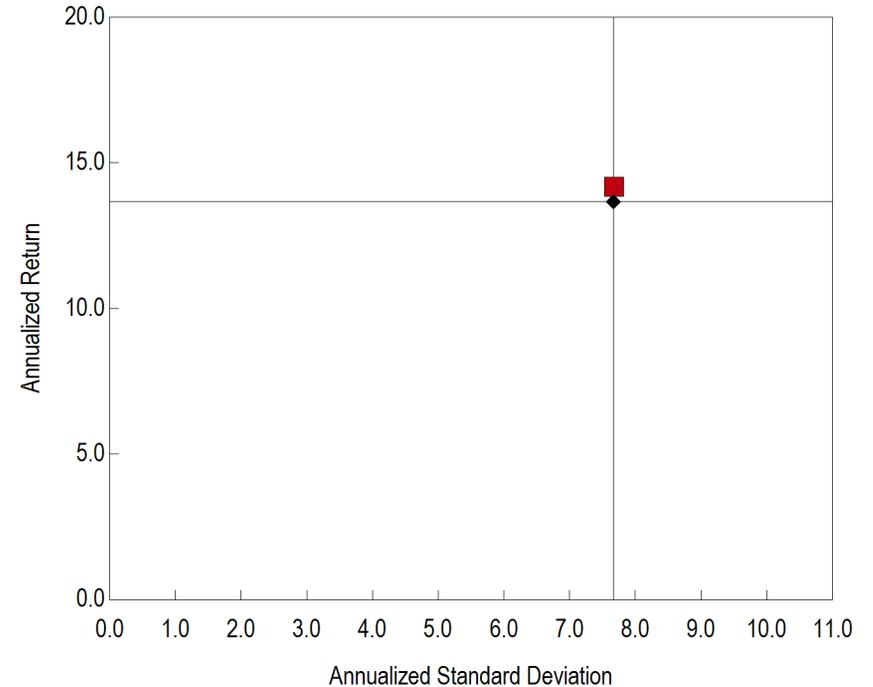
Total Fund Analysis

1 Year Ending September 30, 2014



■ Total Fund
◆ Interim SAA Policy

3 Years Ending September 30, 2014



■ Total Fund
◆ Interim SAA Policy

1 Year Ending September 30, 2014

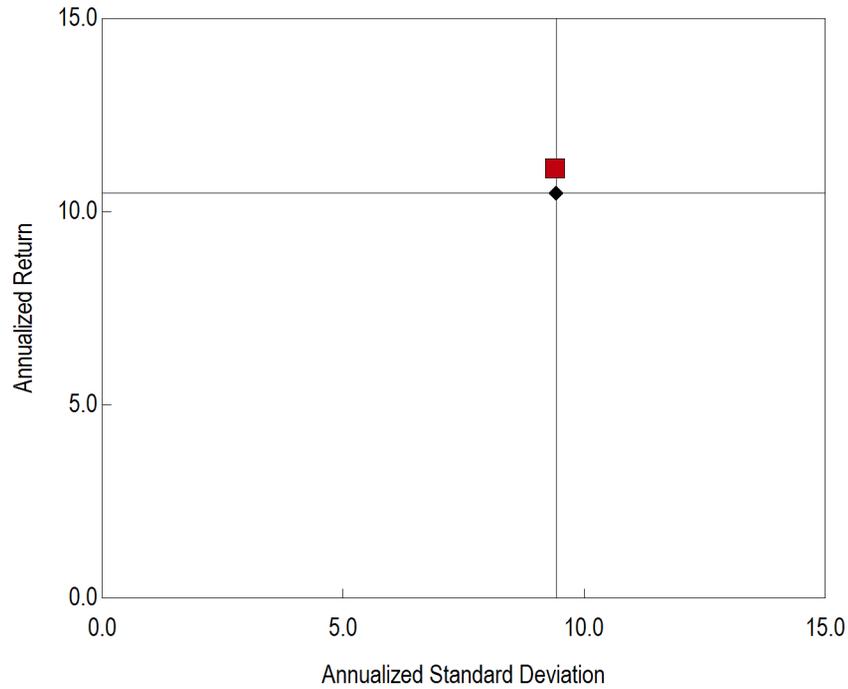
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Sortino Ratio
Total Fund	10.8%	6.3%	1.7	6.4
Interim SAA Policy	9.6%	6.5%	1.5	10.9

3 Years Ending September 30, 2014

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Sortino Ratio
Total Fund	14.2%	7.7%	1.8	2.9
Interim SAA Policy	13.7%	7.7%	1.8	3.0

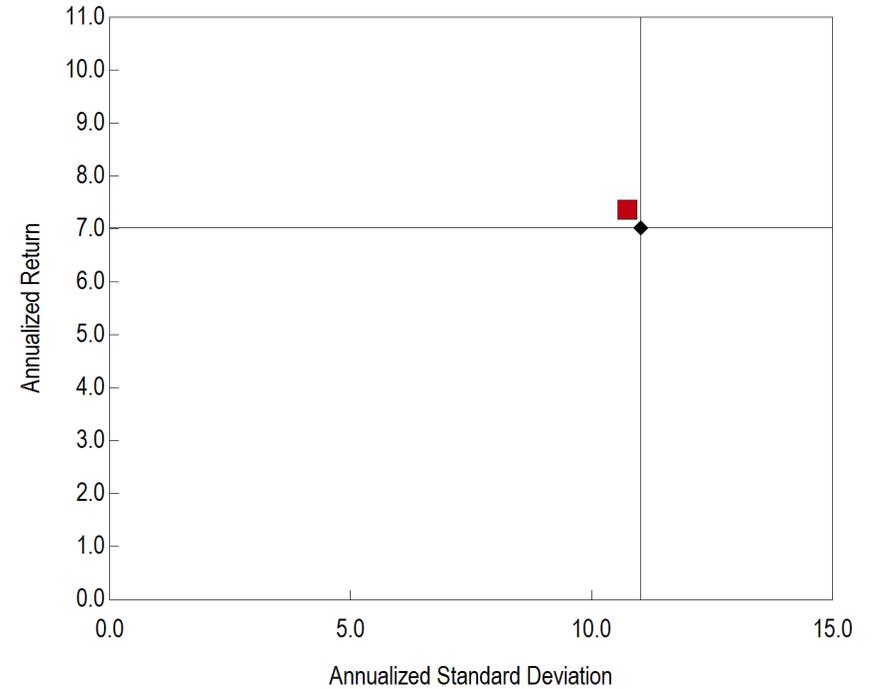
Total Fund Analysis

5 Years Ending September 30, 2014



■ Total Fund
◆ Interim SAA Policy

10 Years Ending September 30, 2014



■ Total Fund
◆ Interim SAA Policy

5 Years Ending September 30, 2014

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Sortino Ratio
Total Fund	11.1%	9.4%	1.2	2.0
Interim SAA Policy	10.5%	9.4%	1.1	1.8

10 Years Ending September 30, 2014

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Sortino Ratio
Total Fund	7.4%	10.8%	0.5	0.8
Interim SAA Policy	7.0%	11.0%	0.5	0.7

Arizona State Retirement System

Asset Class Performance Summary - Public Markets

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	9 Mo (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Since
Total Fund	34,058,120,005	100.0	-1.3	--	5.0	--	10.8	--	14.2	--	11.1	--	7.4	--	9.9	Jul-75
<i>Interim SAA Policy</i>			<u>-1.9</u>	--	<u>3.9</u>	--	<u>9.6</u>	--	<u>13.7</u>	--	<u>10.5</u>	--	<u>7.0</u>	--	<u>9.7</u>	<i>Jul-75</i>
Over/Under			0.6		1.1		1.2		0.5		0.6		0.4		0.2	
<i>Actual Benchmark</i>			-1.6	--	4.4	--	10.5	--	14.0	--	10.4	--	7.1	--	--	<i>Jul-75</i>
Total Domestic and International Equity¹	17,844,130,385	52.4	-2.6	--	3.4	--	11.6	--	19.0	--	12.7	--	7.8	--	6.8	Jan-98
<i>ASRS Custom Total Equity Benchmark</i>			<u>-2.7</u>	--	<u>3.1</u>	--	<u>11.3</u>	--	<u>19.1</u>	--	<u>12.6</u>	--	<u>7.8</u>	--	<u>6.1</u>	<i>Jan-98</i>
Over/Under			0.1		0.3		0.3		-0.1		0.1		0.0		0.7	
Total Domestic Equity	10,319,920,286	30.3	-0.6	40	5.9	34	16.7	32	23.0	35	16.0	35	8.8	53	11.3	Jul-75
<i>ASRS Custom Domestic Equity Benchmark</i>			<u>-0.8</u>	42	<u>5.7</u>	36	<u>16.4</u>	34	<u>22.9</u>	35	<u>15.9</u>	39	<u>8.4</u>	64	<u>11.4</u>	<i>Jul-75</i>
Over/Under			0.2		0.2		0.3		0.1		0.1		0.4		-0.1	
<i>eA All US Equity Net Median</i>			-1.7		4.0		13.5		21.8		15.3		8.9		12.6	<i>Jul-75</i>
Total International Equity	7,007,009,399	20.6	-5.6	54	-0.5	46	3.9	61	11.9	77	6.1	83	6.2	90	6.3	Apr-87
<i>ASRS Custom Int'l Equity Benchmark</i>			<u>-5.5</u>	51	<u>-0.5</u>	46	<u>4.2</u>	58	<u>12.4</u>	70	<u>6.7</u>	71	<u>7.4</u>	69	<u>6.0</u>	<i>Apr-87</i>
Over/Under			-0.1		0.0		-0.3		-0.5		-0.6		-1.2		0.3	
<i>eA All ACWI ex-US Equity Net Median</i>			-5.5		-0.9		4.9		13.6		7.8		7.8		7.7	<i>Apr-87</i>
Total Public Markets Fixed Income	4,289,081,674	12.6	-1.1	86	3.3	54	3.9	51	3.0	55	4.7	49	5.0	40	8.5	Jul-75
<i>ASRS Custom Fixed Income Benchmark</i>			<u>-1.4</u>	87	<u>3.3</u>	55	<u>3.7</u>	54	<u>2.8</u>	59	<u>4.3</u>	57	<u>4.7</u>	49	--	<i>Jul-75</i>
Over/Under			0.3		0.0		0.2		0.2		0.4		0.3		--	
<i>eA All US Fixed Inc Net Median</i>			0.0		3.5		4.0		3.3		4.6		4.7		8.2	<i>Jul-75</i>
Total Inflation-Linked Assets	769,188,043	2.3	-10.9	--	-4.5	--	-5.5	--	-3.2	--	--	--	--	--	-0.7	Feb-10
<i>ASRS Custom Inflation-Linked Benchmark</i>			<u>-11.8</u>	--	<u>-5.6</u>	--	<u>-6.6</u>	--	<u>-5.3</u>	--	<u>-1.8</u>	--	<u>1.4</u>	--	<u>-2.7</u>	<i>Feb-10</i>
Over/Under			0.9		1.1		1.1		2.1		--		--		2.0	
Total GTAA	3,729,097,756	10.9	-2.6	59	4.6	14	10.6	8	14.1	6	12.5	1	8.6	10	8.1	Jan-04
<i>ASRS Custom GTAA Benchmark</i>			<u>-1.4</u>	33	<u>4.2</u>	15	<u>10.2</u>	9	<u>14.1</u>	6	<u>10.3</u>	6	<u>6.8</u>	59	<u>6.5</u>	<i>Jan-04</i>
Over/Under			-1.2		0.4		0.4		0.0		2.2		1.8		1.6	
<i>eA Global TAA Net Median</i>			-1.9		2.6		5.7		8.0		5.8		6.9		7.0	<i>Jan-04</i>

¹Performance of ASRS Total Domestic and International Equity includes the performance of the ASRS Domestic and International Equity asset classes and the Equity Risk Factor Portfolio with an inception date of 6/1/2013. NEPC began calculating Total Domestic and International Equity performance in January 2009. Monthly performance data from January 1998 - December 2008 was provided by State Street.

Note: Performance, ranks and medians are based on net of fee performance data. Rankings are from highest (1) to lowest (100) in the eVestment Alliance Universe.

Composition of Interim SAA Policy and ASRS Custom Asset Class Benchmarks can be found in the appendix.

Arizona State Retirement System

Asset Class Performance Summary - Private Markets

	Market Value (\$)	% of Portfolio	3 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Inception (%)	IRR (%)	Since
Total Fund	34,058,120,005	100.0	-1.3	10.8	14.2	11.1	9.9	--	Jul-75
<i>Interim SAA Policy</i>			<u>-1.9</u>	<u>9.6</u>	<u>13.7</u>	<u>10.5</u>	<u>9.7</u>	--	<i>Jul-75</i>
Over/Under			0.6	1.2	0.5	0.6	0.2	--	
<i>Actual Benchmark</i>			-1.6	10.5	14.0	10.4	--	--	<i>Jul-75</i>
Total Private Equity	2,194,753,936	6.4	5.1	19.5	15.0	16.7	5.2	13.4	Oct-07
<i>Russell 2000 1 QTR Lagged</i>			<u>2.1</u>	<u>23.6</u>	<u>14.6</u>	<u>20.2</u>	<u>7.4</u>	<u>15.7</u>	<i>Oct-07</i>
Over/Under			3.0	-4.1	0.4	-3.5	-2.2	-2.3	
Total Opportunistic Equity¹	359,021,769	1.1	10.6	47.4	28.9	--	26.4	39.1	Apr-11
Total Private Debt	1,203,765,090	3.5	3.5	14.6	--	--	16.2	15.6	Jul-12
<i>S&P/LSTA Leveraged Loan Index + 250 bps 1 QTR Lagged</i>			<u>2.0</u>	<u>8.1</u>	<u>--</u>	<u>--</u>	<u>9.0</u>	<u>8.2</u>	<i>Jul-12</i>
Over/Under			1.5	6.5	--	--	7.2	7.4	
Total Opportunistic Debt¹	939,848,457	2.8	3.7	11.6	9.4	--	9.2	12.3	Jan-08
Total Real Estate	2,076,797,083	6.1	2.9	13.8	12.4	12.0	4.0	6.1	Oct-05
<i>NCREIF ODCE 1 QTR Lagged</i>			<u>2.7</u>	<u>11.7</u>	<u>11.4</u>	<u>9.0</u>	<u>5.1</u>	<u>5.5</u>	<i>Oct-05</i>
Over/Under			0.2	2.1	1.0	3.0	-1.1	0.6	
Total Farmland and Timber	105,840,746	0.3	0.2	-46.3	--	--	-46.3	1.5	Jul-13
<i>CPI ex-Food and Energy + 350 bps 1 QTR Lagged</i>			<u>1.5</u>	<u>5.5</u>	<u>--</u>	<u>--</u>	<u>5.5</u>	<u>4.2</u>	<i>Jul-13</i>
Over/Under			-1.3	-51.8	--	--	-51.8	-2.7	

¹Net absolute rate of return expectations range from 10-14% per annum.

Note: Performance is based on net of fee performance data.

Performance data for Total Private Equity, Total Opportunistic Equity, Total Private Debt, Total Opportunistic Debt, Total Real Estate, and Total Farmland and Timber and corresponding benchmarks is lagged by one quarter. Performance data and market values provided by Credit Suisse Fund Group.

Prior to 3Q 2012, the performance of the Total Private Debt and Total Opportunistic Debt asset classes was reported in aggregate. Effective 6/30/2012, the Fund's allocations to Private Debt and Opportunistic Debt were separated and will be reported separately going forward.

Time-weighted performance of private markets portfolios shown to reconcile Total Fund performance as it is reported on a time-weighted basis. Due to the drawdown nature of private markets portfolios in which the investment managers call capital over time, dollar-weighted performance, or internal rate of return (IRR) is a more appropriate measure of ASRS private markets portfolios.

Composition of Interim SAA Policy can be found in the appendix.

Arizona State Retirement System

Public Market Asset Class Analysis

3 Years Ending September 30, 2014

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Tracking Error	Rank	Info Ratio	Rank	Beta	Sharpe Ratio
Total Fund	100.0%	14.2%	--	7.7%	--	0.6%	--	1.1%	--	0.5	--	1.0	1.8
Interim SAA Policy	--	13.7%	--	7.7%	--	--	--	--	--	--	--	--	1.8
Total Domestic and International Equity	52.4%	19.0%	--	11.6%	--	0.2%	--	0.6%	--	0.0	--	1.0	1.6
ASRS Custom Total Equity Benchmark	--	19.1%	--	11.8%	--	--	--	--	--	--	--	--	1.6
Total Domestic Equity	30.3%	23.0%	35	11.3%	25	0.1%	29	0.5%	1	0.1	31	1.0	2.0
ASRS Custom Domestic Equity Benchmark	--	22.9%	35	11.3%	25	--	30	--	--	--	--	--	2.0
Total International Equity	20.6%	11.9%	77	14.1%	55	-0.3%	79	0.7%	1	-0.8	98	1.0	0.8
ASRS Custom Int'l Equity Benchmark	--	12.4%	70	14.4%	64	--	77	--	--	--	--	--	0.9
Total Public Markets Fixed Income	12.6%	3.0%	55	3.7%	69	0.0%	93	0.5%	1	0.3	48	1.1	0.8
ASRS Custom Public Markets Fixed Income Benchmark	--	2.8%	59	3.5%	67	--	93	--	--	--	--	--	0.8
Total Inflation-Linked Assets	2.3%	-3.2%	--	12.3%	--	1.9%	--	2.3%	--	0.9	--	1.0	-0.3
ASRS Custom Inflation-Linked Benchmark	--	-5.3%	--	12.7%	--	--	--	--	--	--	--	--	-0.4
Total GTAA	10.9%	14.1%	6	8.7%	85	-1.1%	35	1.5%	1	0.0	7	1.1	1.6
ASRS Custom GTAA Benchmark	--	14.1%	6	8.0%	60	--	16	--	--	--	--	--	1.8

Note: Performance is reported net of fees.

Underlying composites do not add up to 100% because the chart excludes private markets composites.

Ranks for statistics shown above are based on the respective universe against which the portfolio is ranked on the asset class performance summary that precedes this section of the analysis.

Rankings are from highest (1) to lowest (100) in the eInvestment Alliance Universe.

Composition of Interim SAA Policy and ASRS Custom Benchmarks can be found in the appendix.

Arizona State Retirement System

Public Market Asset Class Analysis

5 Years Ending September 30, 2014

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Tracking Error	Rank	Info Ratio	Rank	Beta	Sharpe Ratio
Total Fund	100.0%	11.1%	--	9.4%	--	0.7%	--	1.0%	--	0.7	--	1.0	1.2
Interim SAA Policy	--	10.5%	--	9.4%	--	--	--	--	--	--	--	--	1.1
Total Domestic and International Equity	52.4%	12.7%	--	14.3%	--	0.2%	--	0.7%	--	0.2	--	1.0	0.9
ASRS Custom Total Equity Benchmark	--	12.6%	--	14.4%	--	--	--	--	--	--	--	--	0.9
Total Domestic Equity	30.3%	16.0%	35	14.1%	31	0.1%	33	0.5%	1	0.3	13	1.0	1.1
ASRS Custom Domestic Equity Benchmark	--	15.9%	39	14.0%	30	--	34	--	--	--	--	--	1.1
Total International Equity	20.6%	6.1%	83	16.1%	38	-0.5%	80	1.0%	1	-0.6	99	1.0	0.4
ASRS Custom Int'l Equity Benchmark	--	6.7%	71	16.4%	53	--	71	--	--	--	--	--	0.4
Total Public Markets Fixed Income	12.6%	4.7%	49	3.3%	63	0.4%	84	0.6%	1	0.6	34	1.0	1.4
ASRS Custom Public Markets Fixed Income Benchmark	--	4.3%	57	3.3%	63	--	94	--	--	--	--	--	1.3
Total Inflation-Linked Assets	2.3%	--	--	--	--	--	--	--	--	--	--	--	--
ASRS Custom Inflation-Linked Benchmark	--	-1.8%	--	13.4%	--	--	--	--	--	--	--	--	-0.1
Total GTAA	10.9%	12.5%	1	10.1%	90	2.0%	8	2.0%	9	1.1	1	1.0	1.2
ASRS Custom GTAA Benchmark	--	10.3%	6	9.7%	80	--	36	--	--	--	--	--	1.1

Note: Performance is reported net of fees.

Underlying composites do not add up to 100% because the chart excludes private markets composites.

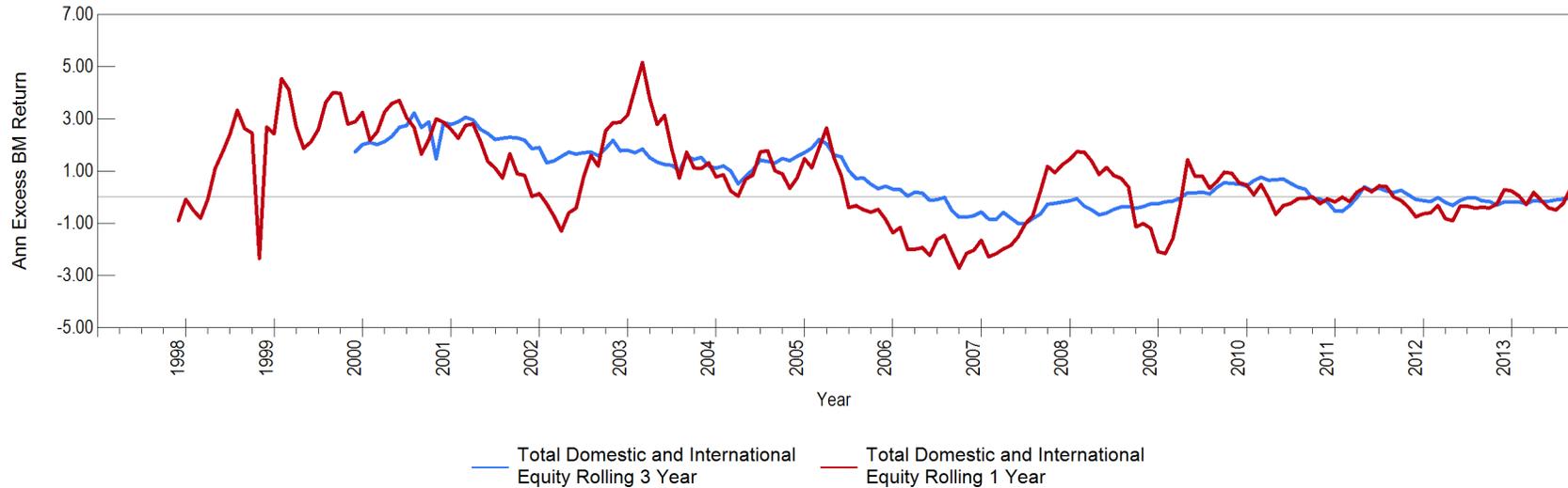
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Rankings are from highest (1) to lowest (100) in the eInvestment Alliance Universe.

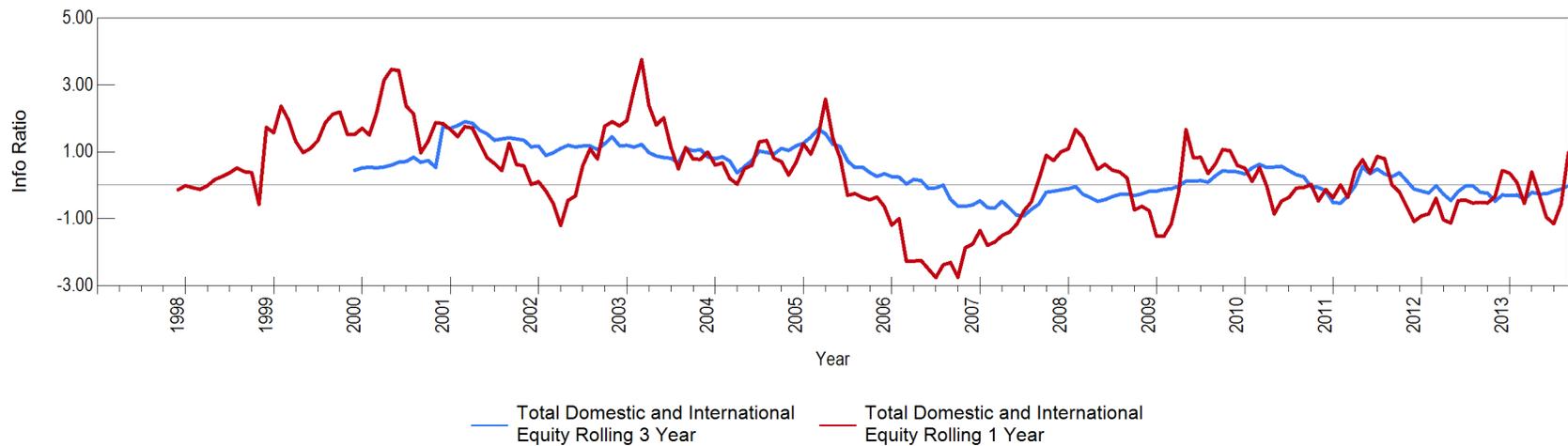
Composition of Interim SAA Policy and ASRS Custom Benchmarks can be found in the appendix.

Asset Class Analysis - Total Domestic and International Equity

Rolling Annual Excess Benchmark Return

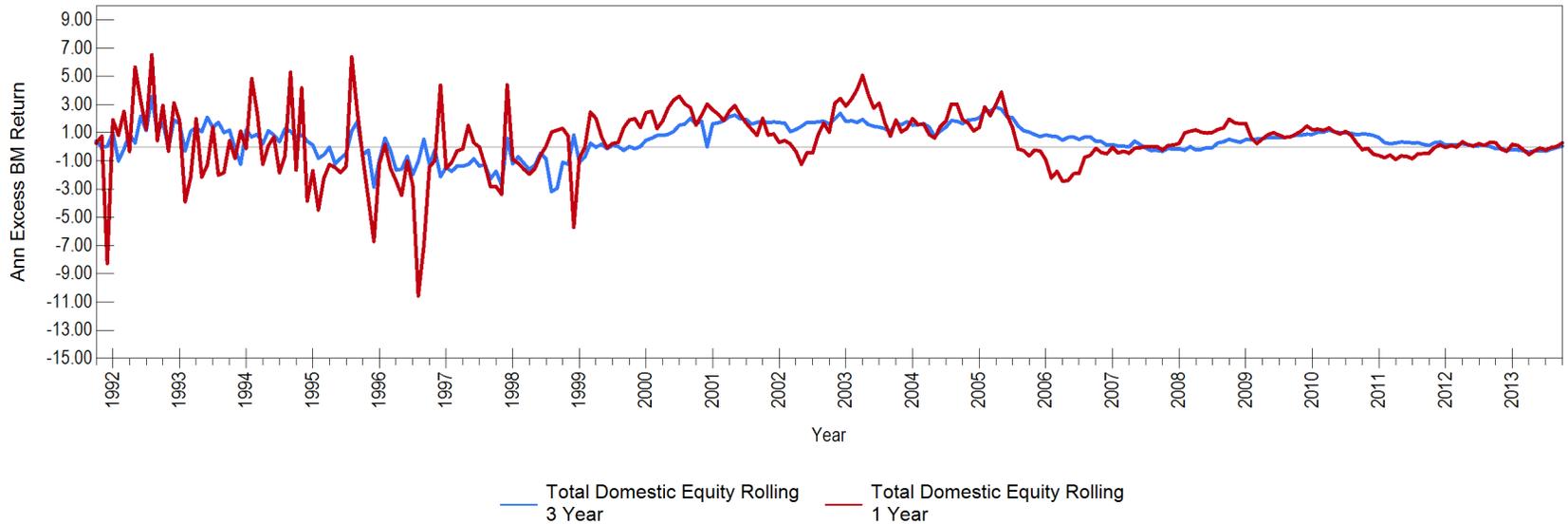


Rolling Information Ratio

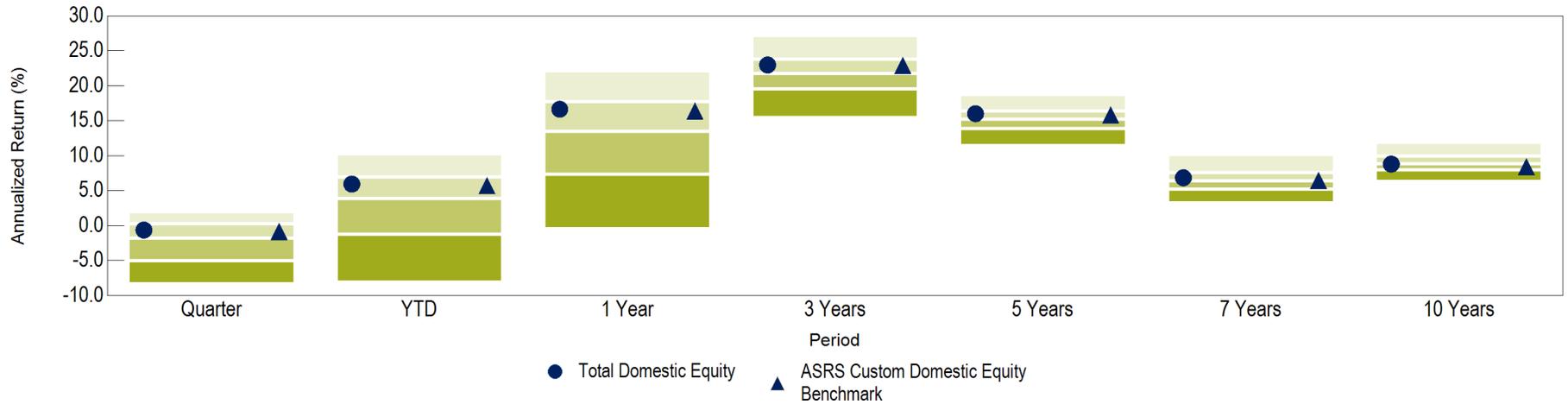


Asset Class Analysis - Total Domestic Equity

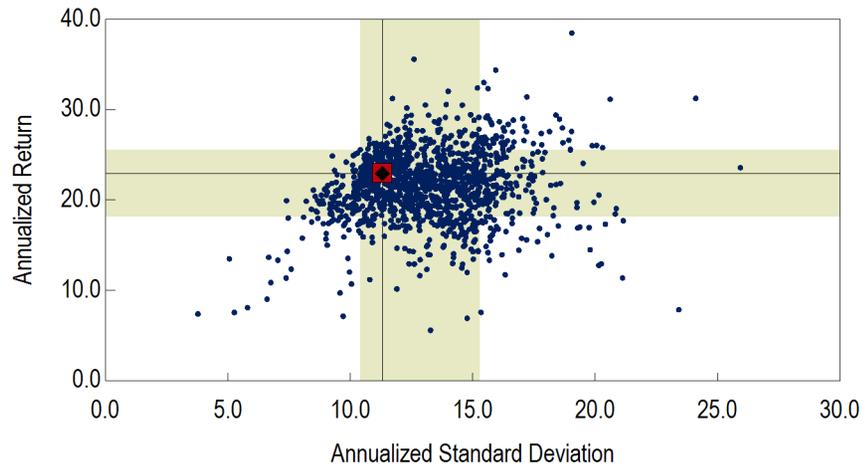
Rolling Annual Excess Benchmark Return



eA All US Equity Net Accounts

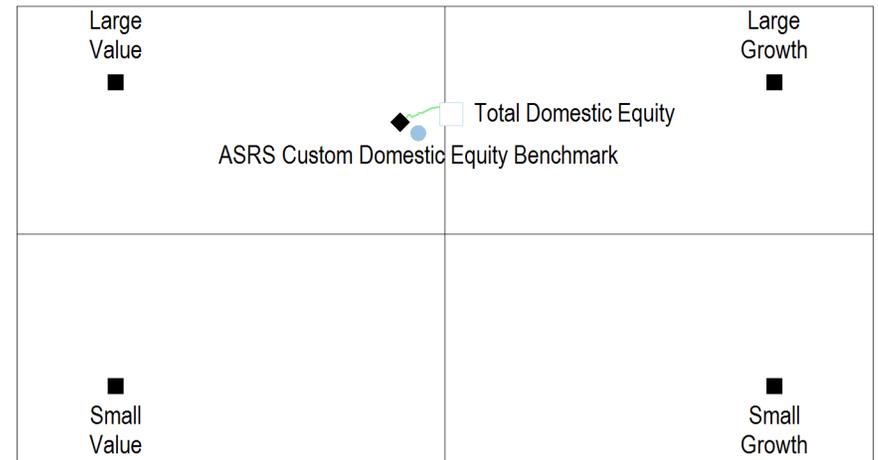


3 Year Risk Return



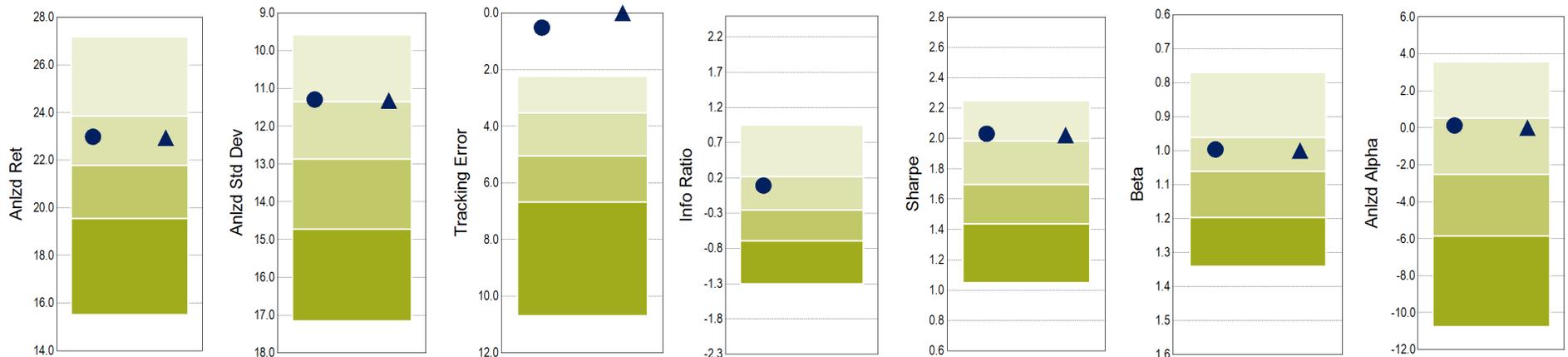
- Total Domestic Equity
- ◆ ASRS Custom Domestic Equity Benchmark
- 68% Confidence Interval
- eA All US Equity Net

3 Year Style Map



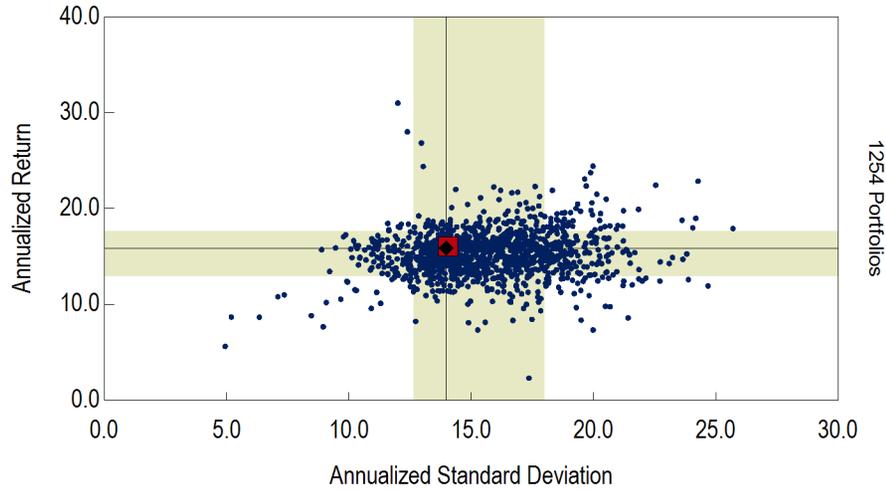
- First Rolling Period
- ◆ Last Rolling Period

*Style map is returns based.



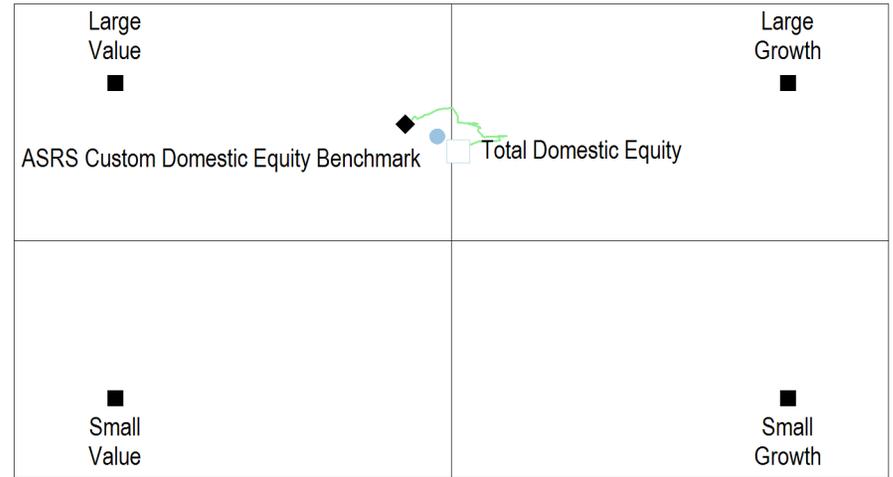
- Total Domestic Equity
- ▲ ASRS Custom Domestic Equity Benchmark
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile

5 Year Risk Return



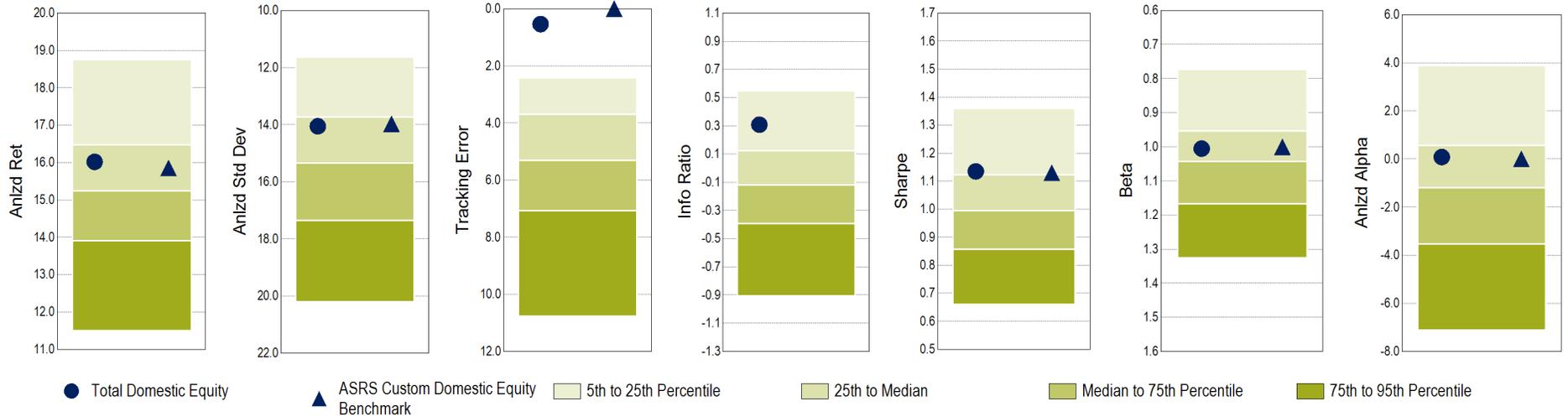
- Total Domestic Equity
- ◆ ASRS Custom Domestic Equity Benchmark
- 68% Confidence Interval
- eA All US Equity Net

5 Year Style Map



- First Rolling Period
- ◆ Last Rolling Period

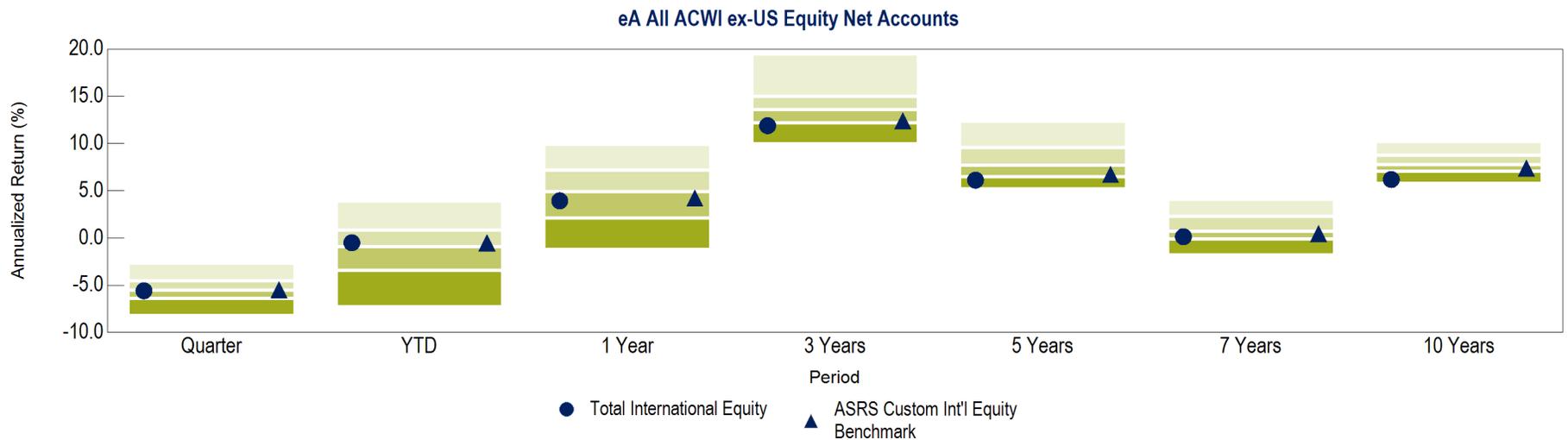
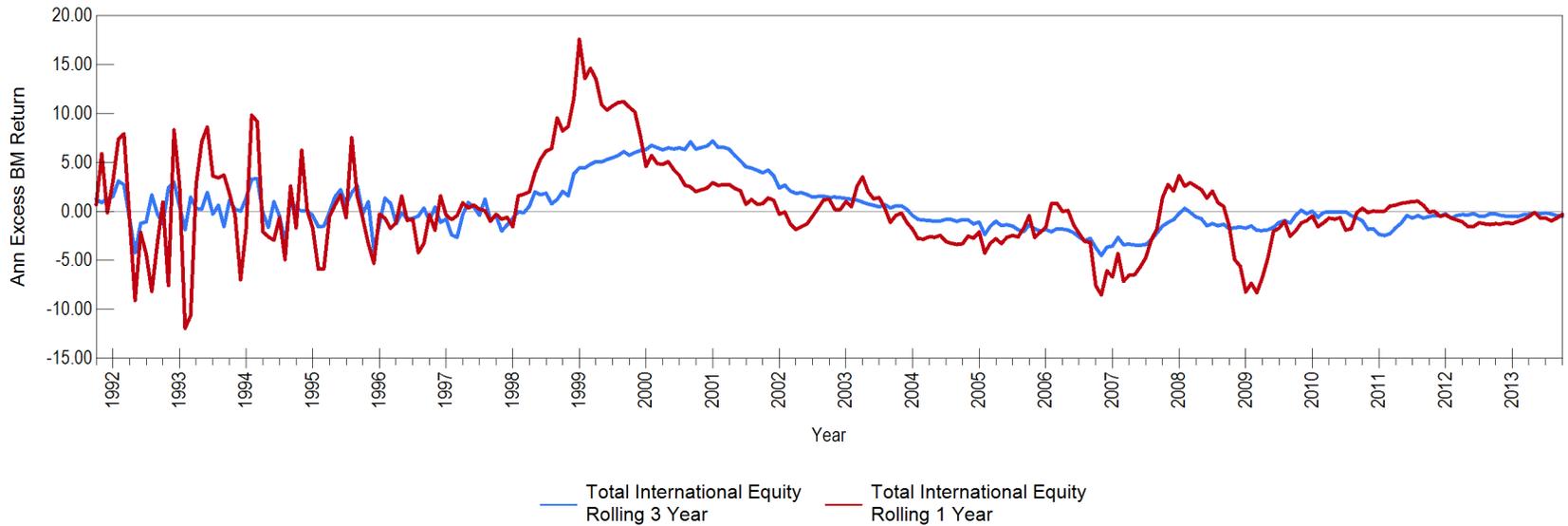
*Style map is returns based.



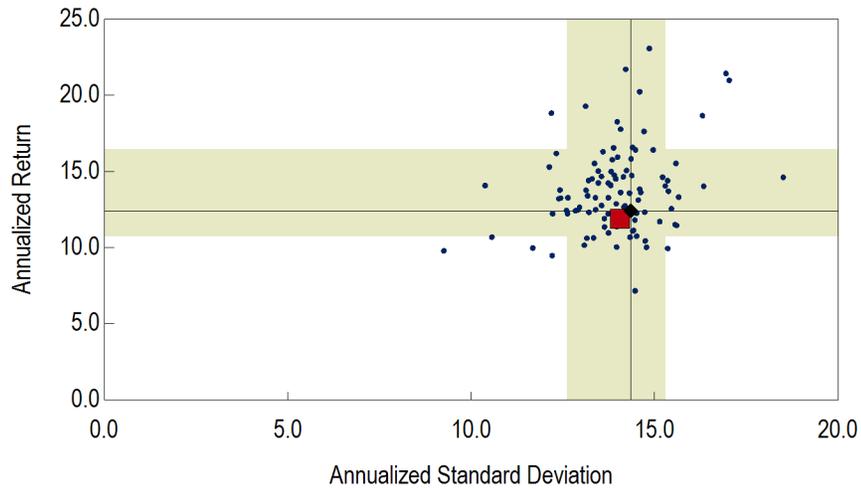
- Total Domestic Equity
- ▲ ASRS Custom Domestic Equity Benchmark
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile

Asset Class Analysis - Total International Equity

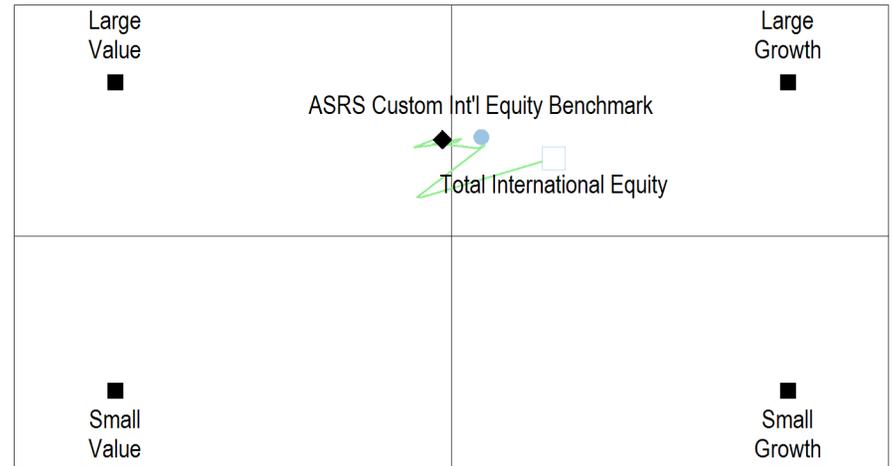
Rolling Annual Excess Benchmark Return



3 Year Risk Return



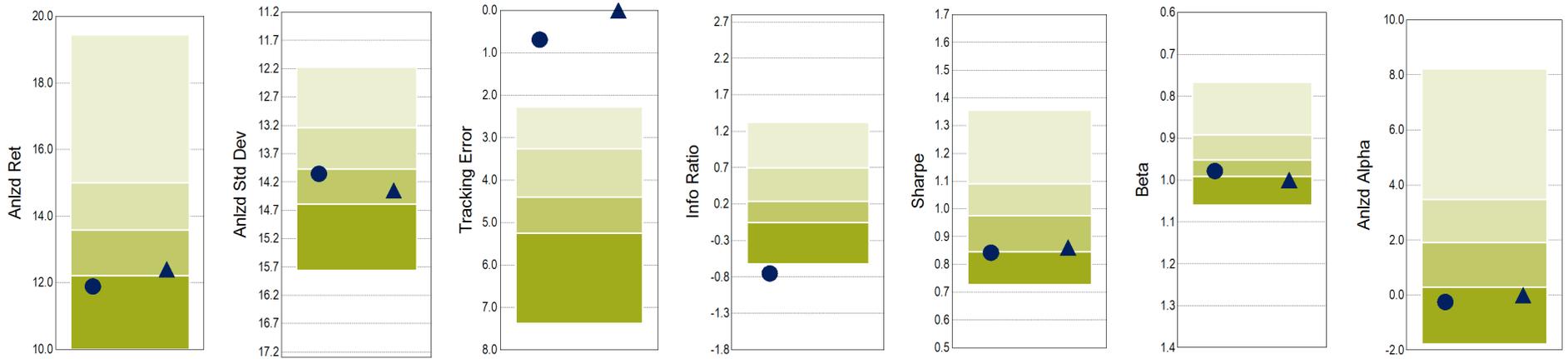
3 Year Style Map



- Total International Equity
- ◆ ASRS Custom Int'l Equity Benchmark
- 68% Confidence Interval
- eA All ACWI ex-US Equity Net

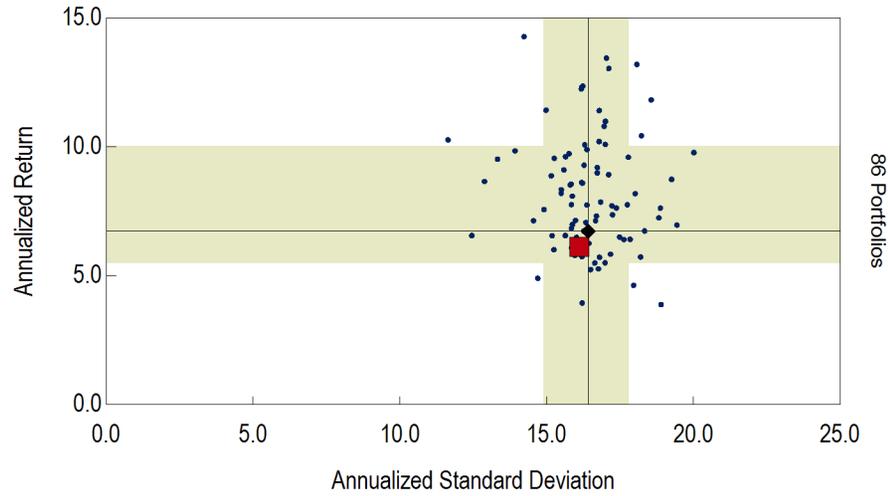
- First Rolling Period
- ◆ Last Rolling Period

*Style map is returns based.



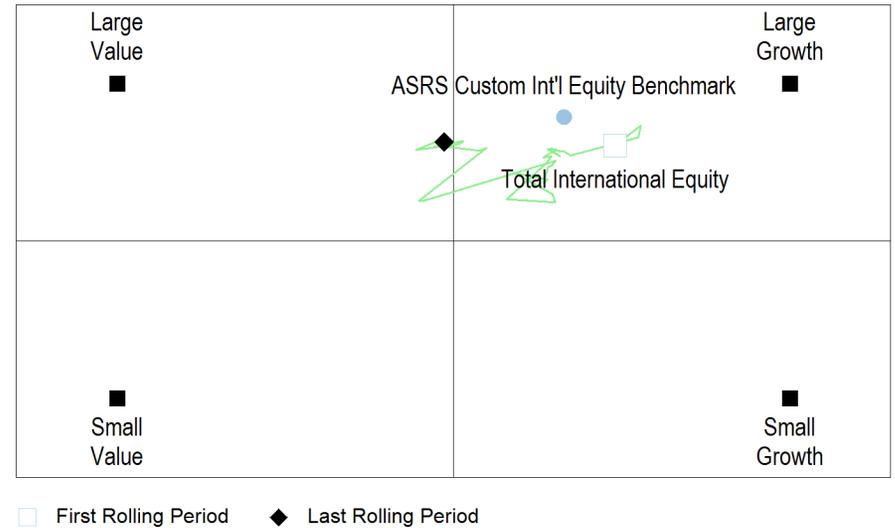
- Total International Equity
- ▲ ASRS Custom Int'l Equity Benchmark
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile

5 Year Risk Return

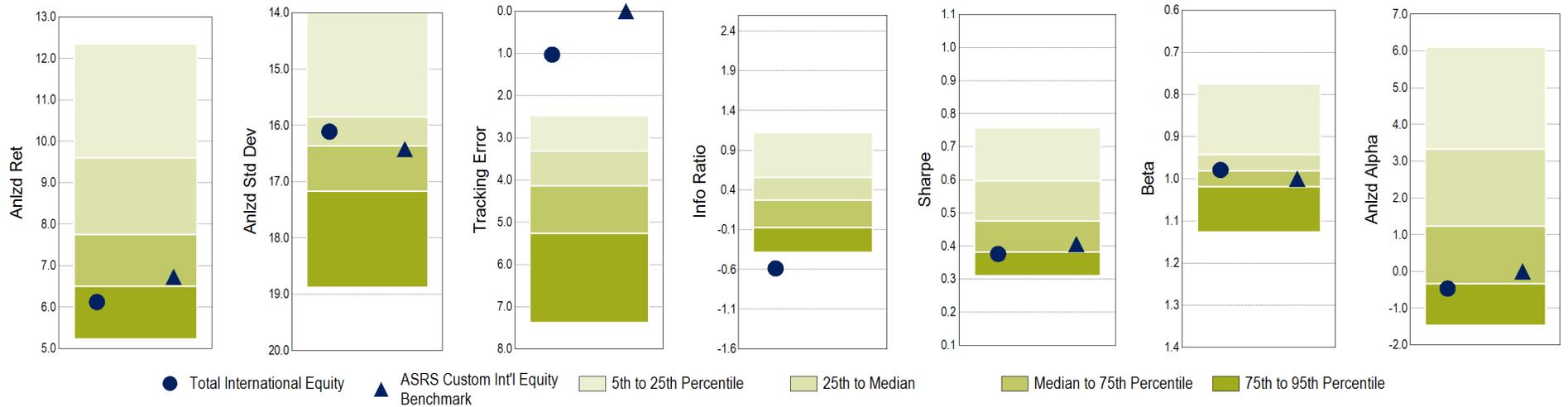


- Total International Equity
- ◆ ASRS Custom Int'l Equity Benchmark
- 68% Confidence Interval
- eA All ACWI ex-US Equity Net

5 Year Style Map

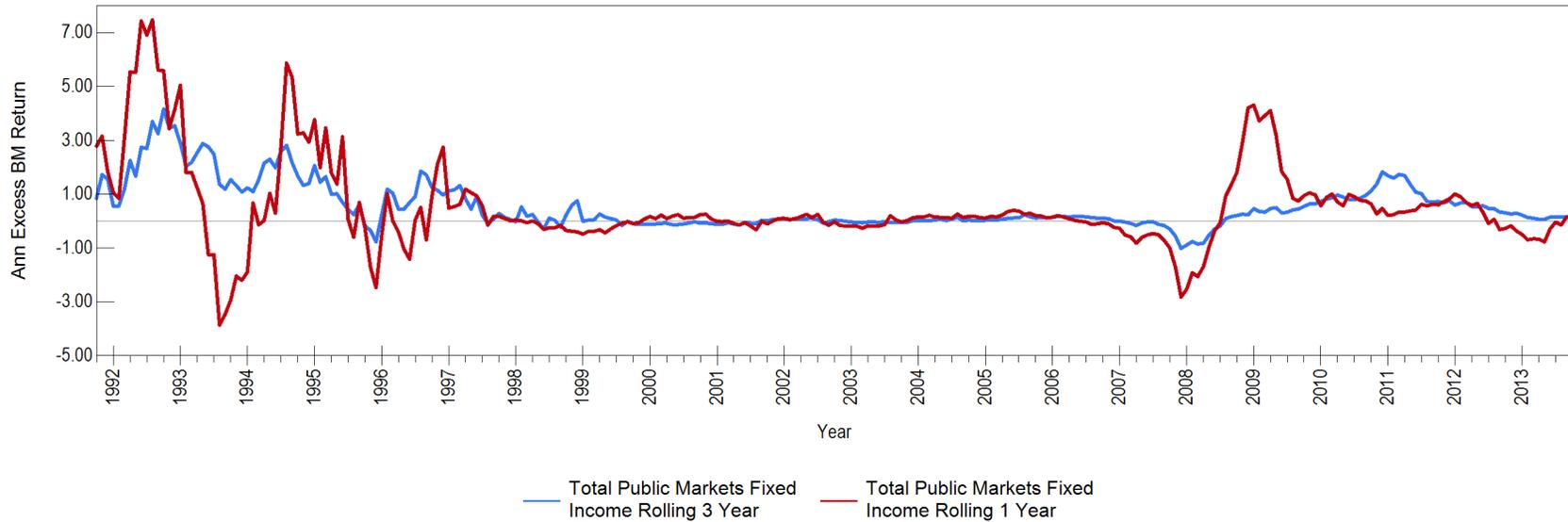


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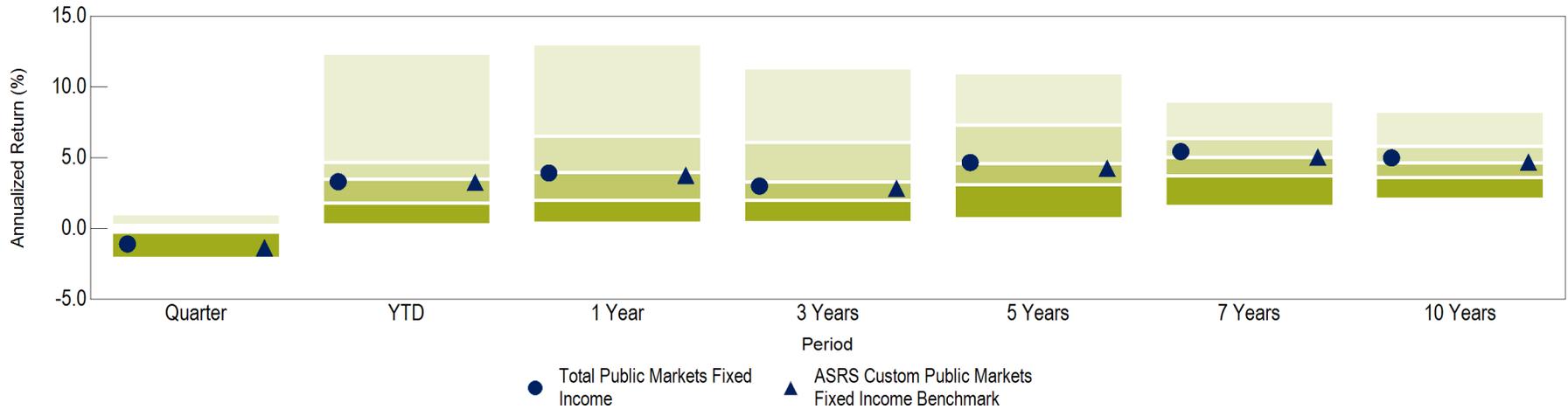


Asset Class Analysis - Total Public Markets Fixed Income

Rolling Annual Excess Benchmark Return

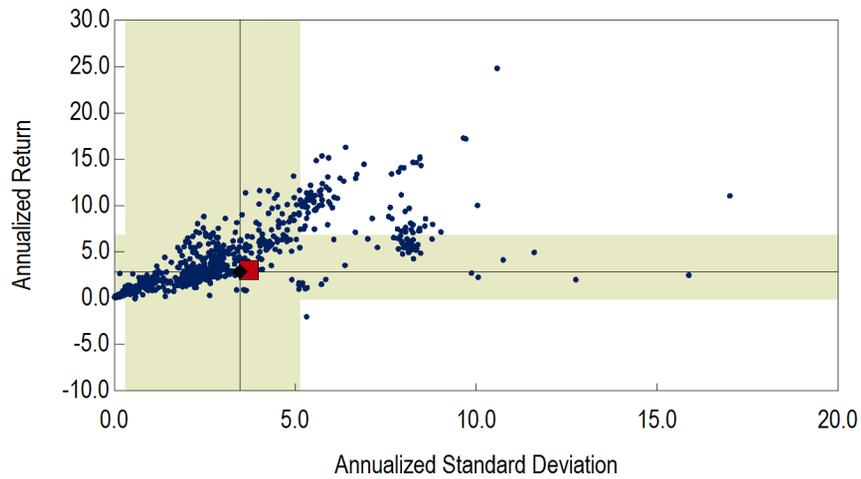


eA All US Fixed Inc Net Accounts



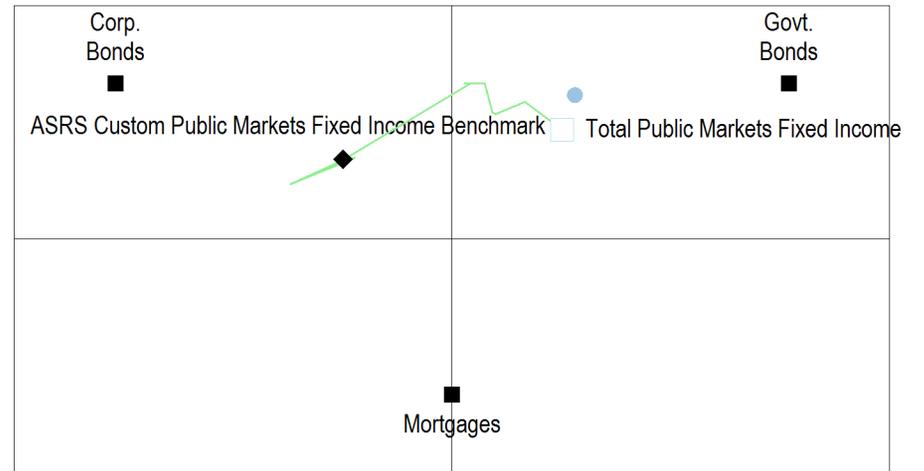
Asset Class Analysis - Total Public Markets Fixed Income

3 Year Risk Return



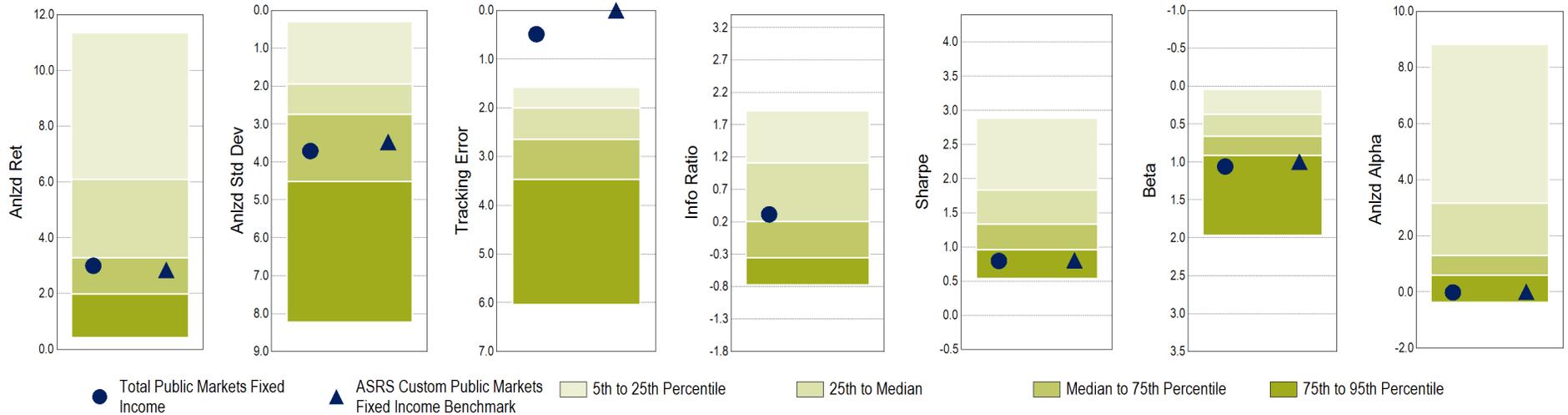
- Total Public Markets Fixed Income
- ◆ ASRS Custom Public Markets Fixed Income Benchmark
- 68% Confidence Interval
- eA All US Fixed Inc Net

3 Year Style Map



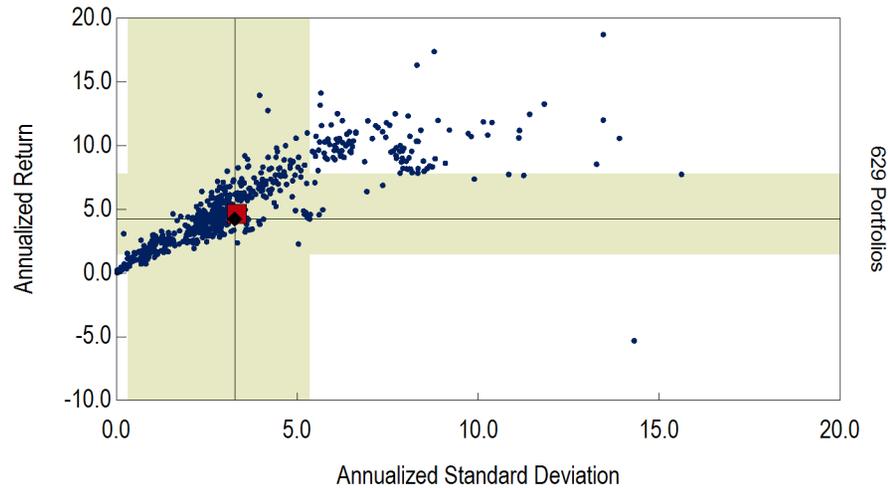
- First Rolling Period
- ◆ Last Rolling Period

*Style map is returns based.

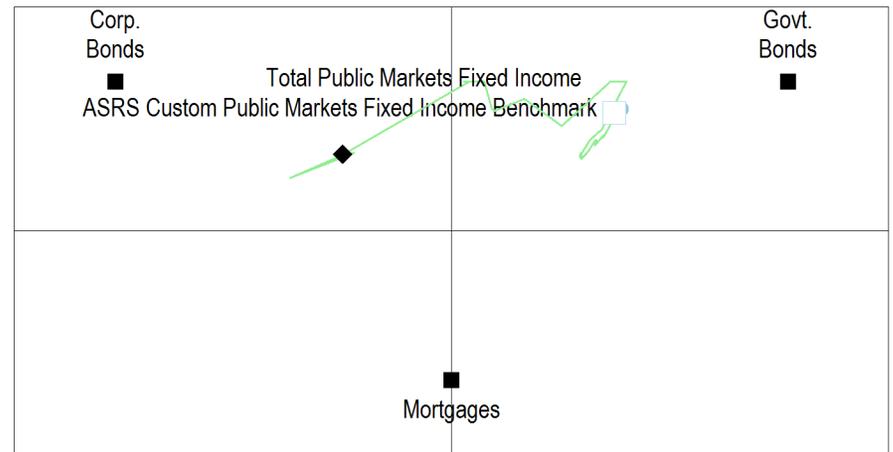


- Total Public Markets Fixed Income
- ▲ ASRS Custom Public Markets Fixed Income Benchmark
- 5th to 25th Percentile
- 25th to Median
- Median to 75th Percentile
- 75th to 95th Percentile

5 Year Risk Return



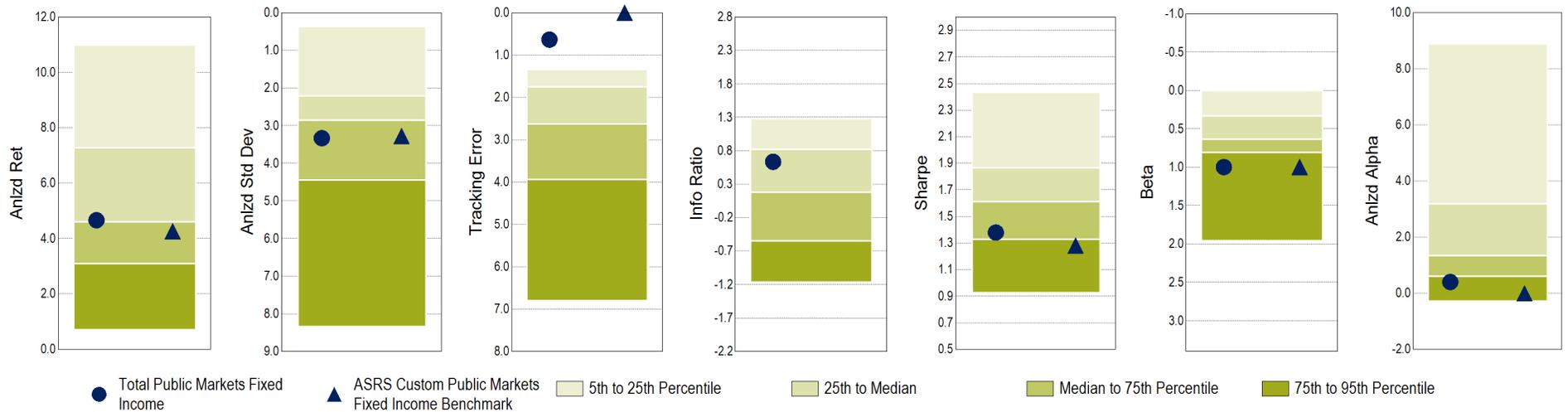
5 Year Style Map



□ First Rolling Period ◆ Last Rolling Period

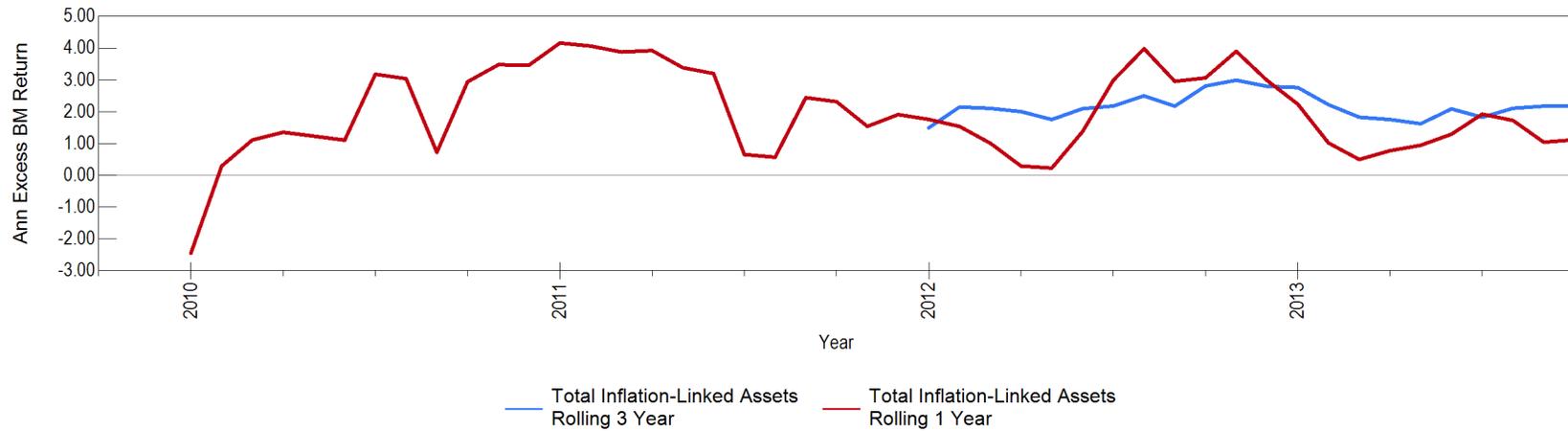
*Style map is returns based.

- Total Public Markets Fixed Income
- ◆ ASRS Custom Public Markets Fixed Income Benchmark
- 68% Confidence Interval
- eA All US Fixed Inc Net

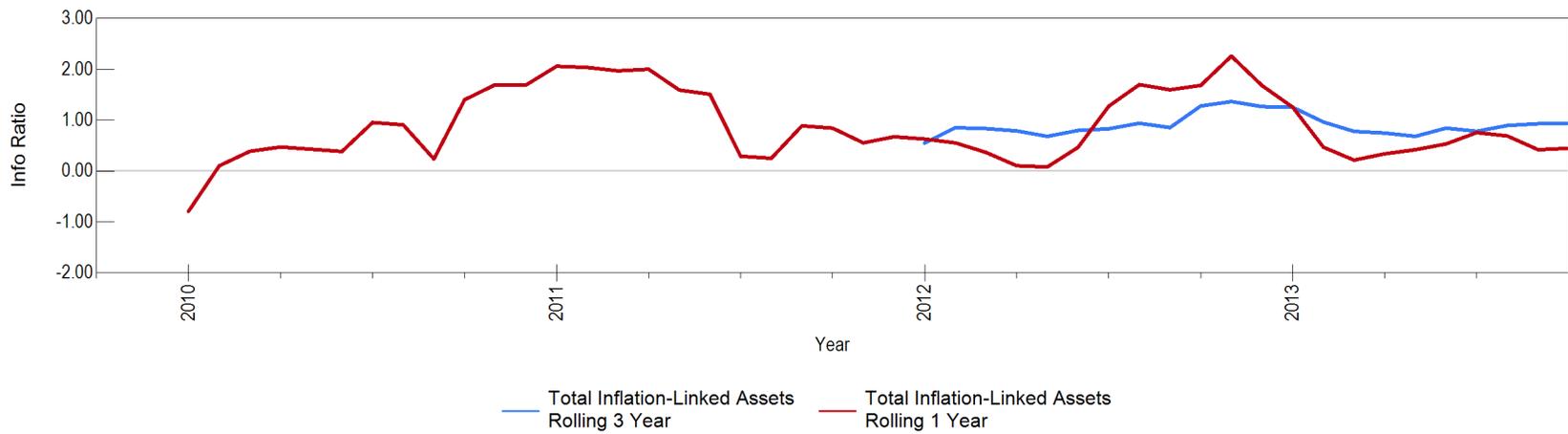


- Total Public Markets Fixed Income
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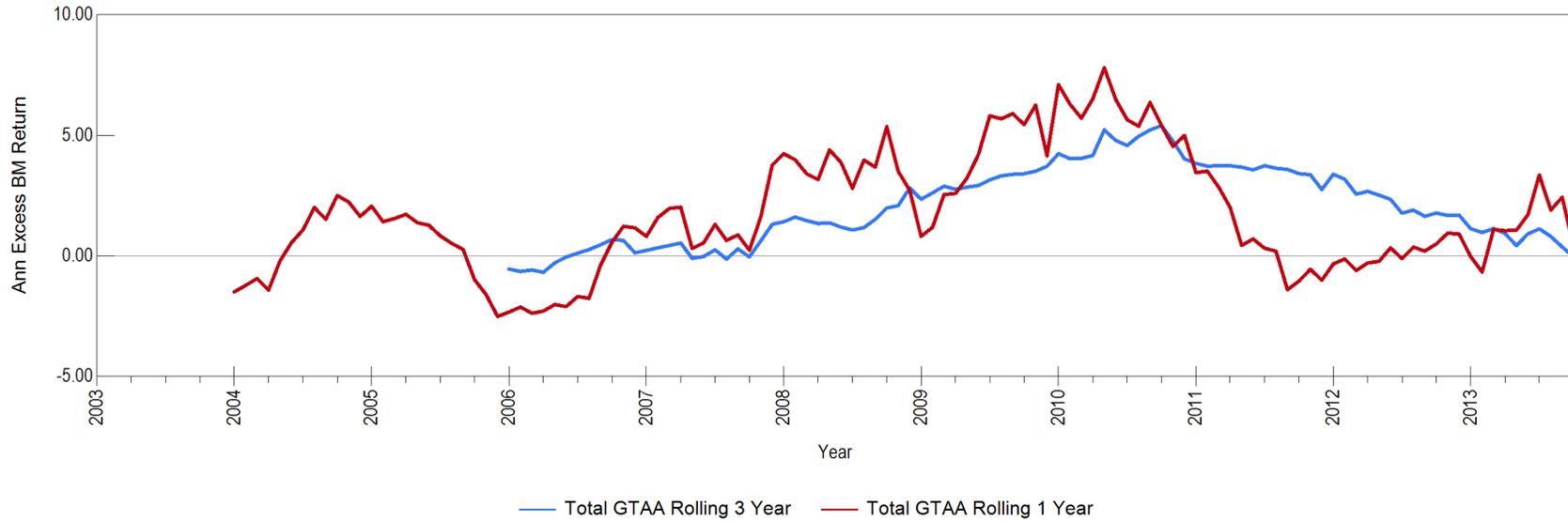
Rolling Annual Excess Benchmark Return



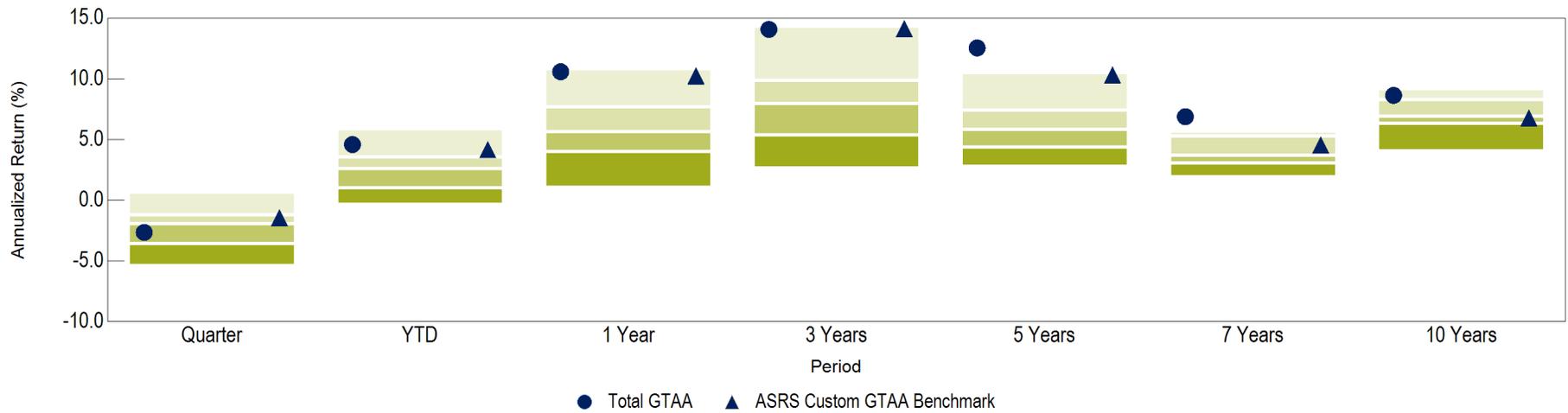
Rolling Information Ratio

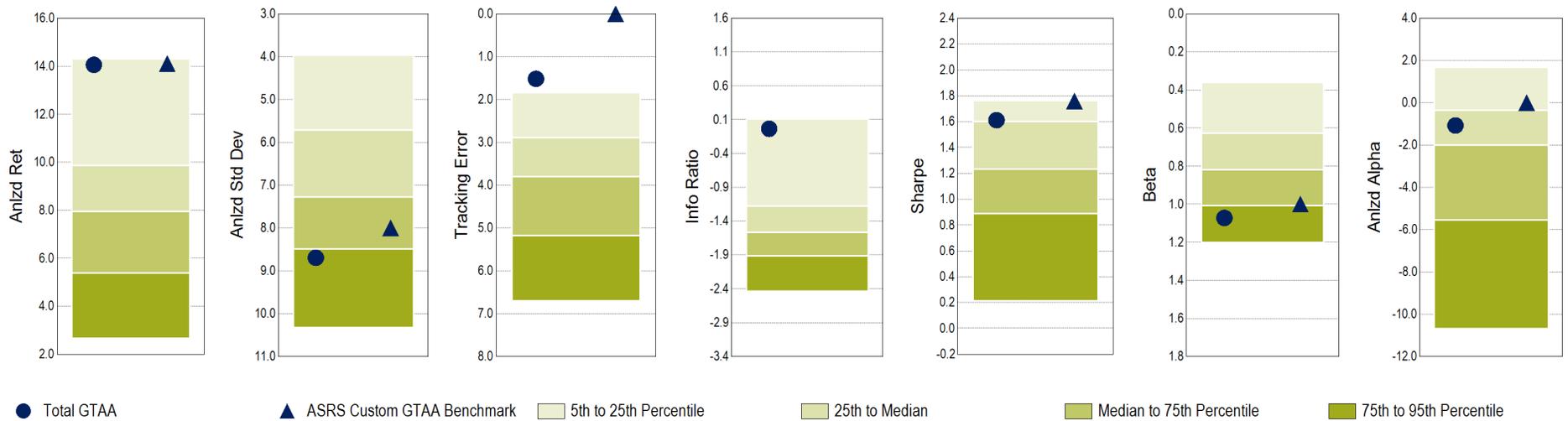
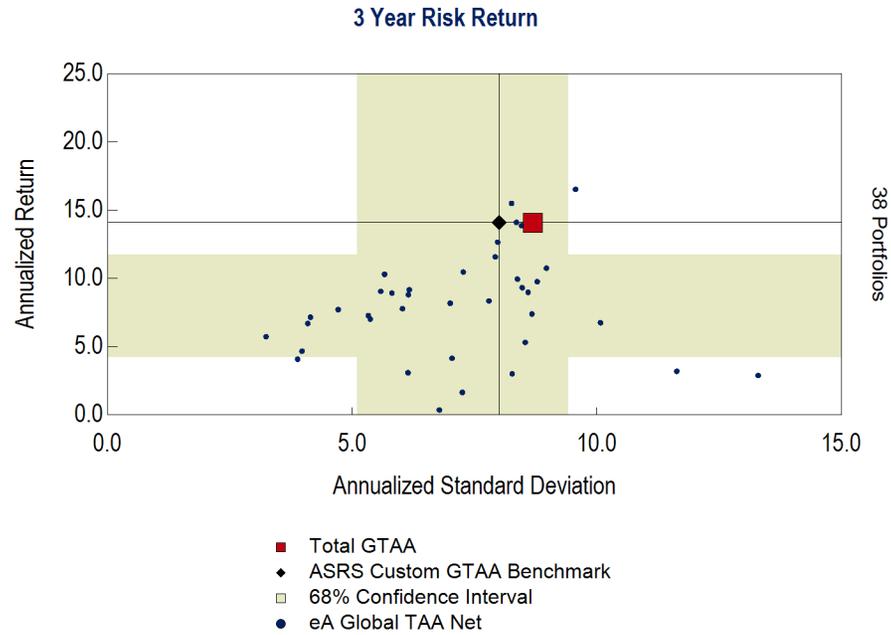


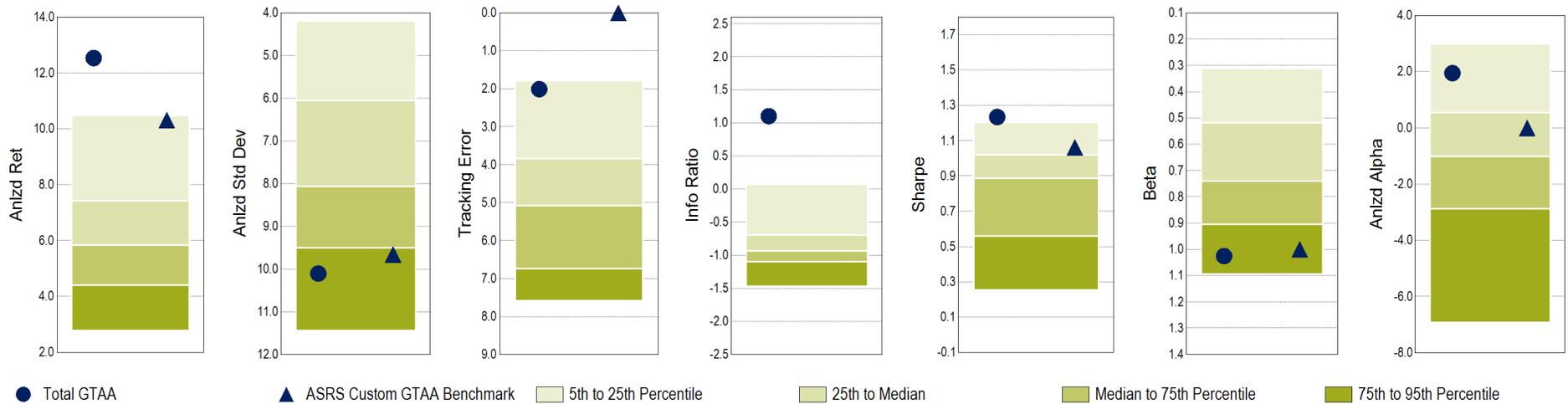
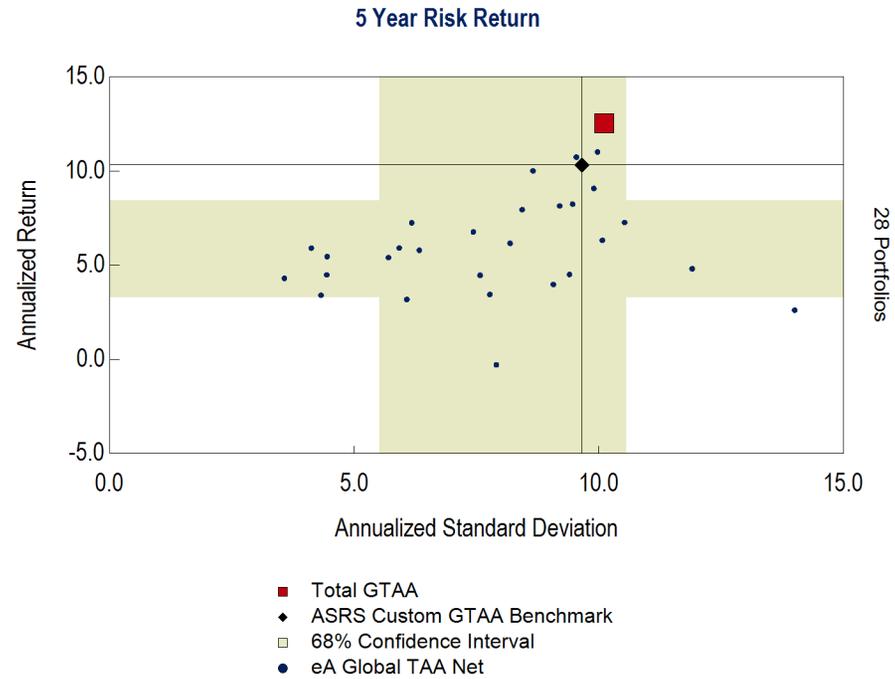
Rolling Annual Excess Benchmark Return



eA Global TAA Net Accounts







- **Five Asset Class Committee meetings have been held since the last time we provided an update on the ASRS Asset Class Committee Meetings.**

- **August 8, 2014 – Private Markets Committee**
 - General Discussion of Real Estate Matters
 - Separate account monitoring system
 - Status of multi-family property development investment in Brooklyn, NY
 - At the time of this meeting, negotiations were ongoing to potentially sell the assets somewhere between \$40 - \$42 million, resulting in a double digit internal rate of return on the investment
 - Status of work on energy housing partnership investment
 - RCLCO will continue conducting due diligence on the investment as part of the niche and tactical real estate allocation
 - May need to be considered in fund format rather than separate account due to particular circumstances of the investment
 - No Committee action required
 - Variance Request
 - RCLCO recommended the ASRS approve a request from an existing real estate manager to utilize Rabobank as a depository institution with respect to one of its investment properties
 - The agreement with the investment manager requires limited partner approval for any banking depository relationship other than the initially approved relationship
 - Committee approved the recommendation

- **August 20, 2014 – Private Markets Committee**
 - Monthly Status Report, General Discussion and Deal Flow
 - Private Equity Manager Recommendation (\$75 million)
 - Consistent with strategic plan at the Total Fund level (SAAP Target to Private Equity is 7%)
 - The ASRS has invested with this manager in a prior fund(s)
 - Due diligence process was followed in accordance with SIP 006 – Investment Manager, Partner, and Co-Investment Selection and Oversight
 - Committee approved the recommendation, recognizing that the commitment could be reduced to \$50 million due to oversubscription of the fund

- **August 20, 2014 – Private Markets Committee (continued)**

- Private Equity Manager Recommendation (\$75 million)
 - Consistent with strategic plan at the Total Fund level (SAAP Target to Private Equity is 7%)
 - The ASRS has invested with this manager in a prior fund(s)
 - Due diligence process was followed in accordance with SIP 006 – Investment Manager, Partner, and Co-Investment Selection and Oversight
 - Committee approved the recommendation
- Private Equity Co-Investment Recommendation (\$25 - \$50 million)
 - Consistent with strategic plan at the Total Fund level (SAAP Target to Private Equity is 7%)
 - The ASRS has invested with this manager in a prior fund(s) and co-investment opportunities
 - Due diligence process was followed in accordance with SIP 006 – Investment Manager, Partner, and Co-Investment Selection and Oversight
 - Committee approved the recommendation for an amount not less than \$25 million but not to exceed \$50 million
- Niche and Tactical Real Estate Investment Disposition Recommendation
 - RCLCO recommended the ASRS approve the recommendation to sell a multi-family rental development project in Brooklyn, NY
 - This was a continuation of the discussion at the August 8, 2014 PRIVMC meeting
 - Over the past several months, it had become increasingly clear that complicated and expensive litigation with the builder over cost disputes was inevitable, and the actual expense and timeline to complete the project would remain uncertain for the foreseeable future
 - Sale price of \$40.5 million results in 13%+ internal rate of return on the investment
 - Committee approved the recommendation
- Variance Request
 - RCLCO recommended the ASRS approve a request from an existing real estate manager to invest in a property that is ready for development
 - SMA guidelines do not allow for land development investments without Committee approval
 - Committee approved the recommendation

- **September 23, 2014 – Private Markets Committee**

- Monthly Status Report, General Discussion and Deal Flow
- Niche and Tactical Real Estate Investment Recommendation (\$50 million – follow up from discussion at August 8, 2014 PRIVMC meeting)
 - Consistent with strategic plan at the Total Fund level (SAAP Target to Real Estate is 8%)
 - Due diligence process was followed in accordance with SIP 006 – Investment Manager, Partner, and Co-Investment Selection and Oversight
 - Committee approved the recommendation
- Real Estate Investment Manager Recommendation (\$100 million)
 - Consistent with strategic plan at the Total Fund level (SAAP Target to Real Estate is 8%)
 - The ASRS has invested with this manager in a prior fund(s)
 - Recommendation intended to replace assets invested with an existing manager (see below)
 - Due diligence process was followed in accordance with SIP 006 – Investment Manager, Partner, and Co-Investment Selection and Oversight
 - Committee approved the recommendation
- Real Estate Investment Manager Redemption Recommendation (~\$75 million)
 - RCLCO provided a review of an existing investment manager, noting the similarities of the manager with the previously recommended manager in terms of strategy (see above) in addition to their belief in the superiority of the recommended manager's portfolio holdings
 - Discussion included exit queues (none currently), exit valuation methodologies, and other potential risks associated with the investment
 - Committee approved the recommendation
- Niche and Tactical Real Estate Investment Discussion
 - As the Committee continues to pursue niche and tactical investments in the real estate asset class, it does so in accordance with a documented procedure that includes approval by the Committee before conducting a full due diligence review on a potential investment
 - IMD Staff and RCLCO presented three potential investment opportunities and the Committee authorized further due diligence on two
 - Land banking investment was tabled

- **September 23, 2014 – Private Markets Committee (continued)**

- Separately Managed Account Portfolio Review
 - RCLCO presented the results of its first semi-annual portfolio review of the separately managed real estate accounts.
- Private Equity Manager Recommendation (\$50 million)
 - Consistent with strategic plan at the Total Fund level (SAAP Target to Private Equity is 7%)
 - Due diligence process was followed in accordance with SIP 006 – Investment Manager, Partner, and Co-Investment Selection and Oversight
 - Committee approved the recommendation

- **October 17, 2014 – Private Markets Committee**

- Monthly Status Report, General Discussion and Deal Flow
- Niche and Tactical Real Estate Investment Recommendation (\$100 million)
 - Consistent with strategic plan at the Total Fund level (SAAP Target to Real Estate is 8%)
 - Due diligence process was followed in accordance with SIP 006 – Investment Manager, Partner, and Co-Investment Selection and Oversight
 - Committee approved the recommendation
- Real Estate Investment Recommendation (\$150 million)
 - Consistent with strategic plan at the Total Fund level (SAAP Target to Real Estate is 8%)
 - The ASRS has invested with this manager in a prior fund(s)
 - Due diligence process was followed in accordance with SIP 006 – Investment Manager, Partner, and Co-Investment Selection and Oversight
 - Committee approved the recommendation
- Variance Request
 - RCLCO recommended the ASRS approve a request from an existing real estate manager to invest in a property that does not meet the investment criteria of the portfolio
 - SMA guidelines require a minimum bed count of 400; manager seeks to acquire facility with bed count of 330
 - Committee approved the recommendation

- **October 17, 2014 – Private Markets Committee (continued)**

- Niche and Tactical Real Estate Investment Discussion
 - As the Committee continues to pursue niche and tactical investments in the real estate asset class, it does so in accordance with a documented procedure that includes approval by the Committee before conducting a full due diligence review on a potential investment
 - IMD Staff and RCLCO presented a potential investment opportunity and the Committee authorized further due diligence

- **October 23, 2014 – Ad Hoc Private Markets Committee**

- Private Debt Co-Investment Recommendation (C\$12.5 million; \$11.1 million)
 - Consistent with strategic plan at the Total Fund level (SAAP Target to Private Debt is 3%)
 - The ASRS previously approved up to \$200 million in co-investment opportunities with this investment manager
 - To date, one \$10 million co-investment deal has been approved
 - Due diligence process was followed in accordance with SIP 006 – Investment Manager, Partner, and Co-Investment Selection and Oversight
 - Committee approved the recommendation
 - Debt portion of the deal was approved; equity portion of the deal was not approved citing SIP 006 policy due diligence requirements. Director, CIO and IMD Staff will present, at a later date, a proposed revision to SIP 006 to clarify the characteristics of co-investment opportunities and solicit feedback from IC members before requesting approval from the Board.

General Observations

- **The Fund continues to make significant progress moving the portfolio from the Interim SAAP toward the long-term SAAP.**
 - Full implementation results in a further reduction of 2% within U.S. Equities and 1% within U.S. Core Fixed Income and an increase of 1% to Private Equity, and 2% to Real Estate.
- **The Fund's exposure to global equities, which has been a significant contributor to strong absolute and relative Total Fund performance over the past several quarters, contributed negatively to absolute performance.**
 - Continued build-out of private debt and opportunistic debt asset classes provides an opportunity to generate equity-like returns with less volatility.
 - Underweight allocations to core, high yield and emerging market debt in favor of private and opportunistic debt strategies has proved to be a source of significant value add at the Total Fund level.
- **Valuations across many asset classes continue to appear stretched.**
 - Excluding emerging markets, equity P/E ratios are above long-term averages.
 - Credit spreads remain tight globally due to insatiable demand.
 - Many commodities futures' prices are in backwardation, meaning a higher forward price is expected relative to the current spot price.
- **We are currently working with IMD Staff to evaluate the Strategic Asset Allocation Policy (SAAP).**
- **Tactical positioning consistent with IMD House Views.**

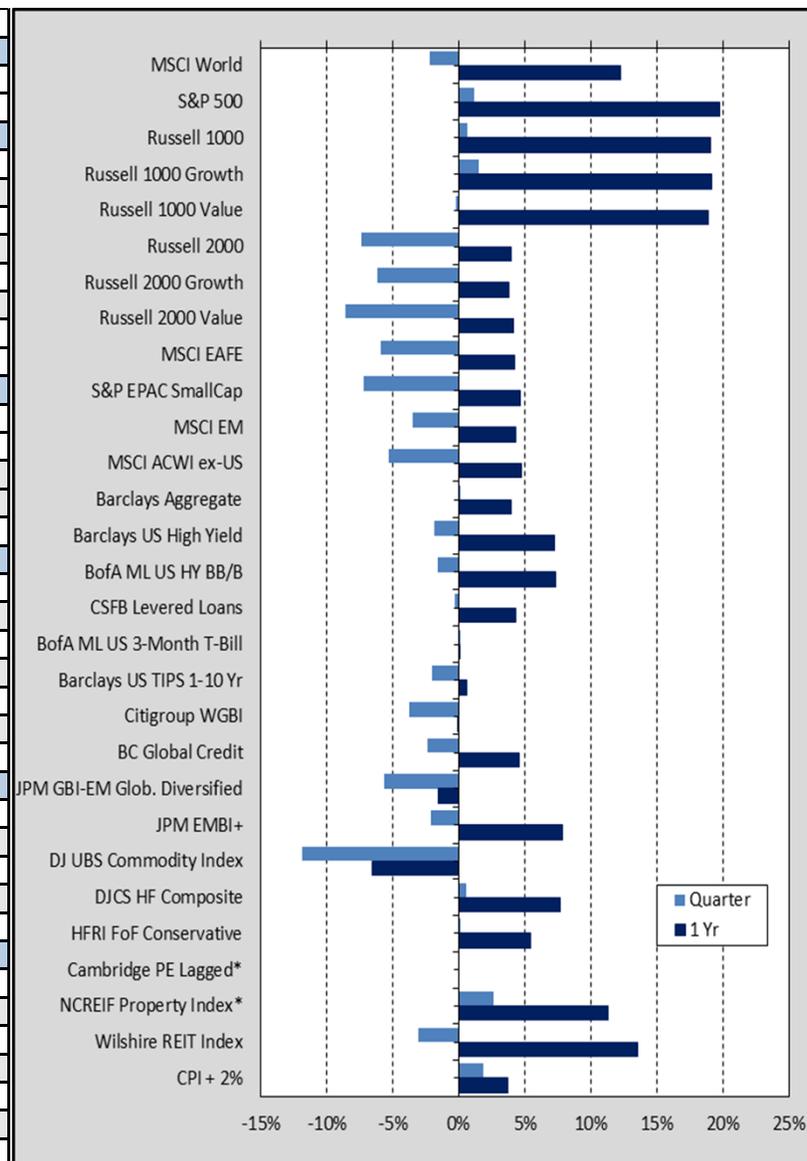
Market Environment Update and Outlook



- **Third quarter GDP grew at a rate of +3.5% (according to advance estimate) after increasing by 4.6% in the second quarter.**
 - Retail sales (ended September) rose to 3.1% on a year-over-year growth rate basis.
 - The inventory-to-sales ratio has remained mostly flat since early 2010 and closed at 1.29 in August.
 - Corporate profits as a percent of GDP ended three consecutive quarters of decline, slightly increasing to 12.2%, and remain elevated relative to historical levels.
 - The U.S. trade deficit decreased through August.
- **The unemployment rate fell to 5.9% in September; U-6, a broader measure of unemployment, fell to 11.8%.**
- **The Case-Schiller Home Price Index (as of 9/30) rose to 167.32 from 150.79 (as of 6/30) and is now higher than pre-financial crisis levels.**
- **Rolling 12-month CPI decreased to 1.7% at the end of September; Capacity Utilization rose slightly to 79.3% in September.**
- **Fed Funds rate remains at 0.25% while the 10-year Treasury Yield finished Q3 at 2.49%.**
- **The Fed balance sheet continues to increase in 2014, while European Central Bank balance sheet continues to decrease.**
 - ECB announced it will be embarking on an asset purchasing stimulus plan.
- **S&P valuations increased in September remaining above the 10-year and long-term averages, which are nearly equal at 16.4x, using current price/earnings ratios.**
 - Cyclically adjusted Shiller PE Ratio is above the long-term average of 17.6x and above the 10-year average of 22.9x.
- **The U.S. Dollar strengthened 6% against a basket of major currencies, the best quarterly gain since the financial crisis in 2008.**

Market Environment – Q3 2014 Overview

		Qtr.	1 Yr.	3 Yr.	5 Yr.	10 Yr.
World Equity Benchmarks						
MSCI World	World	-2.2%	12.2%	17.9%	10.9%	7.1%
Domestic Equity Benchmarks						
S&P 500	Large Core	1.1%	19.7%	23.0%	15.7%	8.1%
Russell 1000	Large Core	0.7%	19.0%	23.2%	15.9%	8.5%
Russell 1000 Growth	Large Growth	1.5%	19.2%	22.5%	16.5%	8.9%
Russell 1000 Value	Large Value	-0.2%	18.9%	23.9%	15.3%	7.8%
Russell 2000	Small Core	-7.4%	3.9%	21.3%	14.3%	8.2%
Russell 2000 Growth	Small Growth	-6.1%	3.8%	21.9%	15.5%	9.0%
Russell 2000 Value	Small Value	-8.6%	4.1%	20.6%	13.0%	7.3%
International Equity Benchmarks						
MSCI EAFE	International Developed	-5.9%	4.3%	13.7%	6.6%	6.3%
S&P EPAC SmallCap	Small Cap Int'l	-7.2%	4.6%	15.3%	9.1%	8.8%
MSCI EM	Emerging Equity	-3.5%	4.3%	7.2%	4.4%	10.7%
MSCI ACWI ex-US	World ex-US	-5.3%	4.8%	11.8%	6.0%	7.1%
Domestic Fixed Income Benchmarks						
Barclays Aggregate	Core Bonds	0.2%	4.0%	2.4%	4.1%	4.6%
Barclays US High Yield	High Yield	-1.9%	7.2%	11.1%	10.6%	8.3%
BofA ML US HY BB/B	High Yield	-1.6%	7.3%	10.3%	9.9%	7.6%
CSFB Levered Loans	Bank Loans	-0.3%	4.3%	6.9%	6.7%	4.9%
BofA ML US 3-Month T-Bill	Cash	0.0%	0.1%	0.1%	0.1%	1.6%
Barclays US TIPS 1-10 Yr	Inflation	-2.0%	0.6%	0.9%	3.4%	4.0%
Global Fixed Income Benchmarks						
Citigroup WGBI	World Gov. Bonds	-3.8%	-0.1%	-0.5%	1.6%	4.1%
BC Global Credit	Global Bonds	-2.4%	4.6%	5.7%	5.6%	5.5%
JPM GBI-EM Glob. Diversified	Em. Mkt. Bonds (Local)	-5.7%	-1.5%	2.2%	4.4%	8.8%
JPM EMBI+	Em. Mkt. Bonds	-2.1%	7.8%	6.9%	7.5%	8.3%
Alternative Benchmarks						
DJ UBS Commodity Index	Commodity	-11.8%	-6.6%	-5.3%	-1.4%	-1.0%
DJCS HF Composite	Hedge Fund	0.6%	7.7%	7.2%	6.4%	6.3%
HFRI FoF Conservative	Fund of Funds	0.1%	5.4%	4.9%	3.4%	2.8%
Cambridge PE Lagged*	Private Equity					
NCREIF Property Index*	Real Estate	2.6%	11.3%	11.1%	11.0%	8.5%
Wilshire REIT Index	REIT	-3.1%	13.5%	16.5%	16.0%	8.3%
CPI + 2%	Inflation/Real Assets	1.9%	3.7%	3.6%	4.0%	4.5%



* As of 6/30/2014

Positives

- **Fed asset purchases coming to an end; generally accepted by marketplace**
 - Divergence in monetary policies signaling different investment environments globally
- **Q3 GDP growth estimated at 3.5%**
 - U.S. employment continues to gain
 - August consumer confidence is highest since 2007, signaling bullish consumption expectations
- **ECB signals further monetary easing through asset purchases in addition to negative short dated interest rates**
- **Developed world inflation is low**

Negatives

- **Geopolitical instability drives volatility**
 - Instability in Mid-East, Ukraine, Scotland
- **Europe continues to see ongoing economic growth challenges**
- **U.S. Dollar strength translated to negative dollar denominated returns in international markets**
- **Valuations remain above 10-year and long-term averages**
 - Developed Equity P/Es above median
 - Credit spreads near historically low levels
- **Volatility re-emerged as the VIX rose substantially toward the end of the quarter**

Global Equity

- **U.S. equities advanced in the third quarter amid increasing volatility.**
- **Large cap stocks outperformed small cap stocks during the quarter, with the S&P 500 Index returning 1.1% versus -7.4% for the Russell 2000 Index.**
- **International equities underperformed U.S. markets during the quarter, returning -5.3% as measured by the MSCI ACWI ex-U.S. Index.**
 - Developed markets returned -5.3% as measured by the MSCI EAFE Index. Europe was the worst performing developed market region, returning -7.0%; subdued economic data in Japan resulted in a weaker Yen, bolstering imports and limiting losses to -2.3%.
 - Emerging markets returned -3.5% as measured by the MSCI Emerging Markets Index in U.S. dollar terms. In local currency terms emerging markets were up 0.6%. Emerging countries in Europe were the largest detractors; with Greece (-20%), Hungary (-12.8%), and Russia (-15.4%) suffering significant drawdowns.

Private Equity

- **New private equity commitments totaled \$85.6 billion in Q3 2014, bringing total new commitments to \$264.9 billion year-to-date. 2014 is on track to be the fifth straight year of increasing commitments.**
 - While the 2014 global PE fundraising pace increases, U.S. fundraising remains at 2013 pace with high U.S. equity and PE valuations causing investors to look to markets outside of the U.S.
- **Buyout and growth equity fund deal volume in both the U.S. and Europe has gradually declined throughout 2014.**
 - U.S. buyout and growth equity deals totaled \$110 billion and European buyout and growth deals totaled \$14 billion in the third quarter.
- **Venture capital commitments totaled \$37 billion at the end of September, outpacing total commitments for all of 2013.**
 - At 14% of total private equity raised, commitments are just below the 10-year historic relative average.
- **Mezzanine funds continue to face strong headwinds from a robust high yield market and an expanding supply of private debt.**
 - Mezzanine funds raised \$12.9 billion or 5% of total private equity funds raised.
- **Asian private equity commitments have accelerated in 2014 to \$31.2 billion.**
 - Represents 12% of the 2014 total across all geographies. Nearly 75% of all Asian PE funds raised in 2014 have been China-based.

Fixed Income

- **Risk aversion permeated fixed income markets in the third quarter amid growing concerns around economic growth and geopolitical events.**
- **The 10-year Treasury yield fell 4 basis points during the quarter, finishing at 2.49%.**
- **The Treasury yield curve flattened with the spread between two- and ten-year rates falling 16 basis points to 1.92%.**
- **Treasury Inflation-Protected Securities, or TIPS, underperformed nominal Treasuries due to lower inflation (expectations and actual), with the Barclays U.S. TIPS Index posting a loss of 2.0% during the quarter.**
- **After a long period of credit spreads narrowing, investment grade credit spreads widened 12 basis points to 1.12%.**
 - The U.S. Credit Index was ultimately flat due to a high volume of new issuances.
 - The Long Duration Credit Index returned 0.2% in the third quarter.
- **High yield bonds returned -1.9% as spreads increased to 463 basis points, nearly 100 basis points wider than the lows seen in June 2014.**
 - Unlike previous periods where low quality debt outperformed, higher quality BB-rated bonds outperformed in Q3.
- **Emerging markets debt slowed in the third quarter after a strong first half of the year.**
 - Concerns over geopolitical events, economic growth and a Fed rate increase caused local currency (JP Morgan GBI-EM Global Diversified – Unhedged) to fare worse than external currency (JP Morgan EMBI+) emerging markets debt resulting in losses of 5.7% and 2.1%, respectively.

Commodities

- **Commodities sold off in the third quarter with the Bloomberg Commodity Index losing 11.8%.**
 - Corn and Wheat were the biggest losers, returning -25.8% and -22.0%, respectively, weighing on the agriculture sector as a whole, resulting in losses of 18%.
- **Precious metals and energy sectors declined nearly 12% during the quarter after a negative supply outlook for crude oil from OPEC.**

Real Estate

- **NEPC continues to be neutral on core real estate in the U.S. and remains positive on non-core real estate, that is, value-add and opportunistic strategies.**
- **Within U.S. core real estate, strong fundamentals continue to be the story along with attractive income spreads relative to interest rates.**
 - The concern for U.S. core real estate (and U.S. real estate, broadly) continues to be plentiful capital that is driving up pricing and the market's expectation for higher future interest rates and the impact on capitalization rates and capital values.
- **U.S. REITs traded down relative to net asset values and traded to 4.5% below NAV (long-term average is 2.4% above NAV).**
 - 14.5% compounded return through Q3 versus 1.9% annual return in 2013 and 2.2% 20 year average annual return in U.S. REIT Index
 - 15.1x FFO multiples down from 16x or above (recently) remains above the average of 12.5x since 2000.
- **Overall, the non-core real estate investment environment in the U.S. is normalizing; however, select areas remain attractive.**
- **Europe is viewed as the best place for a marginal dollar of non-core real estate investment.**
 - Europe is emerging from multi-year recession, but recovery is slow.
 - Banks in EU are still overleveraged and have significant real estate exposure (banks in Europe hold 90%+ of real estate debt or €2,300B; in the U.S. banks hold 49% of real estate debt).

Real Assets/Inflation-Linked Assets

- **NEPC believes that energy, specifically in North America, represents an attractive opportunity in the up-stream and mid-stream parts of the energy value chain.**
- **OPEC and Saudi Arabia have indicated a willingness to allow lower oil prices to persist in efforts to cement market share and reduce marginal supply.**
- **NEPC continues to believe in the long-term demand drivers in agriculture.**
- **Timber is an area of portfolios where we would recommend underweight positions as total return targets are low with a relatively small market opportunity and managers seeking deals outside the U.S.**

- **Currency volatility is likely to continue.**
 - Effect of divergent central bank policies is ongoing and subject to change themselves.
 - Good opportunity to evaluate currency risk and consider a partially hedged approach.
- **Recent developed equity sell-off is quite normal relative to history.**
 - U.S. has experienced moderate growth rebound and cheaper energy and stronger dollar can provide buffer to the economy.
 - U.S. valuations are above average, but not unreasonably so, while profit margins appear somewhat stretched.
 - European equities have less positive macroeconomic outlook, but ECB actions could provide short-term support.
- **Emerging market dispersion to remain an ongoing theme.**
 - Geopolitical risks continue to simmer in many countries, while others appear to be well positioned for strong growth.
 - Employ active management with well-developed macro views to help navigate tricky environment and avoid pitfalls of benchmark biases.
- **Stay positioned to take advantage of volatility as central bank policy expectations flow through to markets.**
 - Uncertainty remains about the effectiveness of ECB stimulus and the timing of the Fed raising rates.
 - Steep yield curve suggests long-term bonds offer a better risk profile as a duration source.
 - Higher volatility should benefit active management and yield more attractive opportunities for dynamic strategies.

NEPC Updates

Third Quarter 2014

Highlights of Third Quarter Happenings at NEPC

NEPC Research

Recent White Papers Posted

- *Demystifying Systematic Macro Hedge Fund Strategies (October 2014)* – Alex N. Kamunya, CAIA, Senior Research Consultant, Hedge Funds
- *Investing in a Low-Return World: Avoiding Portfolio Paralysis (September 2014)* – Timothy McCusker, FSA, CFA, CAIA, Chief Investment Officer
- *Private Equity Fundraising: Too Fast, Too Furious? (August 2014)* – NEPC Private Equity Team
- *Investment Outsourcing: Evolution of the Industry, Products and Solutions (August 2014)* – Steven F. Charlton, CFA, Director of Consulting Services



CIO Magazine's Influential Investment Consultants 2014 Awards

NEPC is excited to announce that two of its professionals appeared on CIO Magazine's (formerly aiCIO) annual list of the world's 25 most influential investment consultants in the institutional investment universe. **Chief Investment Officer, Tim McCusker**, was in the top ten, ranking sixth, and **KC Connors**, a fellow **NEPC Partner and Head of our Philanthropic Practice Team**, ranked eighteenth. The list, released earlier this month, is CIO's yearly ranking of the most influential institutional consultants who have made a positive impact working with their clients. Sourced from interviews with pension and non-profit CIOs, asset managers and former consultants, the list "represents our best approximation of the hierarchy of today's institutional consultant industry," said CIO. To learn more visit: <http://www.ai-cio.com/2014 Knowledge Brokers.aspx>

NEPC's Video Series – "Five Questions With..."

We are excited to announce NEPC's Video Series— "Five Questions With..."—and we couldn't think of a better way to kick off this series of investment insights than an interview with our very own CIO, Tim McCusker! Tim discusses his thoughts on the market and investment opportunities, and provides a recap of his first 100 days as NEPC's CIO. The goal of our series is to provide the perspectives of industry leaders and experts, who will discuss the state of the market and opportunities. We hope you enjoy this inaugural video and please be on the lookout for additional interviews in the near future! To view the video please visit: http://www.nepc.com/clients/endowments_foundations

Appendix: SAA Policy History



Strategic Asset Allocation Policy (SAAP) History

- 7/1/75 – 12/31/79 – 40% S&P 500/60% Barclays Capital Aggregate
- 1/1/80 – 12/31/83 – 50% S&P 500/50% Barclays Capital Aggregate
- 1/1/84 – 12/31/91 – 60% S&P 500/40% Barclays Capital Aggregate
- 1/1/92 – 12/31/94 – 50% S&P 500/10% MSCI EAFE/40% Barclays Capital Aggregate
- 1/1/95 – 6/30/97 – 45% S&P 500/15% MSCI EAFE/40% Barclays Capital Aggregate
- 7/1/97 – 12/31/99 – 50% S&P 500/15% MSCI EAFE/35% Barclays Capital Aggregate
- 1/1/00 – 9/30/03 – 53% S&P 500/17% MSCI EAFE/30% Barclays Capital Aggregate
- 10/1/03 – 12/31/06 – 53% S&P 500/15% MSCI EAFE/ACWI ex-U.S.¹/26% Barclays Capital Aggregate/6% NCREIF ODCE (lagged one quarter)
- 1/1/07 – 10/31/2009 – 31% S&P 500/7% S&P 400/7% S&P 600/18% MSCI ACWI ex-U.S./5% Russell 2000 (lagged one quarter)/26% Barclays Capital Aggregate/6% NCREIF ODCE (lagged one quarter)
- 11/1/2009 – 6/30/2012 – 28% S&P 500/6% S&P 400/6% S&P 600/13% MSCI EAFE/2% MSCI EAFE Small Cap/3% MSCI Emerging Markets/7% Russell 2000 (lagged one quarter)/24% Barclays Capital Aggregate/2% Barclays Capital High Yield/6% NCREIF ODCE (lagged one quarter)/3% Dow Jones/UBS Commodities Index
- **7/1/2012 – Present – 23% S&P 500/5% S&P 400/5% S&P 600/14% MSCI EAFE/3% MSCI EAFE Small Cap/6% MSCI Emerging Markets/7% Russell 2000 (lagged one quarter)/13% Barclays Capital Aggregate/5% Barclays Capital High Yield/4% JP Morgan GBI-EM Global Diversified/3% S&P/LSTA Levered Loan Index + 250 basis points (lagged one quarter)/8% NCREIF ODCE (lagged one quarter)/4% Dow Jones/UBS Commodities Index**
- *Interim SAA Policy: 25% S&P 500/5% S&P 400/5% S&P 600/14% MSCI EAFE/3% MSCI EAFE Small Cap/6% MSCI Emerging Markets/6% Russell 2000 (lagged one quarter)/14% Barclays Capital Aggregate/5% Barclays Capital High Yield/4% JP Morgan GBI-EM Global Diversified/3% S&P/LSTA Levered Loan Index + 250 basis points (lagged one quarter)/6% NCREIF ODCE (lagged one quarter)/4% Dow Jones/UBS Commodities Index

Note: Interim SAA Policy includes a proration of 1% Private Equity and 2% Real Estate, which are unfunded. Private Equity was prorated to domestic equity; Real Estate was prorated to domestic equity and fixed income. Recently approved Strategic Asset Allocation Policy effective July 1, 2012.

¹MSCI EAFE/ACWI ex-U.S. Benchmark is the MSCI EAFE Index prior to 10/1/2005 and the MSCI ACWI ex-U.S. thereafter.

Note: All MSCI indices changed from Gross to Net of dividend withholding taxes effective 1/1/2014.



ASRS Custom Asset Class Benchmark History

- **ASRS Custom Total Equity Benchmark** was 77% S&P 500, 23% MSCI EAFE through 12/31/1999; 76% S&P 500, 24% MSCI EAFE through 9/30/2003; 78% S&P 500, 22% MSCI EAFE/ACWI ex-U.S.¹ through 12/31/2006; 49% S&P 500, 11% S&P 400, 11% S&P 600, 29% MSCI ACWI ex-U.S. through 10/31/2009; 48% S&P 500, 10% S&P 400, 10% S&P 600, 23% MSCI EAFE, 4% MSCI EAFE Small Cap, 5% MSCI Emerging Markets through 6/30/2012; 41% S&P 500, 9% S&P 400, 9% S&P 600, 25% MSCI EAFE, 5% MSCI EAFE Small Cap, 11% MSCI Emerging Markets thereafter.
- **ASRS Custom Domestic Equity Benchmark** was S&P 500 through 12/31/2006; 74% S&P 500, 13% S&P 400, 13% S&P 600 through 12/31/2010; 70% S&P 500, 15% S&P 400, and 15% S&P 600 thereafter.
- **ASRS Custom International Equity Benchmark** was MSCI EAFE through 9/30/2005; MSCI ACWI ex-U.S. through 12/31/2010; 72% MSCI EAFE, 11% MSCI EAFE Small Cap and 17% MSCI Emerging Markets through 6/30/2012; 61% MSCI EAFE, 13% MSCI EAFE Small Cap and 26% MSCI Emerging Markets thereafter.
- **ASRS Custom Public Markets Fixed Income Benchmark** was Barclays Capital U.S. Aggregate Index through 12/31/2010; 93% Barclays Capital U.S. Aggregate Index, 7% Barclays Capital U.S. High Yield Bond Index through 12/31/2012; 59% Barclays Capital U.S. Aggregate Index, 23% Barclays Capital U.S. High Yield Bond Index, 18% JP Morgan GBI-EM Global Diversified thereafter.
- **ASRS Custom GTAA Benchmark** was 56% S&P 500, 16% MSCI EAFE, 28% Barclays Capital Aggregate through 9/30/2011; 50% S&P 500, 19% MSCI EAFE, 28% Barclays Capital Aggregate, and 3% DJ UBS Commodities Index through 06/30/2012; 43% S&P 500, 25% MSCI EAFE, 28% Barclays Capital Aggregate, and 4% DJ UBS Commodities Index thereafter.
- **ASRS Custom Inflation-Linked Benchmark** was 100% Barclays Capital U.S. TIPS through 7/31/2010; 50% Barclays Capital U.S. TIPS, 50% DJ UBS Commodities Index through 8/31/2010; 30% Barclays Capital U.S. TIPS, 70% DJ UBS Commodities Index through 5/31/2011; 100% DJ UBS Commodities Index thereafter.

¹MSCI EAFE/ACWI ex-U.S. Benchmark is the MSCI EAFE Index prior to 10/1/2005 and the MSCI ACWI ex-U.S. thereafter.

Note: All MSCI indices changed from Gross to Net of dividend withholding taxes effective 1/1/2014.



- **The client's custodian bank is NEPC's preferred data source unless otherwise directed. NEPC reconciles custodian data to manager data. If the custodian cannot provide accurate data, manager data may be used.**
- **Trailing time period returns are determined by geometrically linking the holding period returns, from the first full month after inception to the report date. Rates of Return are annualized when the time period is longer than a year. Performance is presented gross and/or net of fees as indicated.**
- **For managers funded in the middle of a month, the 'since inception' return will start with the first full month, although actual inception dates and cash flows are included in all respective Composite calculations.**
- **This report may contain forward-looking statements that are based on NEPC's estimates, opinions and beliefs, but NEPC cannot guarantee that any plan will achieve its targeted return or meet other goals.**

- **Past performance is no guarantee of future results.**
- **All investments carry some level of risk. Diversification and other asset allocation techniques are not guaranteed to ensure profit or protect against losses.**
- **Some index returns displayed in this report or used in calculation of a policy, allocation or custom benchmark may not be available from the source or may be preliminary and subject to change.**
- **NEPC's source for portfolio pricing, calculation of accruals, and transaction information is the Plan's custodian bank. Information on market indices and security characteristics is received from other sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained herein.**
- **This report is provided as a management aid for the client's internal use only. Performance in this report does not constitute a recommendation by NEPC.**
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ARIZONA STATE RETIREMENT SYSTEM

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Paul Matson
Director

MEMORANDUM

TO: Arizona State Retirement System (ASRS) Board Trustees

FROM: Mr. Kevin McCarthy, Chair, Arizona State Retirement System (ASRS) Board

DATE: November 21, 2014

RE: **Agenda Item #10:** Presentation, Discussion and Appropriate Action Regarding the Board Self-Evaluation Material Distribution

Purpose

According to the Board Governance Policy Handbook Section M, Board Performance Evaluation, the Board conducts an annual Self-evaluation and Overall Board Evaluation.

Recommendation

The Board Self-evaluation is currently scheduled and will immediately follow the regular Board meeting on January 30, 2015. There are two parts to the Board Self-evaluation process:

1. **ASRS Trustee Self-evaluation:** Please review the Trustee Self-evaluation document prior to the Overall Board Evaluation. The completion of this self-evaluation is to assist you in the Overall Board Evaluation; you do not need to submit the self-evaluation form to the Board Chair.
2. **ASRS Board Evaluation:** Please complete the Overall Board Evaluation Form and submit the form and/or any comments to the Board Chair, Mr. Kevin McCarthy, prior to January 5, 2015. You may submit your evaluation materials and/or comments to Mr. McCarthy via email or U.S. mail. Your responses will be compiled and summarized for discussion at a January Board meeting.

Included in your Board book is a large envelope which includes the evaluation materials as well as contact information for Mr. McCarthy.



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Paul Matson
Director

MEMORANDUM

TO: Mr. Kevin McCarthy, Chair, Arizona State Retirement System (ASRS) Board

FROM: Mr. Paul Matson, Director
Mr. Bernard Glick, Chief Internal Auditor

DATE: November 21, 2014

RE: Internal Audit Review of Internal Investment Validation for the month ending October 31, 2014

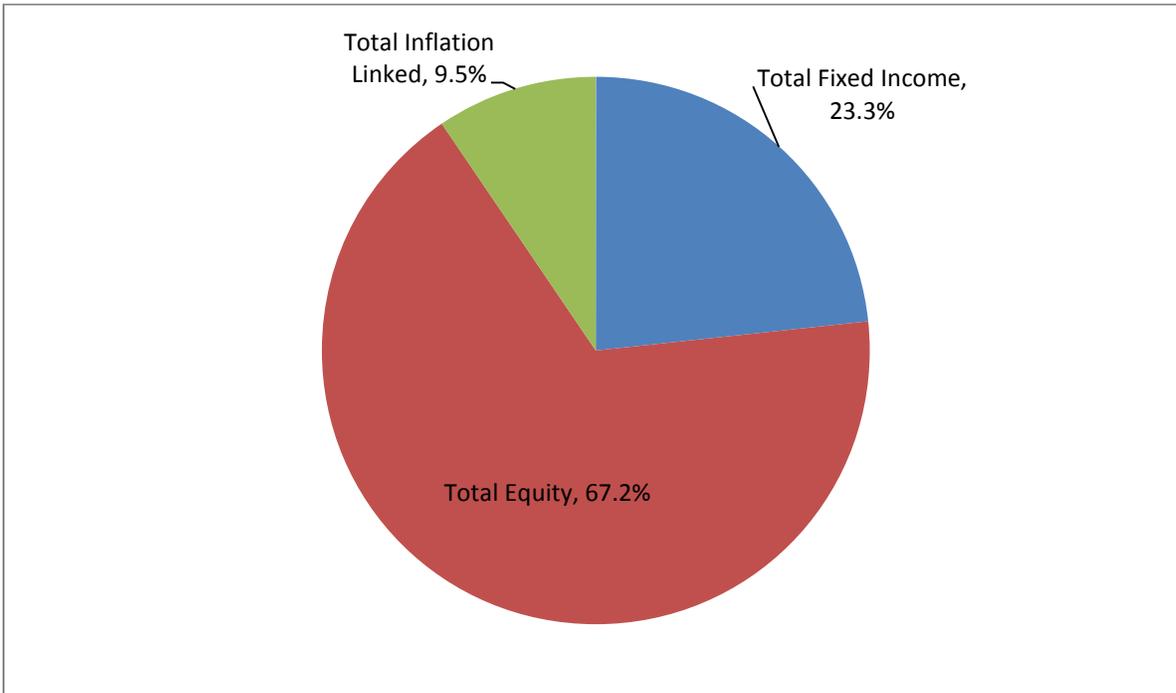
The Internal Audit Division reviewed 823 trade transactions in the month of October on all the activity in the E2, E3, E4, E6, E7, E8, E9 and F2 accounts. Our review included:

- Determining that the transaction was properly approved.
- Reviewing the transaction for mathematical accuracy.
- Ensuring that the description and ticker symbol matched the CUSIP number.
- Reconciliation of transaction from trade ticket to custody bank transaction download
- Other tests that we deemed appropriate

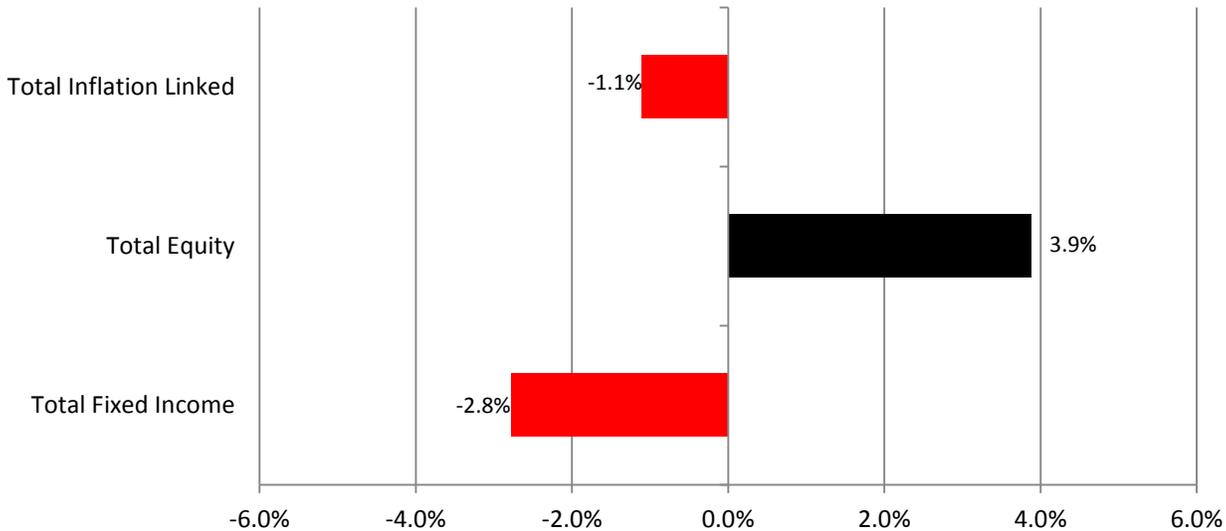
No infractions were noted during our review. Based on this review, we believe the procedures for executing and reporting internal investment transactions have been followed for this time reportable period.

TOTAL FUND POSITIONING – 10/31/14

ACTUAL PORTFOLIO



ACTUAL PORTFOLIO (ASSUMED GTAA ALLOCATION VS. ADJUSTED SAA POLICY *)



*Real Estate and Private Equity actual weight is equal to policy weight during the implementation of the asset class.

*Over/Underweights include both GTAA positions as well as IMD tactical considerations.

Note: Opportunistic & Private Debt, Opportunistic Private Equity, Farmland & Timber, Real Estate and Private Equity market values are reported on a quarter-lag and adjusted to include the current quarter's cash flows. Within the Assumed GTAA Allocation vs. Adjusted SAA Policy chart, Real Estate was prorated to domestic equity, international equity and fixed income. Private Equity was prorated to domestic equity.

Pension (Plan, System, HBS Assets) ASRS Market Value Report As of: Friday, October 31, 2014

Account Manager	Account Manager Style	Fixed Income		Equity		Inflation Linked		Total	Pct of Fund
		Active	Enh/Passive	Active	Enh/Passive	Active	Enh/Passive		
State Street B&T: Boston	Master Cash & Pension Acct.		139,949,815					139,949,815	0.41%
	Cash Total							\$139,949,815	0.41%
GTAA Managers (2)	Active GTAA	1,203,488,536						1,203,488,536	3.54%
Blackrock: San Francisco	Passive (Intermediate Gov Credit)		24,068,300					24,068,300	0.07%
ASRS: Phoenix	Enhanced Passive F2		1,857,004,177					1,857,004,177	5.46%
Blackrock: San Francisco	Passive (US Debt Index)		436,393,709					436,393,709	1.28%
	Core Fixed Income Total							\$3,520,954,721	10.35%
	Core Fixed Income Policy								13.00%
Columbia: Minneapolis	Active	800,233,171						800,233,171	2.35%
JP Morgan: Indianapolis	Active	479,531,046						479,531,046	1.41%
	High Yield Fixed Income Total							\$1,279,777,971	3.76%
	High Yield Fixed Income Policy								5.00%
	US Fixed Income Total							\$4,800,732,693	14.11%
	US Fixed Income Policy Range: 8% - 28%								18.00%
PIMCO (local): Newport Beach	Active	342,695,180						342,695,180	1.01%
Ashmore (blended): London	Active	408,658,763						408,658,763	1.20%
	EM Debt Total							\$751,353,943	2.21%
	EM Debt Policy								4.00%
	Opportunistic Debt							\$1,044,838,387	3.07%
	Opportunistic Debt Policy Range: 0% - 10%								0.00%
	Private Debt Total							\$1,188,130,250	3.49%
	Private Debt Policy								3.00%
	Fixed Income Total							\$7,925,005,087	23.29%
	Total Fixed Income Policy Range: 15% - 35%								25.00%
Intech: FL	Active (Growth)			479,878,854				479,878,854	1.41%
LSV: Chicago	Active (Value)			815,752,195				815,752,195	2.40%
GTAA Managers (2)	Active GTAA			1,182,442,770				1,182,442,770	3.48%
ASRS: Phoenix	Passive E2				5,060,275,797			5,060,275,797	14.87%
ASRS: Phoenix	Enhanced Passive E7				792,681,069			792,681,069	2.33%
ASRS: Phoenix	Enhanced Passive E8				522,429,531			522,429,531	1.54%
ASRS: Phoenix	Risk Factor Portfolio				530,039,708			530,039,708	1.56%
	Large Cap Equity Total							\$9,383,523,136	27.58%
	Large Cap Policy								23.00%
Wellington: Boston	Active (Core)			414,839,641				414,839,641	1.22%
CRM: New York	Active (Value)			99,536,956				99,536,956	0.29%
ASRS: Phoenix	Passive E3 (Growth)				503,880,810			503,880,810	1.48%
ASRS: Phoenix	Passive E4 (Value)				518,787,403			518,787,403	1.52%
	Mid Cap Equity Total							\$1,537,044,810	4.52%
	Mid Cap Policy								5.00%
TimesSquare: New York	Active SMID (Growth)			455,402,792				455,402,792	1.34%
DFA: Santa Monica	Active (Value)			387,795,183				387,795,183	1.14%
Champlain: Vermont	Active (Core)			94,242,950				94,242,950	0.28%
ASRS: Phoenix	Passive E6				483,432,942			483,432,942	1.42%
	Small Cap Equity Total							\$1,420,873,868	4.18%
	Small Cap Policy								5.00%
	U.S. Equity Total							\$12,341,441,814	36.27%
	US Equity Policy Range: 26% - 38%								33.00%
Brandes: San Diego	Active (Value)			555,792,068				555,792,068	1.63%
GTAA Managers (2)	Active GTAA			970,852,483				970,852,483	2.85%
American Century	Active (EAFE)			504,254,064				504,254,064	1.48%
Trinity Street	Active (EAFE)			319,197,235				319,197,235	0.94%
Thompson Siegel Walmsley	Active (EAFE)			149,461,786				149,461,786	0.44%
Blackrock: San Francisco	Passive (EAFE)				2,242,053,905			2,242,053,905	6.59%
	Large Cap Developed Non-US Equity Total							\$4,743,881,098	13.94%
	Large Cap Developed Policy								14.00%
AQR: Greenwich	Active (EAFE SC)			168,872,394				168,872,394	0.50%
DFA: Santa Monica	Active (EAFE SC)			203,557,202				203,557,202	0.60%
Franklin Templeton: San Mateo	Active (EAFE SC)			381,936,483				381,936,483	1.12%
Blackrock: San Francisco	Passive (EAFE SC)				429,068,181			429,068,181	1.26%
	Small Cap Developed Non-US Equity Total							\$1,183,437,141	3.48%
	Small Cap Developed Policy								3.00%
William Blair: Chicago	Active (EM)			471,729,230				471,729,230	1.39%
Eaton Vance: Boston	Active (EM)			503,691,983				503,691,983	1.48%
LSV: Chicago	Active (EM)			305,336,528				305,336,528	0.90%
Blackrock: San Francisco	Passive (EM)				676,449,623			676,449,623	1.99%
	Emerging Markets Equity Total							\$1,957,207,364	5.75%
	Emerging Markets Policy								6.00%
	Non-US Equity Total							\$7,884,525,603	23.17%
	Non-US Equity Policy Range: 16% - 28%								23.00%
	Private Equity Total							\$2,263,046,571	6.65%
	Private Equity Policy Range: 5% - 9%								7.00%
	Opportunistic Equity							\$378,826,455	1.11%
	Opportunistic Equity Policy Range: 0% - 3%								0.00%
	Equity Total							\$22,867,840,443	67.21%
	Total Equity Policy Range: 53% - 73%								63.00%
Gresham: New York	Active GTAA					760,895,604		760,895,604	2.24%
GTAA Managers (2)	Active GTAA					298,223,444		298,223,444	0.88%
	Commodities Total							\$1,059,119,048	3.11%
	Commodities Policy Range: 1% - 7%								4.00%
GTAA Manager (1)	Active GTAA					43,035,958		43,035,958	0.13%
	Real Estate Total							\$2,027,414,647	5.96%
	Real Estate Policy Range: 6% - 10%								8.00%
	Infrastructure Total							\$0	0.00%
	Infrastructure Policy Range: 0% - 3%								0.00%
	Farmland & Timber Total					146,009,309		\$146,009,309	0.43%
	Farmland & Timber Policy Range: 0% - 3%								0.00%
	Opportunistic Inflation Linked Total							\$0	0.00%
	Opportunistic I/L Policy Range: 0% - 3%								0.00%
	Inflation Linked Total							\$3,232,543,004	9.50%
	Inflation Linked Policy Range: 7%-15%								12.00%
	TOTAL Amounts	\$4,422,750,700	\$3,502,254,387	\$11,108,718,262	\$11,759,122,182	\$3,378,552,313	\$0	\$34,025,388,534	Total Fund
	TOTAL Percent	13.00%	10.29%	32.65%	34.56%	9.93%	0.00%		

Asset Class	Actual Portfolio	SAA Policy: Target (Range)	Rebalancing		Assumed - Adjusted		Policy Band check	Passive Min	Passive Actual
			Assumed Port	Adj Policy	% diff	\$ diff			
Cash	0.41%								
Core	10.35%	13%						50%	69%
High Yield	3.76%	5%							
US Fixed Income	14.11%	18% (8-28%)	14.03%	18.57% (9-29%)	-4.54%	-\$1,546,416,474	OK		
EM Debt	2.21%	4%		4.00%					
Opportunistic Debt	3.07%	0% (0-10%)	3.07%	0% (0-10%)	3.07%	\$1,044,838,387	OK		
Private Debt	3.49%	3%		3.00%					
Total Fixed Income	23.29%	25% (15-35%)	22.80%	25.57% (16-36%)	-2.77%	-\$943,871,092	OK		
Large Cap	27.58%	23%							
Mid Cap	4.52%	5%							
Small Cap	4.18%	5%							
US Equity	36.27%	33% (26-38%)	37.47%	34.23% (27-39%)	3.24%	\$1,103,363,706	OK	50%	66%
Developed Large Cap	13.94%	14%							
Developed Small Cap	3.48%	3%							
Emerging Markets	5.75%	6%							
Non-US Equity	23.17%	23% (16-28%)	23.04%	23.51% (17-29%)	-0.47%	-\$161,309,553	OK	30%	49%
Private Equity	6.65%	7% (5-9%)	6.65%	6.65% (5-9%)	0.00%	\$0	OK		
Opportunistic Equity	1.11%	0% (0-3%)	1.11%	0% (0-3%)	1.11%	\$378,826,455	OK		
Total Equity	67.21%	63% (53-70%)	68.27%	64.39% (54-71%)	3.88%	\$1,320,880,608	OK		
Commodities	3.11%	4% (1-7%)	2.67%	4.08% (1-7%)	-1.41%	-\$479,982,867	OK		
Real Estate	5.96%	8% (6-10%)	5.83%	5.96% (4-8%)	-0.13%	-\$43,035,958	OK		
Infrastructure	0.00%	0% (0-3%)	0.00%	0% (0-3%)	0.00%	\$0	OK		
Farmland & Timber	0.43%	0% (0-3%)	0.43%	0% (0-3%)	0.43%	\$146,009,309	OK		
Opportunistic I/L	0.00%	0% (0-3%)	0.00%	0% (0-3%)	0.00%	\$0	OK		
Total Inflation Linked	9.50%	12% (8-16%)	8.93%	10.04% (6-14%)	-1.11%	-\$377,009,516	OK		
Total	100.00%	100%	100.00%	100.00%	0.00%	\$0		30%	42%
								Internally Managed Portfolios:	
								\$9,738,491,730	
								29%	
Total GTAA								Opportunistic definitions:	
Bridgewater	\$3,104,443,768	9.1%						1) Tactical in nature: Function of market dislocation AND	
Windham	\$593,599,424	1.7%						2a) Outside SAA benchmark, OR	
Total	\$3,698,043,191	10.9%						2b) Within SAA benchmark but absolute return oriented	
Policy	10% ±5%	OK							

ASRS Pension and HBS Assets
Public Securities Markets
Investment Managers Performance Summary

Period Ending Oct 31, 2014
FINAL



	Style	Inception	Amount (\$mil.)	Net Returns (%)								Excess Returns (basis points)								
				Month	3 Months	YTD	1 Year	Annualized			ITD	Month	3 Months	YTD	1 Year	Annualized			ITD	
								3 Years	5 Years	10 Years						3 Years	5 Years	10 years		
US EQUITY LARGE CAP																				
E2 MODEL	INDEXED	04/01/1997	5,060	2.46	5.07	11.01	17.30	19.75	16.69	8.25	7.77	2	2	2	3	-2	-1	5	8	
	<i>S&P 500 INDEX</i>			2.44	5.05	10.99	17.27	19.77	16.69	8.20	---									
INTECH LARGE CAP	QUANTITATIVE	01/01/2003	480	2.08	4.80	9.08	16.33	18.60	16.73	8.37	10.05	-85	-144	-350	-305	-113	-64	-68	42	
	<i>S&P/CITIGROUP 500 GROWTH</i>			2.94	6.24	12.57	19.39	19.73	17.37	9.05	---									
LSV ASSET MANAGEMENT	QUANTITATIVE	01/01/2003	816	2.09	2.89	9.12	16.86	23.00	18.04	9.56	11.64	21	-84	-13	189	312	202	226	239	
	<i>LSV CUSTOM INDEX</i>			1.88	3.72	9.25	14.96	19.87	16.02	7.30	---									
E7	INDEXED	08/01/2012	793	2.42	5.66	12.55	16.92	---	---	---	18.48	1	-1	-6	-6	---	---	---	11	
	<i>MSCI USA High Dividend Yield Index</i>			2.41	5.68	12.61	16.98	---	---	---	---									
E8	INDEXED	08/01/2012	522	4.25	7.65	12.61	15.80	---	---	---	17.03	-5	-7	8	33	---	---	---	60	
	<i>MSCI USA Minimum Volatility Index</i>			4.30	7.72	12.53	15.47	---	---	---	---									
TOTAL US EQUITY LARGE CAP			\$ 7,671																	
US EQUITY MID CAP																				
WELLINGTON MANAGEMENT COMPANY LLP	FUNDAMENTAL	07/01/2002	415	3.56	3.68	9.06	15.89	20.94	17.88	11.98	11.65	-1	-20	217	423	227	-40	148	114	
	<i>S&P 400 MIDCAP INDEX</i>			3.56	3.88	6.89	11.65	18.66	18.28	10.50	---									
E3 MODEL	INDEXED	12/01/2000	504	3.09	4.06	4.77	10.14	16.90	18.66	11.28	8.66	1	0	1	10	25	46	55	56	
	<i>S&P/CITIGROUP 400 GROWTH</i>			3.08	4.06	4.76	10.04	16.64	18.20	10.73	---									
CRM MID CAP VALUE	FUNDAMENTAL	01/01/2004	100	1.48	1.55	2.46	10.74	16.66	14.40	9.09	9.70	-258	-214	-668	-263	-413	-398	-113	-38	
E4 MODEL	INDEXED	07/01/2002	519	4.07	3.62	9.00	13.20	20.61	18.28	10.48	10.74	0	-6	-13	-17	-18	-11	26	20	
	<i>S&P/CITIGROUP 400 VALUE</i>			4.06	3.69	9.14	13.36	20.79	18.39	10.22	---									
TOTAL US EQUITY MID CAP			\$ 1,537																	
US EQUITY SMALL CAP																				
DIMENSIONAL FUND ADVISORS EQFD	QUANTITATIVE	09/01/1998	387	2.83	2.05	2.96	10.02	21.75	19.51	10.05	12.39	-434	-317	-141	-48	69	69	43	109	
	<i>DFA BLENDED BENCHMARK</i>			7.18	5.22	4.37	10.51	21.06	18.81	9.62	---									
TIMESQUARE CAPITAL MANAGEMENT	FUNDAMENTAL	04/01/2005	455	4.03	4.52	0.77	7.76	20.49	19.65	---	12.46	-38	-79	-321	-248	185	45	---	249	
	<i>RUSSELL 2500 GROWTH</i>			4.40	5.31	3.98	10.24	18.64	19.20	---	---									
CHAMPLAIN INVESTMENT PARTNERS LLC	FUNDAMENTAL	01/01/2008	94	8.17	8.44	3.37	8.25	16.69	17.02	---	10.12	108	275	27	-104	-328	-222	---	51	
E6	INDEXED	02/01/2007	483	7.11	5.69	3.03	9.29	19.93	19.07	---	8.46	2	0	-7	-1	-4	-17	---	36	
	<i>S&P 600 SMALL CAP</i>			7.09	5.69	3.10	9.29	19.97	19.24	---	---									
TOTAL US EQUITY SMALL CAP			\$ 1,420																	
TOTAL US EQUITY				\$ 10,628																
INTERNATIONAL DEVELOPED LARGE CAP																				
BRANDES INVESTMENT PARTNERS INT EQ	FUNDAMENTAL	10/01/1998	556	-2.39	-6.92	-2.31	-1.13	9.71	6.29	5.65	9.10	-94	-154	50	-56	-32	-117	-161	281	
	<i>BRANDES CUSTOM INDEX</i>			-1.45	-5.39	-2.81	-0.57	10.03	7.47	7.26	---									
AMERICAN CENTURY	FUNDAMENTAL	07/01/2014	504	-0.15	-2.21	---	---	---	---	---	-4.98	130	317	---	---	---	---	---	226	
BGI EAFE INDEX	INDEXED	07/01/2009	2,267	-1.44	-5.39	-2.57	-0.39	9.96	6.83	---	9.74	1	0	24	18	-7	-8	---	-8	
THOMSON, SIEGEL & WALMSLEY	FUNDAMENTAL	07/01/2014	149	-1.89	-5.93	---	---	---	---	---	-7.64	-44	-54	---	---	---	---	---	-40	



				Net Returns (%)							Excess Returns (basis points)								
	Style	Inception	Amount (\$mil.)	Month	3 Months	YTD	1 Year	Annualized			Month	3 Months	YTD	1 Year	Annualized			ITD	
								3 Years	5 Years	10 Years					3 Years	5 Years	10 years		
TRINITY STREET	FUNDAMENTAL	07/01/2014	319	-1.59	-5.64	---	---	---	---	---	-7.93	-13	-26	---	---	---	---	---	-69
<i>MSCI EAFE NET</i>				-1.45	-5.39	---	---	---	---	---	---								
TOTAL INTERNATIONAL DEVELOPED LARGE CAP			\$ 3,795																
INTERNATIONAL DEVELOPED SMALL CAP																			
AQR CAPITAL	FUNDAMENTAL	06/01/2013	169	-0.56	-5.68	-2.69	0.49	---	---	---	11.08	142	179	198	248	---	---	---	244
BLACKROCK EAFE SMALL CAP	INDEXED	06/01/2010	432	-1.69	-7.21	-4.44	-1.83	11.18	---	---	11.76	29	26	24	17	-20	---	---	-15
DIMENSIONAL FUND ADVISORS INTL SC	QUANTITATIVE	09/01/2005	204	-3.47	-9.47	-4.84	-2.36	11.63	7.17	---	5.53	-149	-200	-17	-37	26	-197	---	-7
FRANKLIN TEMPLETON INVESTMENTS	FUNDAMENTAL	04/01/2011	368	-3.42	-9.32	-11.76	-9.60	12.76	---	---	7.06	-143	-185	-709	-761	139	---	---	138
<i>MSCI EAFE SMALL CAP NET</i>				-1.98	-7.47	-4.67	-1.99	11.37	---	---	---								
TOTAL INTERNATIONAL DEVELOPED SMALL CAP			\$ 1,173																
INTERNATIONAL EMERGING MARKETS																			
BLACKROCK EMERGING MARKETS	INDEXED	10/01/2010	682	1.18	-4.24	3.40	0.50	3.01	---	---	0.88	0	-3	-24	-16	-47	---	---	-45
EATON VANCE EMERGING MARKET EQUITY	QUANTITATIVE	12/01/2010	507	-0.42	-3.17	4.12	2.45	5.13	---	---	2.15	-160	104	49	179	165	---	---	81
LSV EMERGING MARKET EQUITY	QUANTITATIVE	12/01/2010	308	0.44	-4.79	5.15	2.85	5.52	---	---	2.50	-74	-58	152	219	204	---	---	116
WILLIAM BLAIR & COMPANY	FUNDAMENTAL	11/01/2010	477	2.41	0.13	8.62	7.53	8.11	---	---	3.62	123	434	498	687	463	---	---	298
<i>MSCI EMF NET</i>				1.18	-4.21	3.63	0.66	3.48	---	---	---								
TOTAL INTERNATIONAL EMERGING MARKETS			\$ 1,974																
TOTAL INTERNATIONAL EQUITY			\$ 6,942																
RISK FACTOR PORTFOLIO																			
RISK FACTOR PORTFOLIO	OVERLAY	06/01/2013	530	2.48	5.10	10.51	16.35	---	---	---	18.15								
TOTAL RISK FACTOR PORTFOLIO			\$ 530																
TOTAL EQUITY W/ RISK FACTOR OVERLAY			\$ 18,102																
CORE FIXED INCOME																			
BGI US DEBT FD	INDEXED	05/01/2014	436	0.93	1.40	---	---	---	---	---	2.45	-5	-1	---	---	---	---	---	9
F2 MODEL	INDEXED	10/01/2000	1,857	0.98	1.43	5.00	4.25	2.94	4.40	4.86	5.65	0	3	-12	12	21	18	22	15
<i>Barclays Aggregate</i>				0.98	1.40	5.12	4.14	2.73	4.22	4.64	---								
BGI GOVT/CRDTBD INDEX	INDEXED	11/01/2008	24	0.66	0.88	3.03	2.36	2.26	3.56	---	4.94	-5	-1	10	7	11	9	---	9
<i>Barclays Gov/Credit Int</i>				0.70	0.89	2.94	2.28	2.15	3.47	---	---								
TOTAL CORE FIXED INCOME			\$ 2,317																
HIGH YIELD FIXED INCOME																			
COLUMBIA MANAGEMENT INV. ADVISORS, LLC	FUNDAMENTAL	10/01/2009	800	1.92	1.62	5.31	6.05	9.03	10.10	---	10.15	73	98	59	23	-36	-33	---	-49
JP MORGAN HIGH YIELD	FUNDAMENTAL	07/01/2013	480	1.28	0.94	4.09	5.16	---	---	---	7.66	9	30	-63	-66	---	---	---	-42
<i>Barclays Corp High Yield</i>				1.19	0.64	4.72	5.82	---	---	---	---								
TOTAL HIGH YIELD FIXED INCOME			\$ 1,280																



	Style	Inception	Amount (\$mil.)	Net Returns (%)								Excess Returns (basis points)								
				Month	3 Months	YTD	1 Year	Annualized			ITD	Month	3 Months	YTD	1 Year	Annualized			ITD	
								3 Years	5 Years	10 Years						3 Years	5 Years	10 years		
EMERGING MARKETS DEBT																				
ASHMORE EMERGING MKT DBT BLEND	FUNDAMENTAL	01/01/2013	408	1.36	-2.30	2.99	0.23	---	---	---	-1.73	-9	-114	-199	-212	---	---	---	-94	
<i>EMERGING MARKETS BLENDED INDEX</i>																				
PIMCO EMERGING MARKET DEBT LC	FUNDAMENTAL	01/01/2013	337	1.44	-1.16	4.97	2.35	---	---	---	---	-33	-18	74	23	---	---	---	-62	
<i>JPM GBI-EM Global Diversified Index</i>																				
TOTAL EMERGING MARKETS DEBT			\$ 745																	
TOTAL PUBLIC FIXED INCOME			\$ 4,341																	
GTAA																				
BRIDGEWATER ASSOCIATES GLBL TAA	FUNDAMENTAL	01/01/2004	3,159	0.57	0.08	5.71	8.35	12.42	14.26	9.30	9.01	-36	-76	57	32	69	349	260	243	
<i>GTAA CUSTOM BENCHMARK</i>																				
WINDHAM	QUANTITATIVE	10/01/2011	594	0.93	0.84	5.14	8.03	11.73	10.77	6.71	---	-71	-290	-382	-436	-369	---	---	-403	
<i>WINDHAM CUSTOM INDEX</i>																				
TOTAL GTAA			\$ 3,753																	
GLOBAL INFLATION LINKED																				
GRESHAM	FUNDAMENTAL	09/01/2010	761	-1.08	-8.03	-5.57	-5.62	-5.65	---	---	0.34	-28	-7	78	33	194	---	---	277	
<i>Bloomberg Commodity Index Total Return</i>																				
TOTAL GLOBAL INFLATION LINKED			\$ 761																	
TOTAL PUBLIC MARKET			\$ 27,097																	



			Net Returns (%)								Excess Returns (basis points)							
	Inception	Amount (\$mil.)	Annualized								Annualized							
			Month	3 Months	YTD	1 Year	3 Years	5 Years	10 Years	ITD	Month	3 Months	YTD	1 Year	3 Years	5 Years	10 years	ITD
BLACKROCK - US DEBT FUND B	01/01/2011	30.5	0.92	1.38	5.23	4.16	2.77	---	---	3.92	-6	-3	11	2	4	---	---	2
<i>Barclays Aggregate</i>			0.98	1.40	5.12	4.14	2.73	4.22	4.64	---								
BLACKROCK - US HIGH YIELD FUND B	01/01/2011	18.3	1.58	1.03	5.04	5.95	9.04	---	---	8.29	39	39	32	13	-35	---	---	-23
<i>Barclays Corp High Yield</i>			1.19	0.64	4.72	5.82	9.39	10.44	8.26	---								
BLACKROCK-LTD-EM BD INDX FD B	01/01/2013	9.8	1.51	-3.39	1.10	-3.52	---	---	---	-5.01	-6	-22	-46	-85	---	---	---	-82
<i>JPM GBI-EM Global Diversified Index</i>			1.56	-3.16	1.56	-2.68	0.90	4.55	8.60	---								
BLACKROCK - RUSSELL 1000 FUND B	01/01/2011	96.4	2.42	4.77	10.56	16.70	19.88	---	---	15.55	-2	-4	-4	-7	-2	---	---	1
<i>RUSSELL 1000</i>			2.44	4.81	10.61	16.78	19.90	16.98	8.54	---								
BLACKROCK - RUSSELL 2000 FUND B	01/01/2011	16.7	6.62	5.16	2.05	8.23	18.37	---	---	12.81	3	5	16	16	19	---	---	18
<i>RUSSELL 2000</i>			6.59	5.11	1.90	8.06	18.18	17.39	8.67	---								
BLACKROCK - EAFE INDEX FUND B	01/01/2011	35.8	-1.45	-5.40	-2.76	-0.61	9.72	---	---	5.63	0	-1	5	-4	-30	---	---	-30
<i>MSCI EAFE NET</i>			-1.45	-5.39	-2.81	-0.57	10.03	6.91	---	---								
BLACKROCK EAFE SMALL CAP FUND B	01/01/2011	8.7	-1.70	-7.17	-4.38	-1.76	11.23	---	---	5.95	28	29	29	23	-15	---	---	-17
<i>MSCI EAFE SMALL CAP NET</i>			-1.98	-7.47	-4.67	-1.99	11.37	9.14	---	---								
BLACKROCK MSCI EMERGING MARKETS FUND B	01/01/2011	16.0	1.18	-4.25	3.35	0.40	3.00	---	---	-0.92	1	-4	-29	-26	-48	---	---	-48
<i>MSCI EMF NET</i>			1.18	-4.21	3.63	0.66	3.48	---	---	---								
BGI-LTD- R ESTATE FD	01/01/2005	23.7	10.67	7.12	26.73	20.37	14.61	19.09	---	7.61	3	-8	24	-30	-128	-89	---	-47
<i>WILSHIRE RESI</i>			10.64	7.20	26.49	20.67	15.89	19.98	9.02	---								
BLACKROCK DJ UBS COMM FUND B	01/01/2011	6.4	-0.81	-8.04	-6.59	-6.37	-7.83	---	---	-8.31	0	-9	-24	-43	-23	---	---	-32
<i>Bloomberg Commodity Index Total Return</i>			-0.80	-7.95	-6.35	-5.94	-7.59	-2.17	-1.28	---								
LONG TERM DISABILITY - CASH	07/01/1995	1.4	0.00	0.00	0.00	0.00	0.01	0.08	1.68	2.75	0	-1	-3	-5	-6	-2	8	-5
<i>91 DAY TREASURY BILL</i>			0.00	0.01	0.03	0.05	0.07	0.09	1.60	---								
TOTAL LTD		\$ 263.6																

Long Term Disability (LTD)

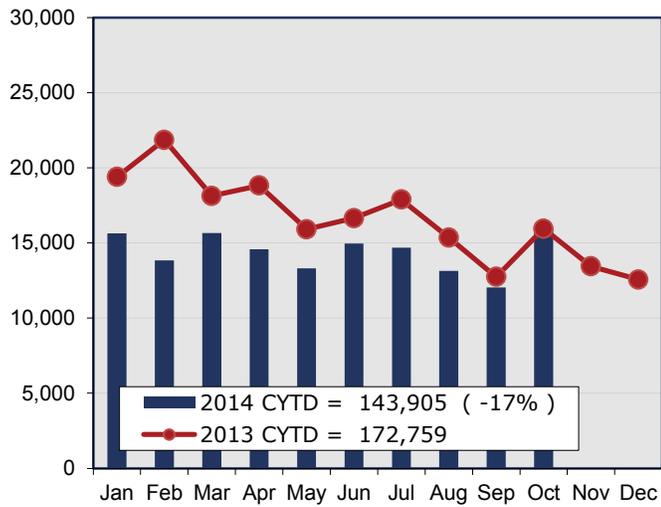
Friday, October 31, 2014

Account Manager	Account Manager Style	Fixed Income	Equity	Inflation-Linked	Total	Pct of Fund	Target (Range)
StateStreet B&T: Boston	Cash	\$1,399,698			\$1,399,698	0.53%	
BlackRock: San Francisco	Fixed Core (Passive)	\$30,520,007			\$30,520,007	11.58%	13%
BlackRock: San Francisco	Fixed High Yield (Passive)	\$18,280,425			\$18,280,425	6.93%	8%
BlackRock: San Francisco	Emerging Market Debt (Passive)	\$9,776,002			\$9,776,002	3.71%	4%
BlackRock: San Francisco	Russell 1000 (Passive)		\$96,350,984		\$96,350,984	36.55%	34%
BlackRock: San Francisco	Russell 2000 (Passive)		\$16,662,852		\$16,662,852	6.32%	6%
BlackRock: San Francisco	EAFE (Passive)		\$35,808,706		\$35,808,706	13.58%	14%
BlackRock: San Francisco	EAFE SC (Passive)		\$8,715,471		\$8,715,471	3.31%	3%
BlackRock: San Francisco	Emerging Markets (Passive)		\$16,014,357		\$16,014,357	6.07%	6%
BlackRock: San Francisco	Dow Jones UBS Commodities (Passive)			\$6,395,482	\$6,395,482	2.43%	4% (1-7%)
BlackRock: San Francisco	US Real Estate (Passive)			\$23,706,339	\$23,706,339	8.99%	8% (6-10%)
	TOTAL Amounts	\$59,976,132	\$173,552,371	\$30,101,821	\$263,630,323		
	TOTAL Percent	22.75%	65.83%	11.42%			
	Actual Portfolio Policy	22.75%	65.83%	11.42%			
		25% (15-35%)	63% (53-70%)	12% (8-16%)			

Member Advisory Center: Phone

Volume

comparison of calls by month and year



Timeliness

percent answered in 20 seconds or less



Timeliness (average wait time in seconds)

55	7	14	12	15	9	12	10	9	13		
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Resolution Rate

percent resolved on first contact



Abandonment Rate

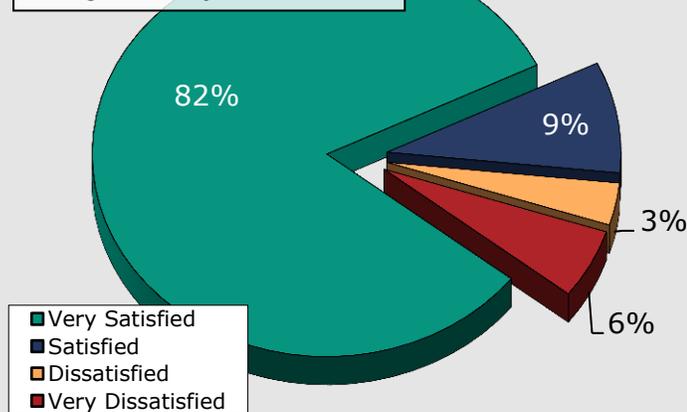
percent of calls abandoned



Member Satisfaction

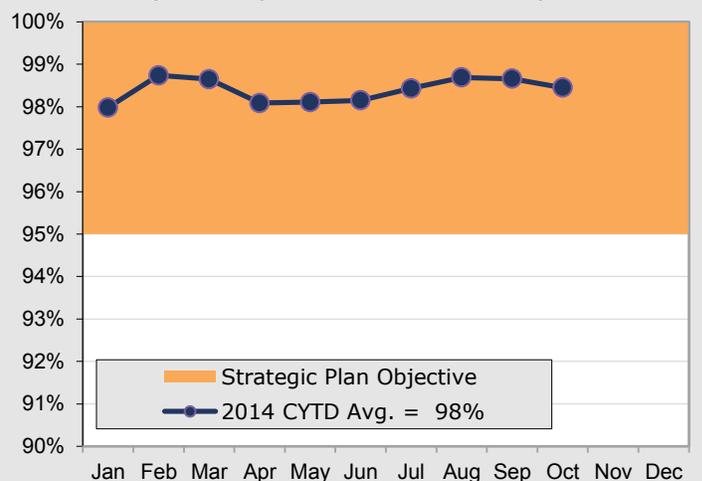
2nd Quarter 2014

Very Satisfied + Satisfied = 91%
Strategic Plan Objective = 90%

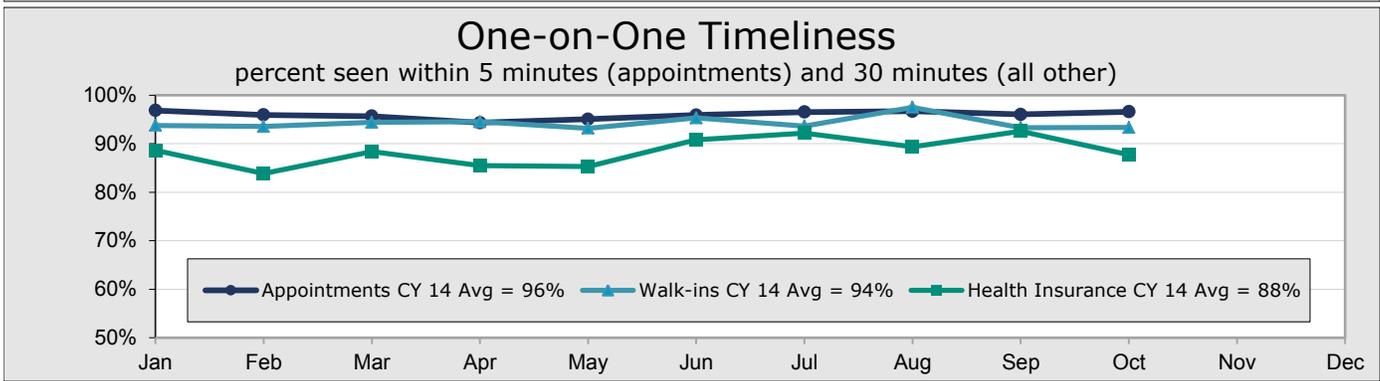
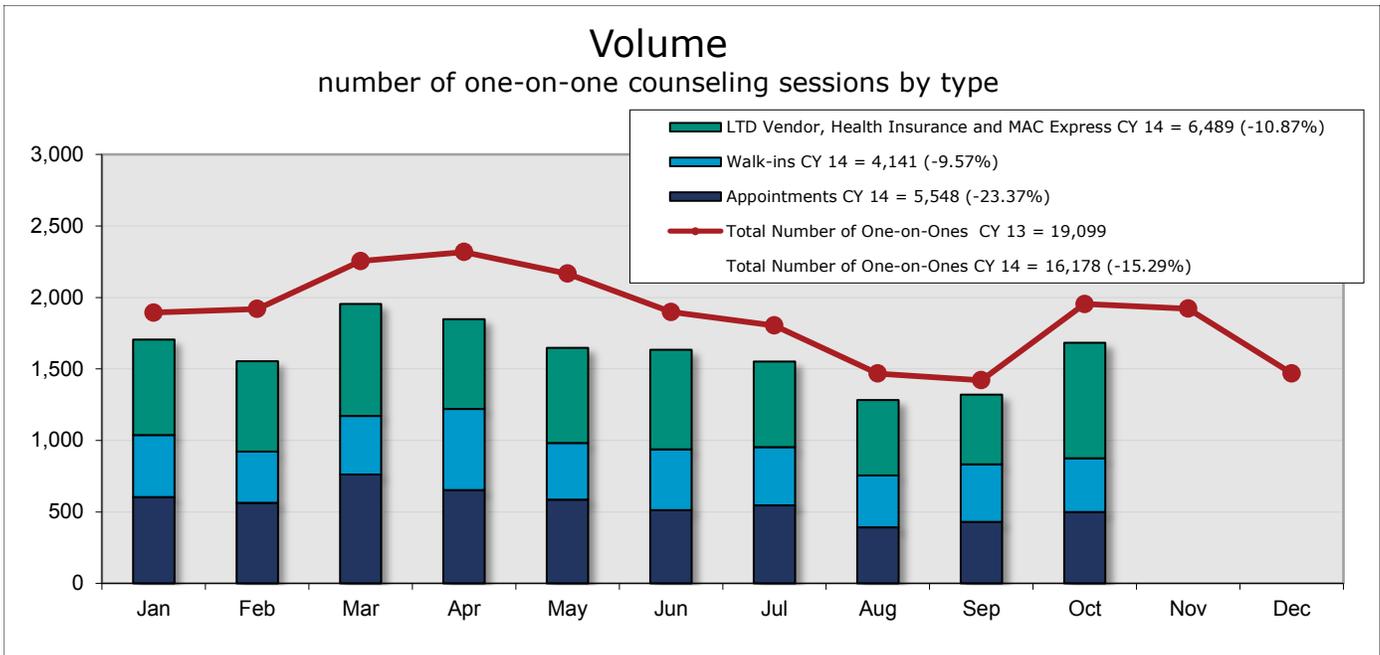


Quality

of agent response to member inquiries

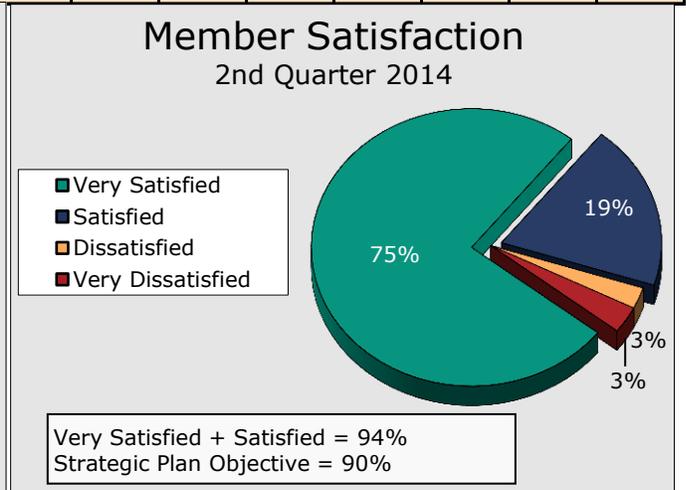
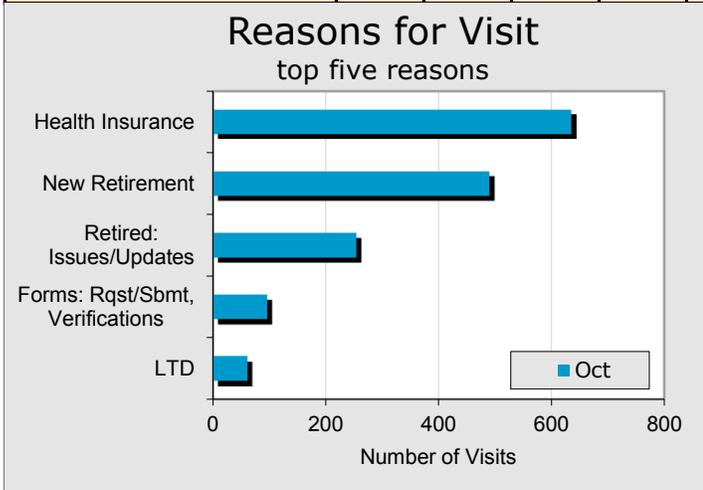


Member Advisory Center: One-on-One

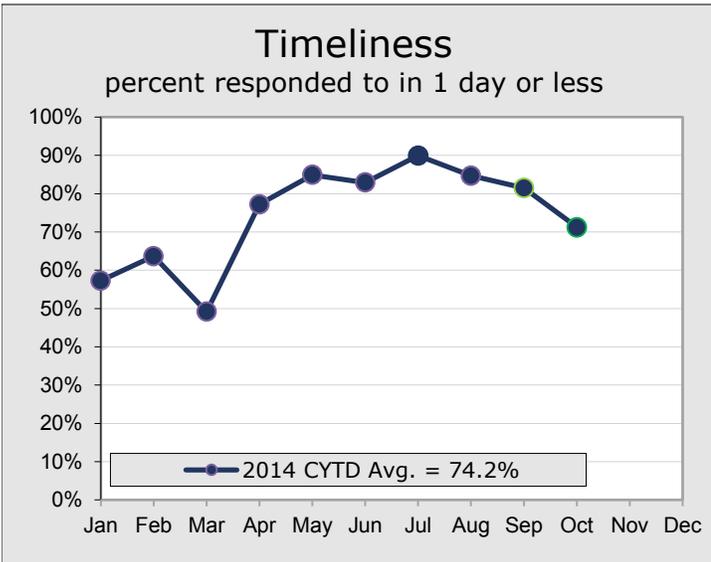
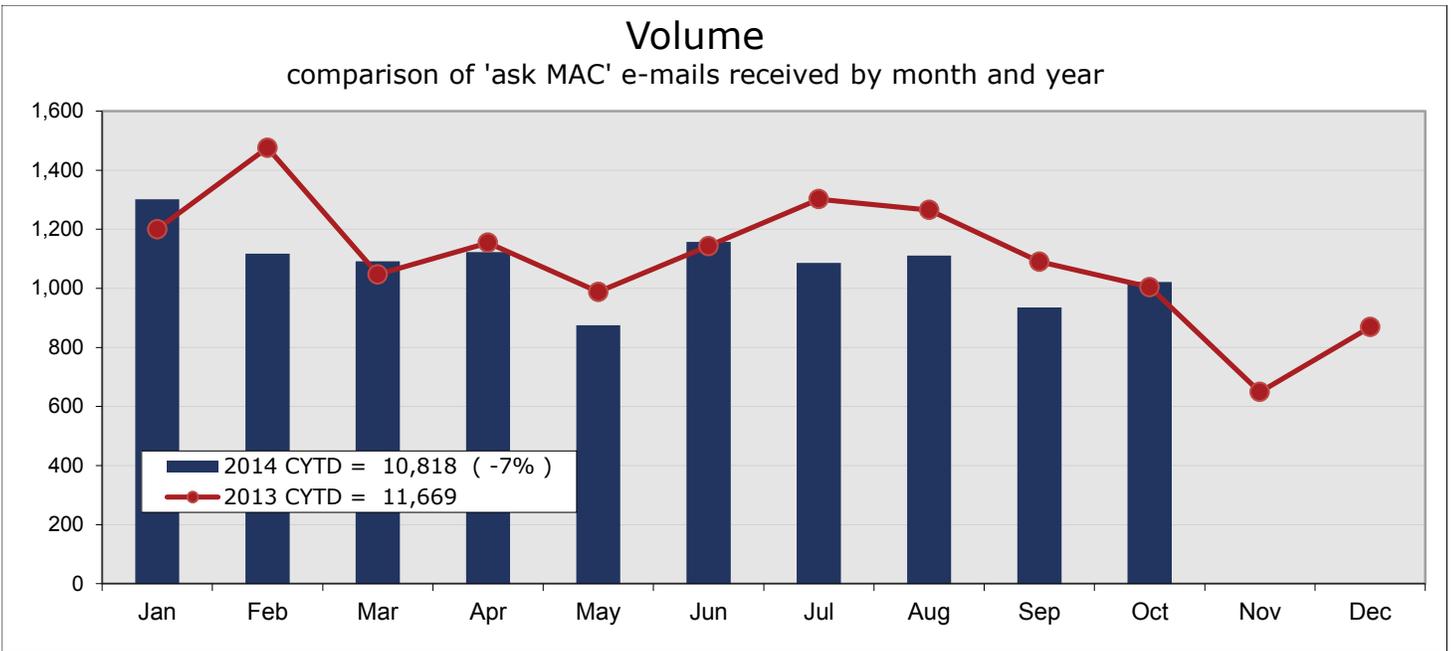


Timeliness (average wait time in minutes)

	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Appointments	1	1	1	2	1	1	1	1	0	1		
Walk-Ins	9	10	8	7	7	7	7	8	8	8		
Reception/MAC Express	0	0	0	0	0	0	0	0	0	0		
Health Insurance	6	7	7	7	7	5	4	5	5	6		
LTD Vendor	0	n/a	n/a	0	n/a	0	0	0	0	0		

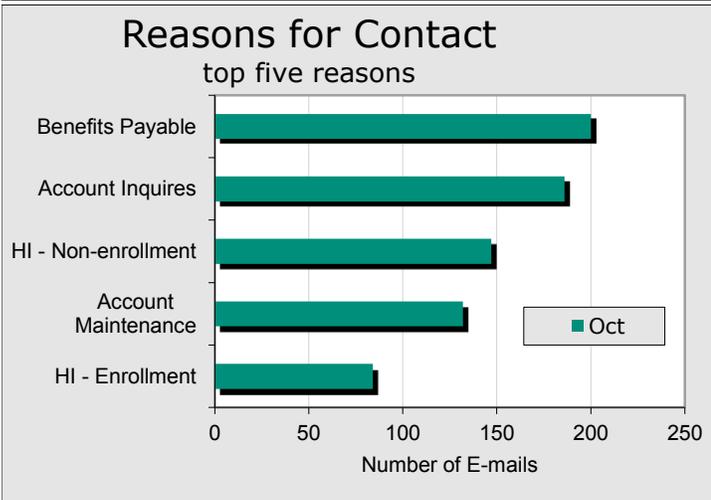
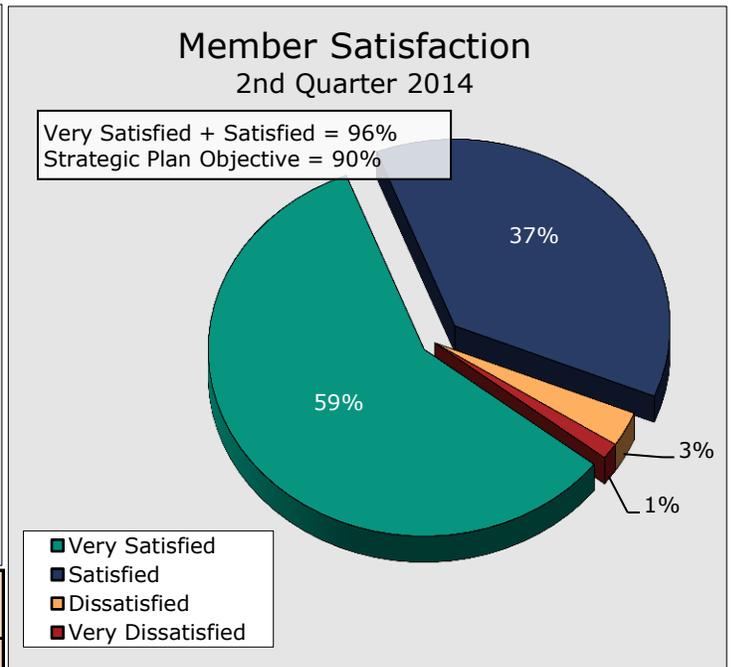


Member Advisory Center: E-Mail

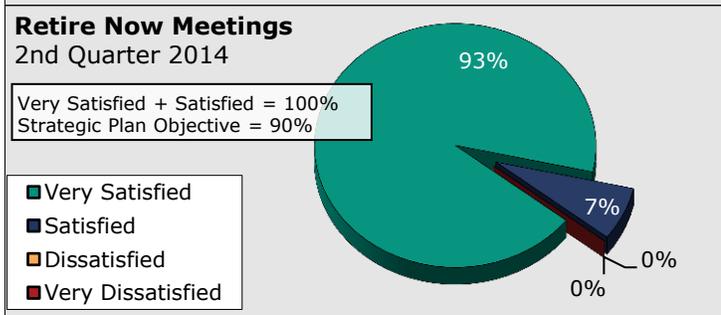
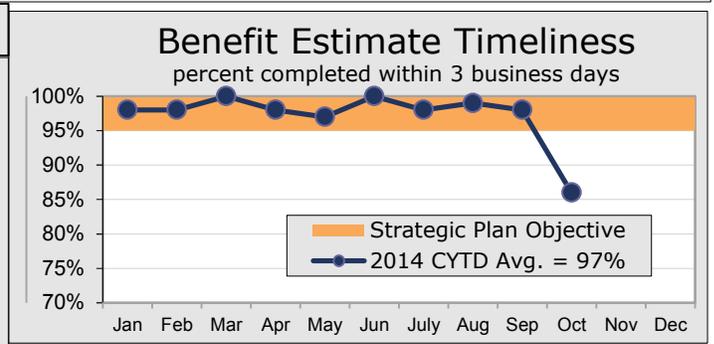
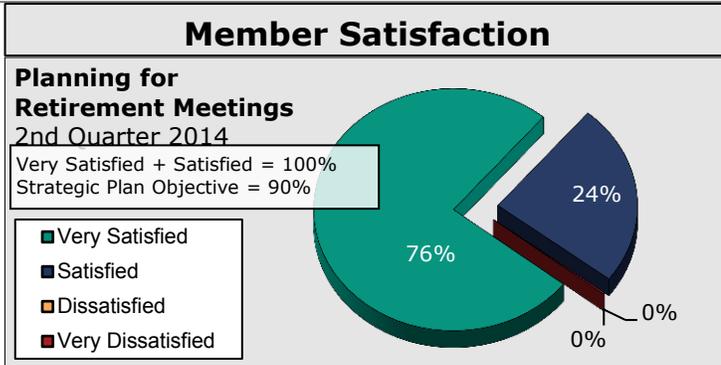
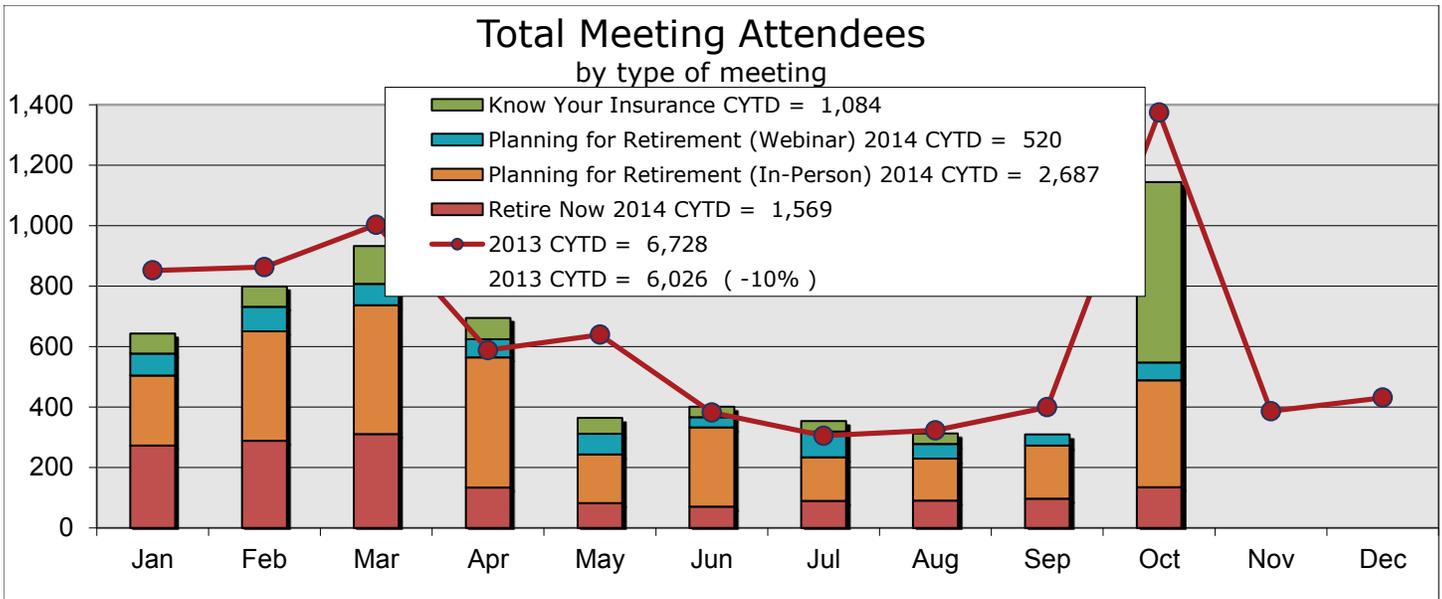


E-mail Timeliness (average response in hours)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average	24.0	21.8	25.4	16.5	9.8	12.4	8.4	10.3	12.1	12.4		

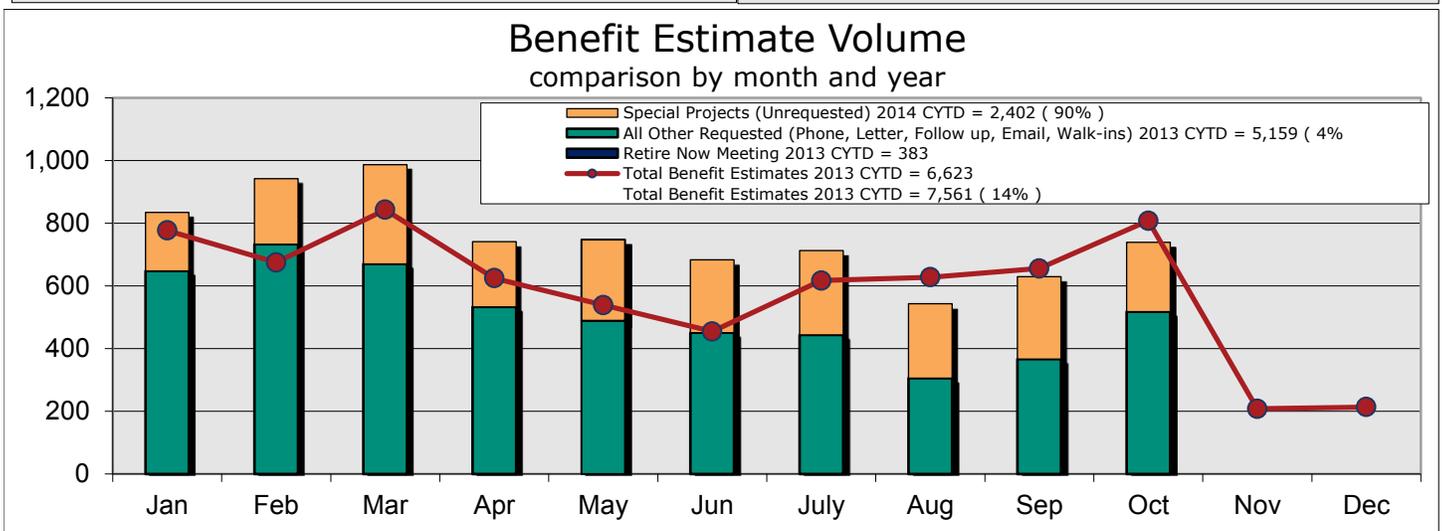
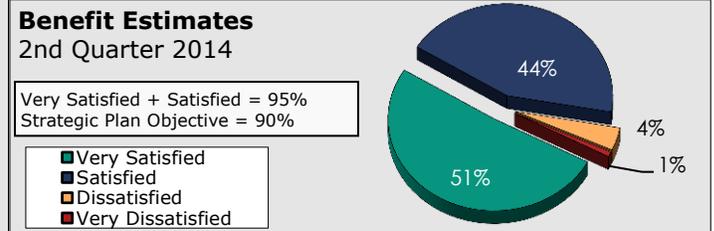


Outreach Education and Benefit Estimates



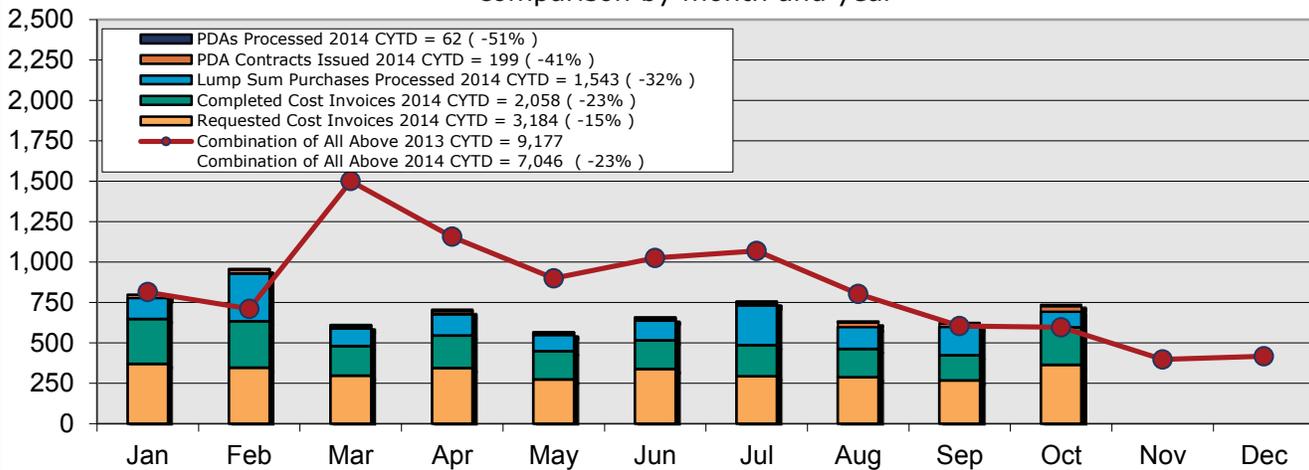
Benefit Estimate Timeliness (average TAT in days)

1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.3		
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	



Service Purchase

Total Volume comparison by month and year



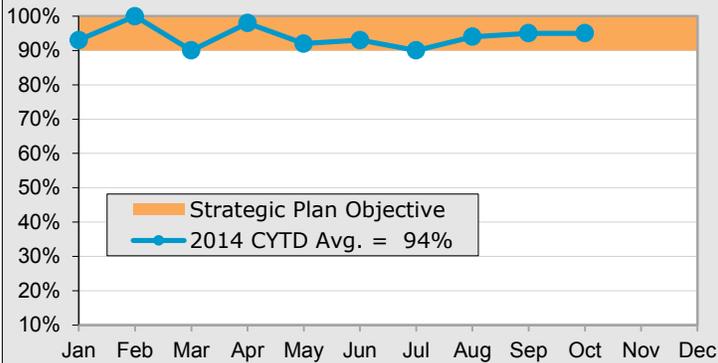
Requests Pending

as of October 31, 2014

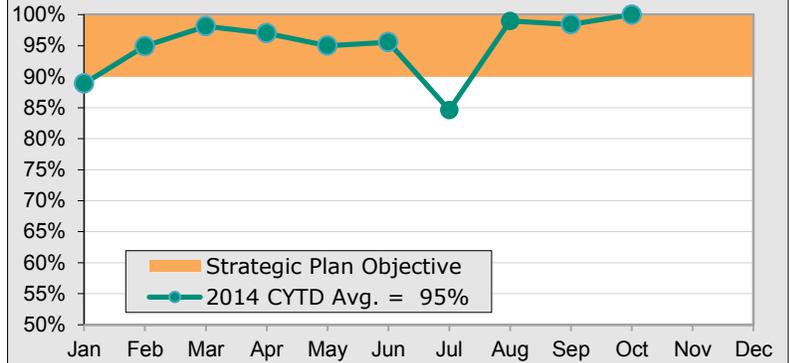
Cost Invoices Pending
499

Payments Pending
5

Lump Sum Timeliness percent within 5 business days



Cost Invoices Timeliness percent within 10 business days



Timeliness (average turnaround time in business days)

2	1	2	1	2	2	4	2	2	2		
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Timeliness (average turnaround time in business days)

6	3	3	4	5	4	7	3	5	5		
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

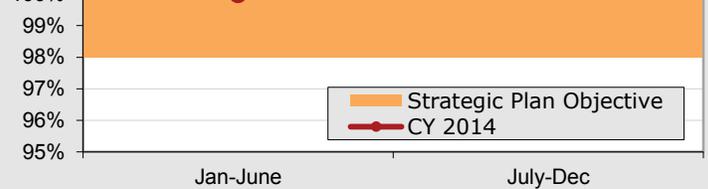
Payroll Deduction Agreement Timeliness percent within 5 business days



Timeliness (average turnaround time in business days)

1	2	3	1	1	1	2	1	1	1		
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

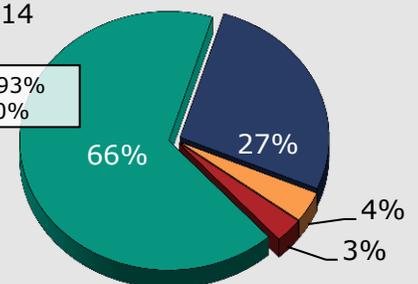
Cost Invoice Quality Rating CY 2014



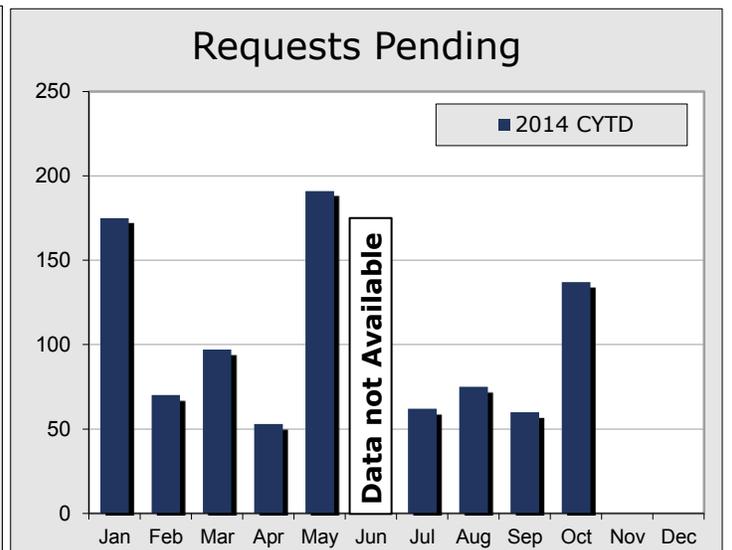
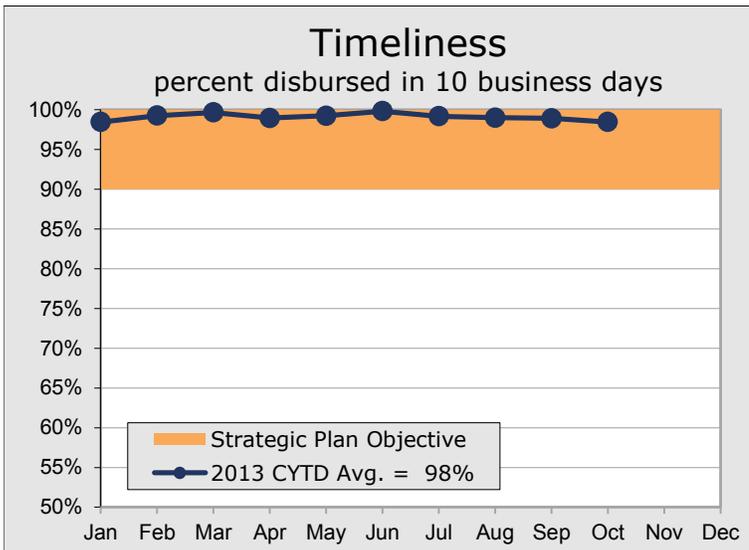
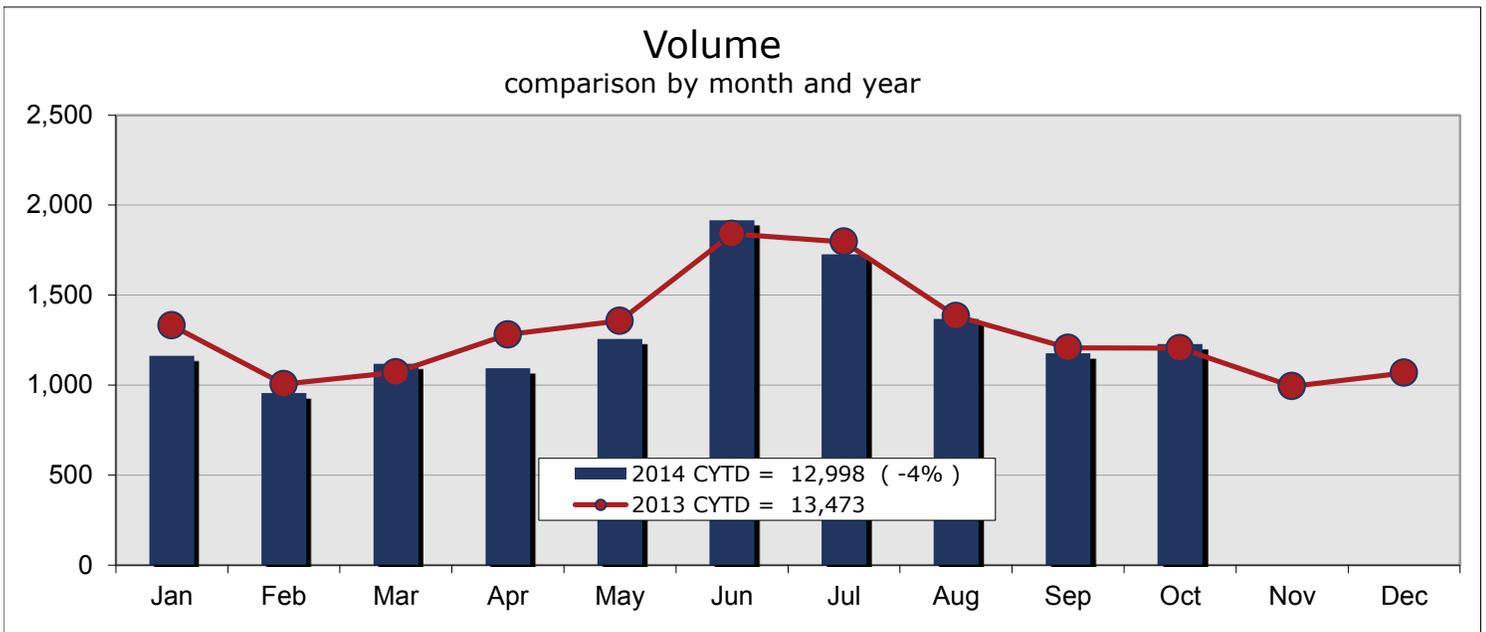
Member Satisfaction 2nd Quarter 2014

Very Satisfied + Satisfied = 93%
Strategic Plan Objective = 90%

■ Very Satisfied
 ■ Satisfied
 ■ Dissatisfied
 ■ Very Dissatisfied

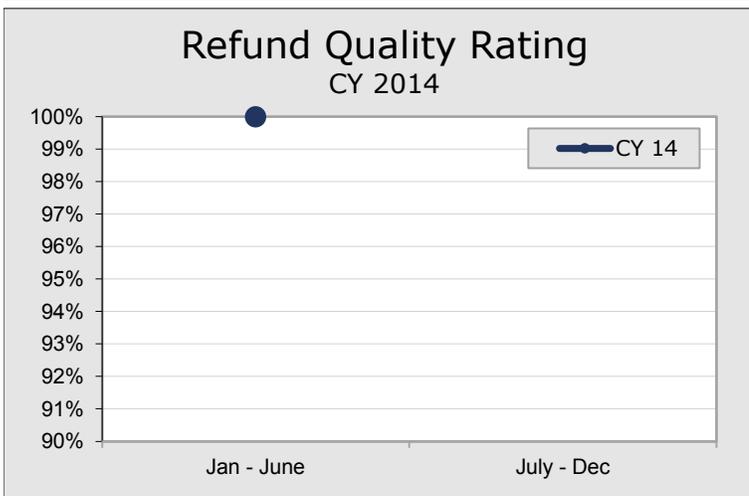
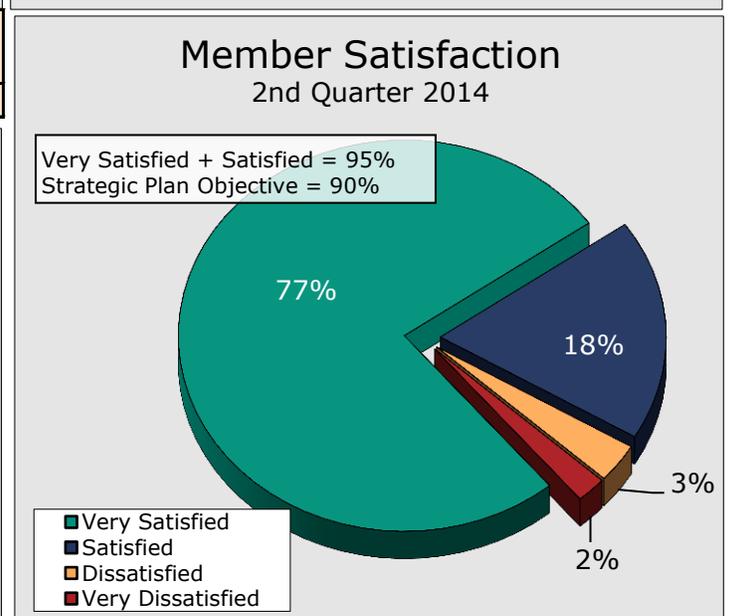


Refunds



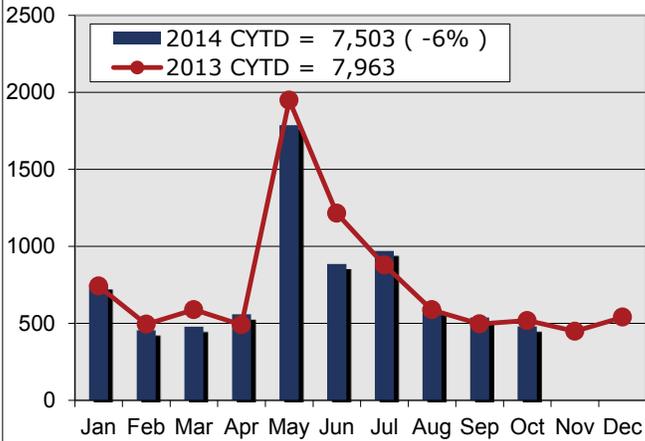
Timeliness (average turnaround time in business days)

Month	Turnaround Time (Business Days)
Jan	3
Feb	2
Mar	2
Apr	1
May	1
Jun	2
Jul	2
Aug	2
Sep	1
Oct	2
Nov	2
Dec	2

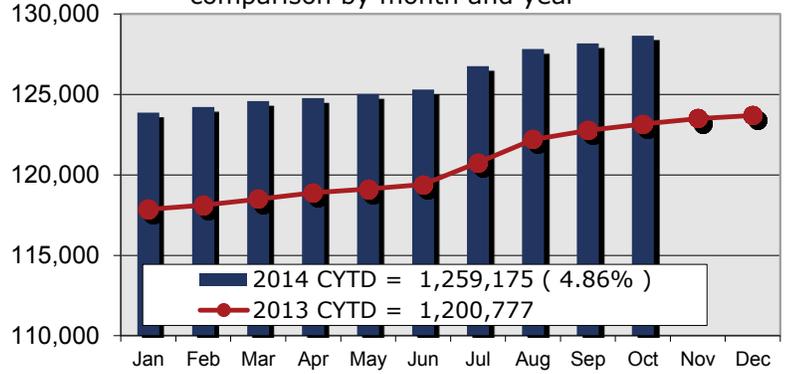


New Retirees

First Payment Volume comparison by month and year



Pension Volume comparison by month and year



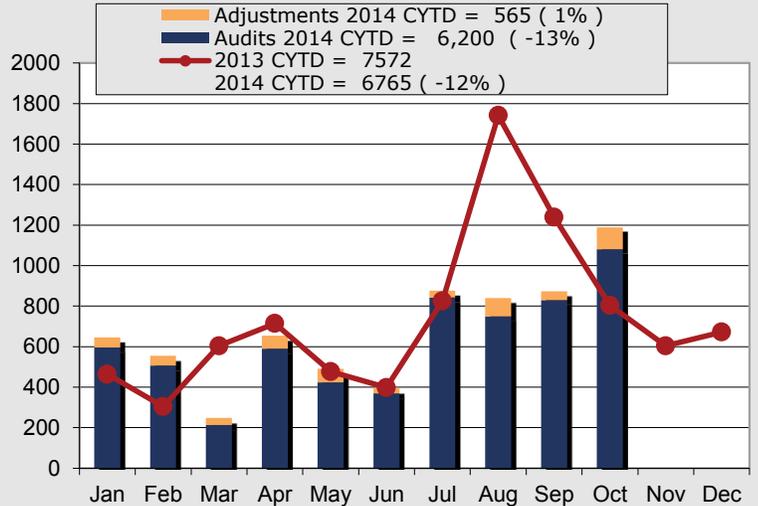
Pension Payment (percent disbursed by 1st of the month)

100%	100%	100%	100%	99.9%	100%	100%	100%	100%	100%		
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

First Payment Timeliness percent disbursed in 10 business days



Audits & Adjustments comparison by month and year

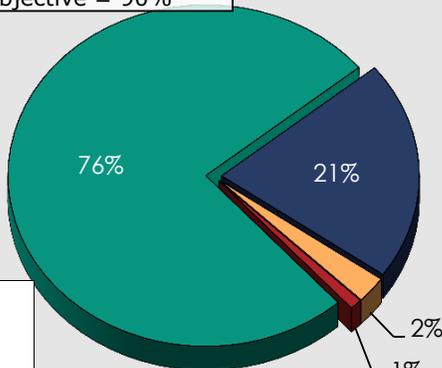


First Payment Timeliness (average turnaround time in days)

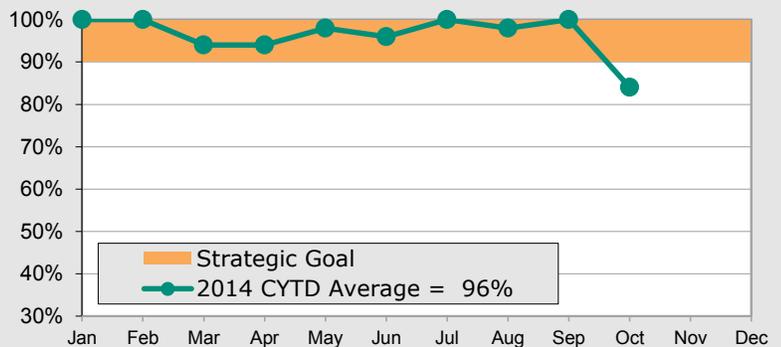
6	8	7	9	3	6	5	7	8	9		
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Member Satisfaction 2nd Quarter 2014

Very Satisfied + Satisfied = 97%
Strategic Plan Objective = 90%



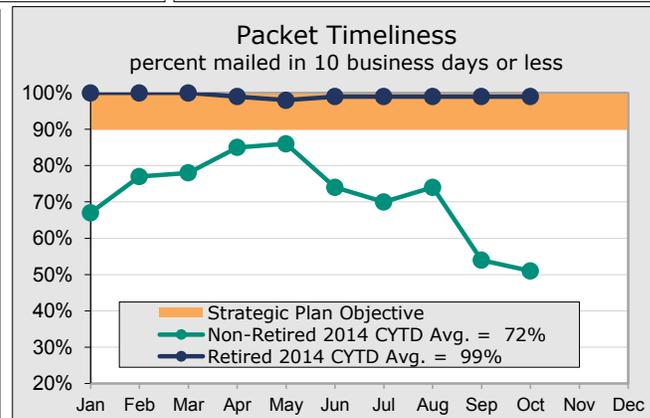
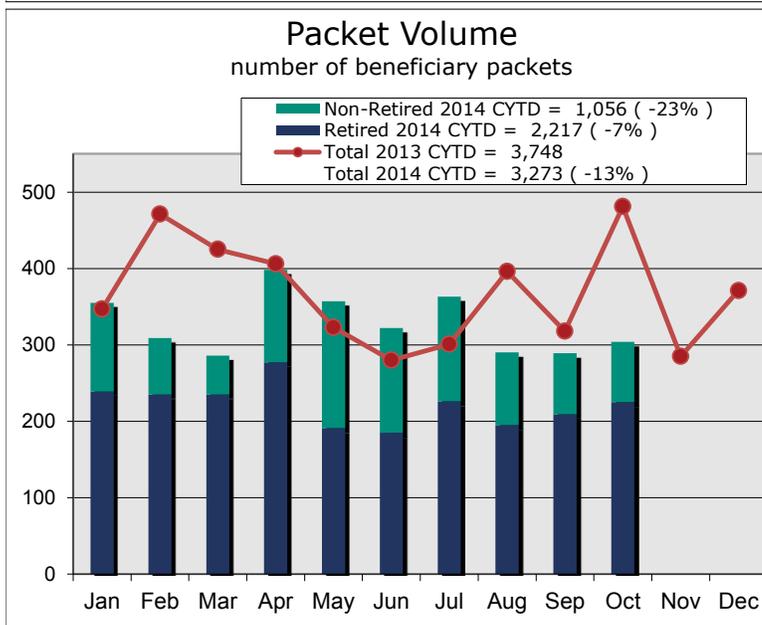
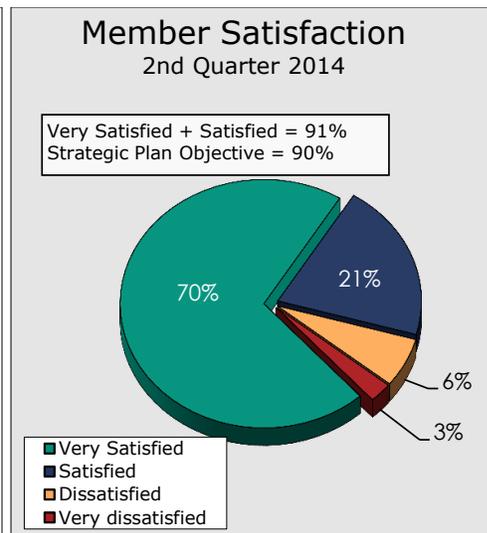
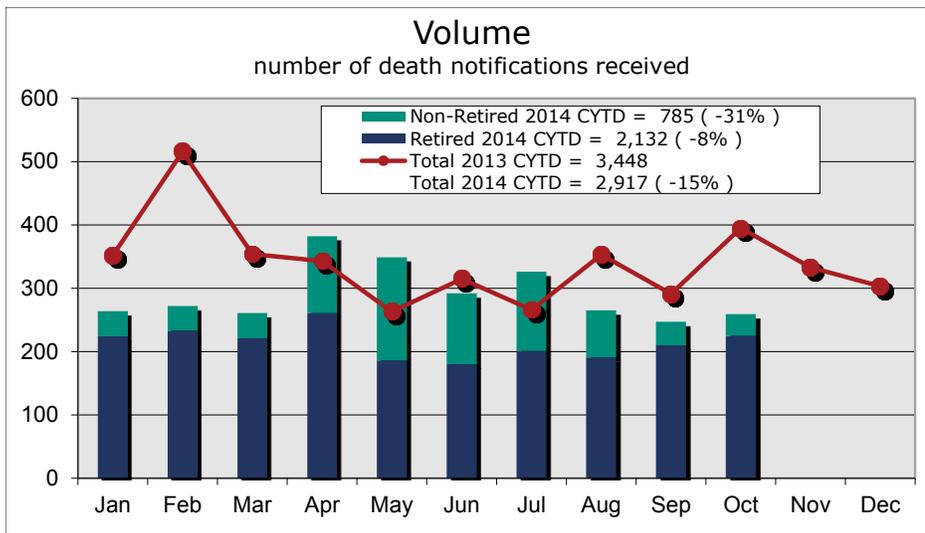
Adjustments Timeliness Percent completed in 20 business days



Adjustments Timeliness (average turnaround time in days)

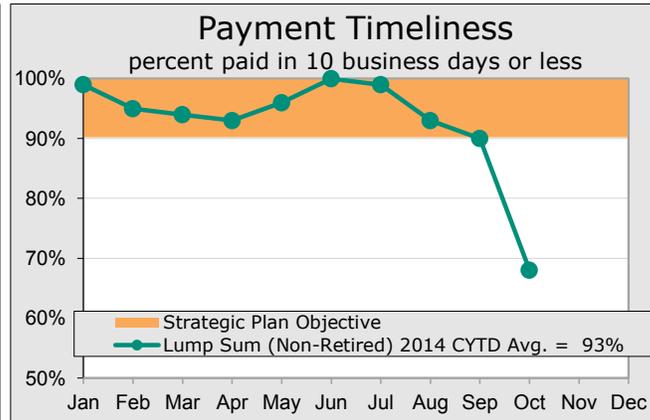
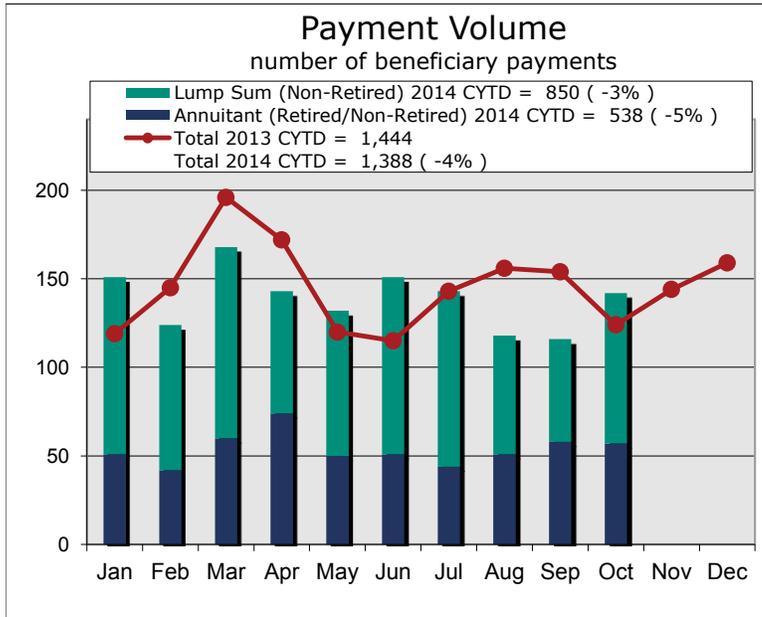
1	2	3	6	5	4	4	8	5	6		
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Survivor Benefits



Packet Timeliness (average TAT in days)

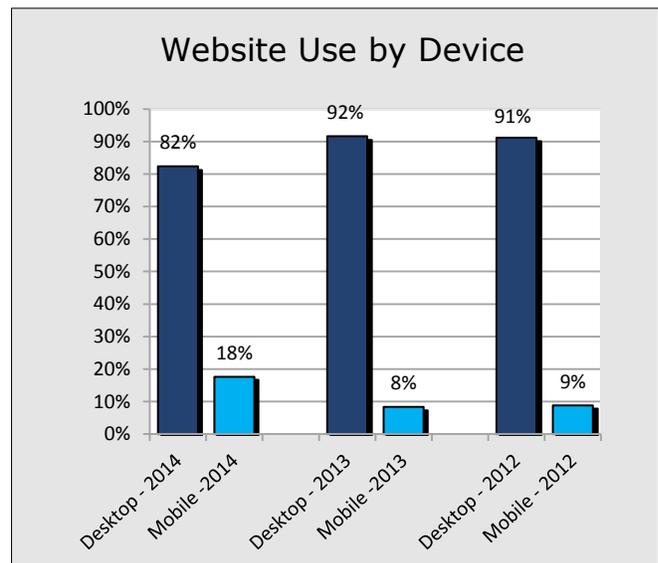
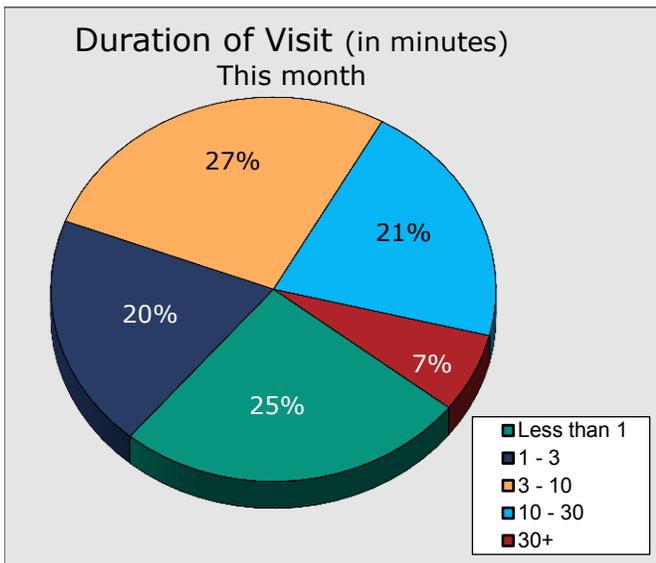
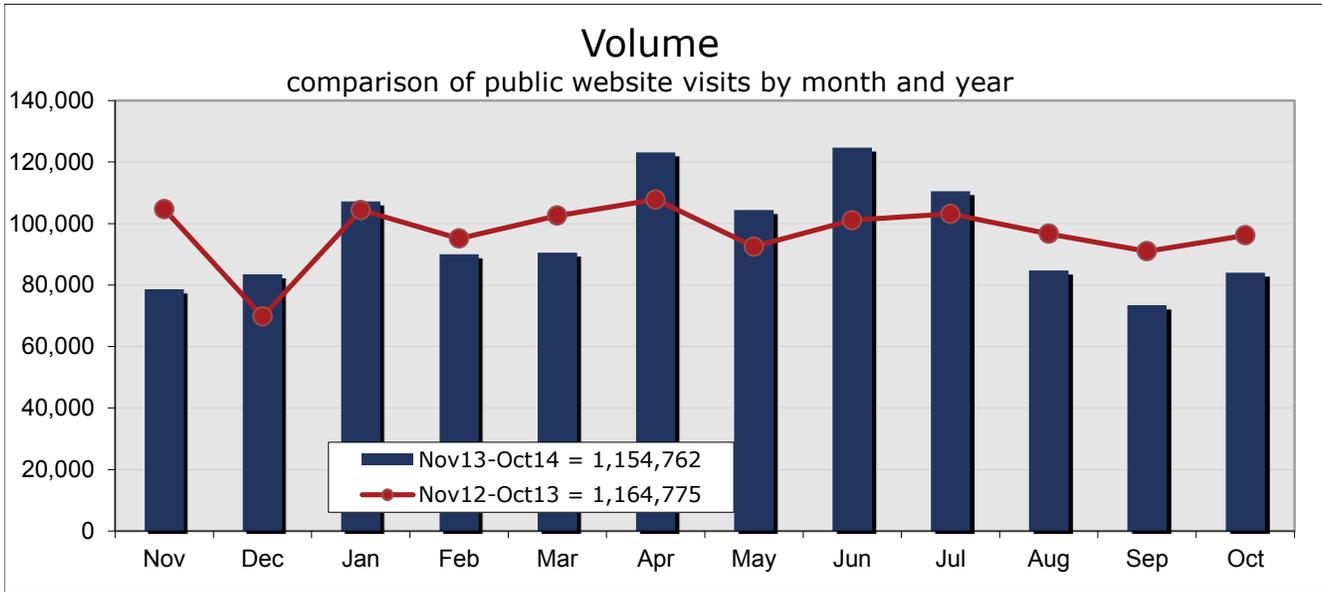
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Retired	2	2	2	2	2	2	2	1	1	2		
Non Retired	19	8	17	9	6	8	18	14	19	17		



Payment Timeliness (average TAT in days)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Lump Sum (Non-Retired)	2	2	3	5	4	2	3	5	6	8		

Public Website: www.azasrs.gov



Followers: 1,247

(This Month)

Photo
Reach: 214
Post Clicks: 14
Likes, Comments & Shares: 4

Status
206
3
3

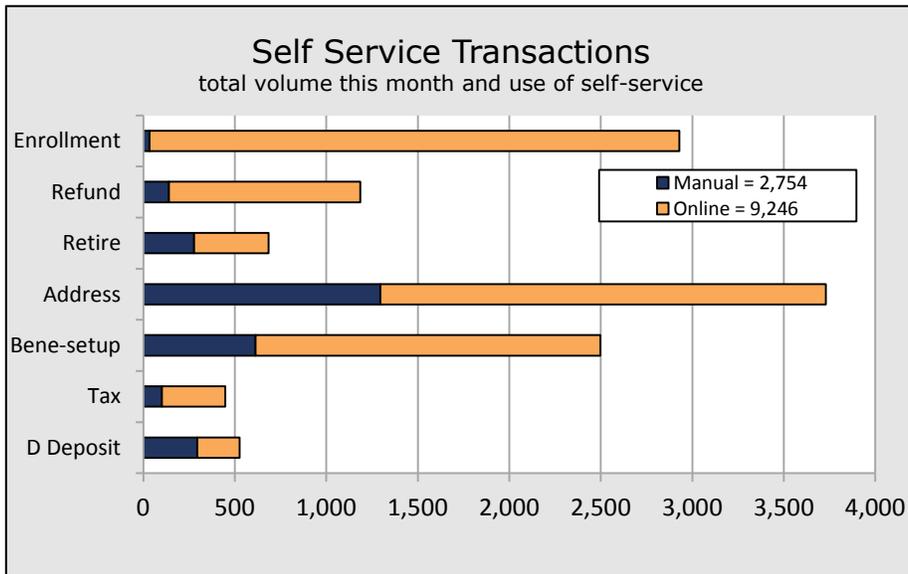
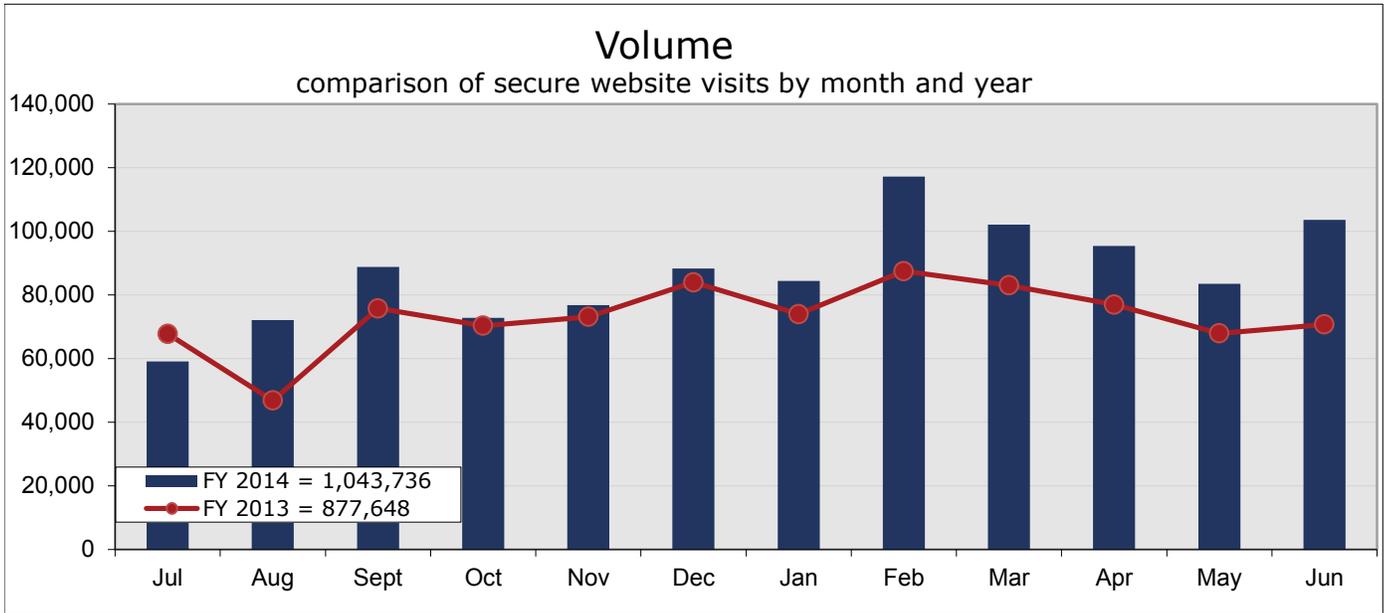
Link
160
13
5

Followers: 81
Impressions per day: 118

(This Month)

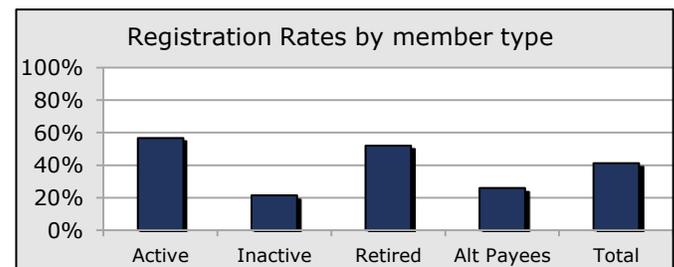
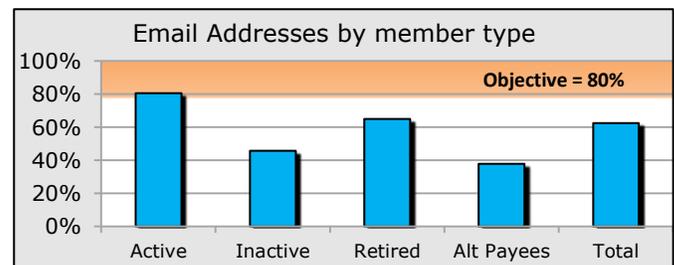
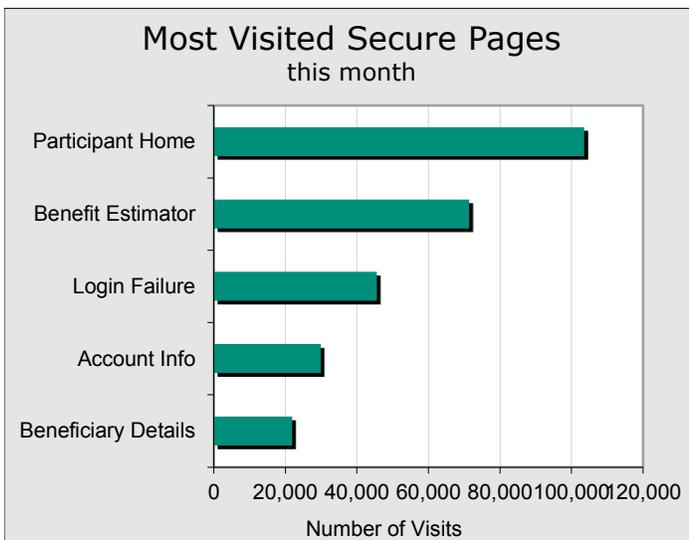
Engagement Rate: 1.6%
 Link Clicks: 29
 Retweets: 1
 Favorites: 6
 Replies: 0

Secure Website: secure.azasrs.gov



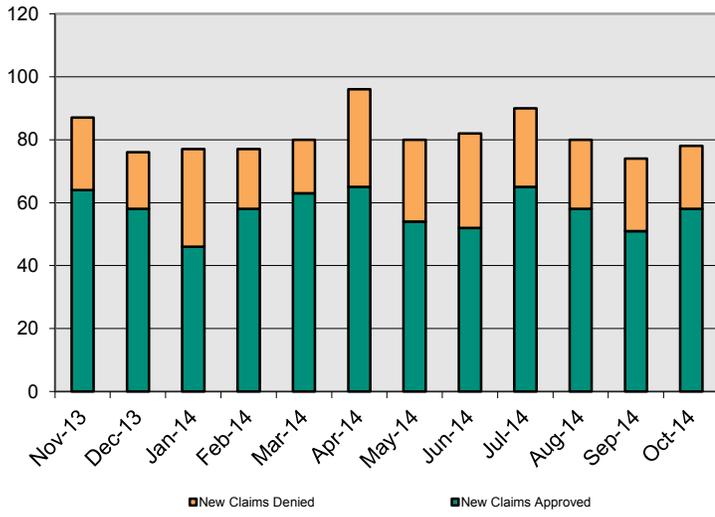
Historical Comparison of Online Usage

	This month	Last month	Same mo last yr	Objective
Enroll	99%	99%	99%	99%
Ref	88%	90%	87%	90%
Ret	60%	57%	90%	90%
Add	65%	63%	56%	75%
Bene	75%	75%	71%	75%
Tax	77%	74%	74%	75%
DD	44%	45%	38%	75%
Total % online				
	77%	79%	73%	

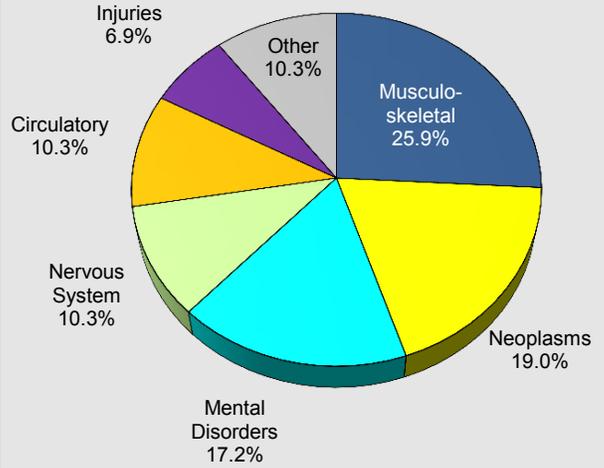


ASRS Disability Plans - Monthly Highlights October 2014

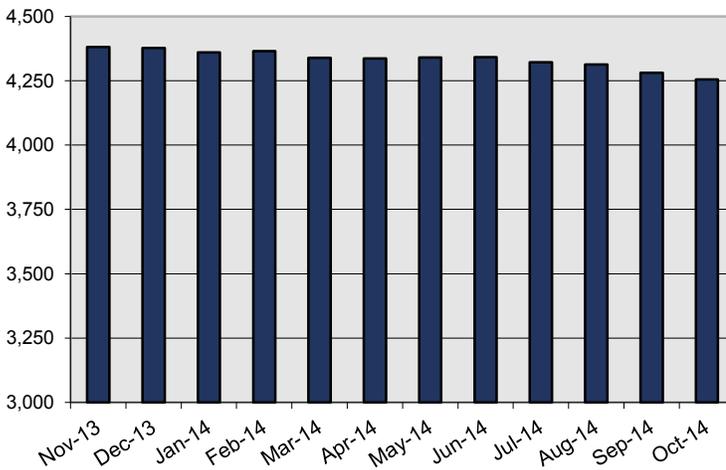
New Claims Processed



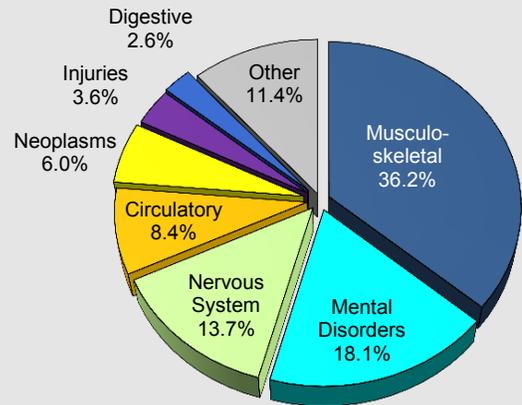
New Claims Approved



Open LTD Claims



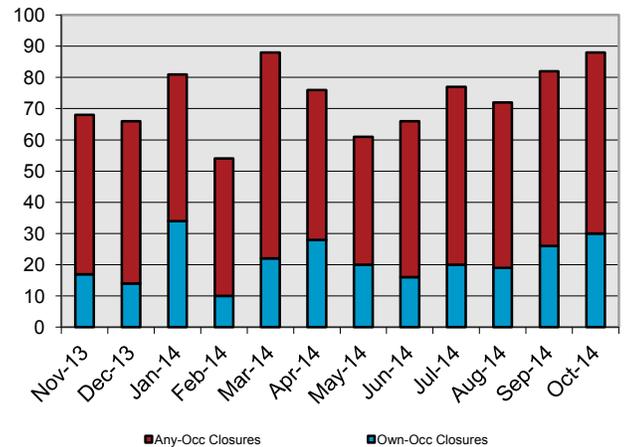
Open LTD Claims



SS Approval Percentage



Active Claim Closures



Arizona State Retirement System
FY 2015 Appropriated Budget
(as of October 31, 2014)

	APPROPRIATIONS FISCAL YEAR 2015	EXPENDED YTD	% EXPENDED
OPERATING BUDGET			
Personal Services	\$ 12,757,000	\$ 3,838,700	30.09%
Employee Related Expenses	\$ 5,021,000	\$ 1,573,000	31.33%
Professional & Outside Services	\$ 1,079,300	\$ 519,300	48.11%
Travel	\$ 78,600	\$ 29,700	37.79%
Other Operating Expenses	\$ 2,684,800	\$ 612,100	22.80%
Equipment	\$ 389,500	\$ 58,800	15.10%
Operating Subtotal	\$ 22,010,200	\$ 6,631,600	30.13%
OTHER APPROPRIATIONS			
Long Term Disability Administration	\$ 2,800,000	\$ 599,500	21.41%
Oracle Forms and Reports Modernization (Yr. 2)	\$ 4,484,500	\$ 339,300	7.57%
TOTAL FY 2014 Appropriated Funds	\$ 29,294,700	\$ 7,570,400	25.84%

	APPROPRIATIONS PRIOR YEAR	EXPENDED TO DATE	% EXPENDED
PRIOR YEAR LEGISLATIVE APPROPRIATIONS (NON-LAPSING)			
FY 2014 - Oracle Forms and Reports Modernization (Yr. 1)	\$ 1,390,000	\$ 1,329,600	95.65%
FY 2014 - HB 2562 - 401(a) and LTD for Ineligibles	\$ 502,400	\$ 49,100	9.77%
FY 2012 - SB 1614 - ASRS Contribution Rate	\$ 600,000	\$ 595,700	99.28%
FY 2011 - HB 2389 - ASRS Plan Design Changes	\$ 1,341,700	\$ 1,247,100	92.95%

	APPROPRIATIONS REMAINING	EXPENDED YTD	% EXPENDED
PRIOR YEAR OPERATING APPROPRIATIONS (NON-LAPSING)			
FY 2011, ASRS Operating Budget & LTD Admin	\$ 796,800	\$ -	0.00%

Budget Summary for Fiscal Year 2015 As of October 31, 2014

Operating Budget

The operating budget information on the previous page is based on funding approved by the Board and the Legislature for fiscal year July 1, 2014 through June 30, 2015. These ASRS operating expenses are distinguished from other areas of ASRS spending authority: such as expenditures for investment management and benefits payments. Administrative salaries and employee benefits, supplies, equipment and ongoing operational costs associated with information and financial systems for the ASRS Board and ASRS employees are funded from the operating budget. Expenditures to date include nine pay periods (34.6 % of the annual payrolls) of fiscal year 2015.

Other Appropriations

Other appropriations, which are considered part of the annual budget, represent other appropriations for specific programs or services authorized by the Board and the Legislature.

- **Long Term Disability Administration Fund**
The amount appropriated for the administration costs of the LTD program. Expended year-to-date amounts reflect payments for services through 9/30/2014.

- **Oracle Forms and Reports Modernization**
The amount appropriated (non-lapsing) for the second year of the software modernization project.

Non-Lapsing Appropriations for Legislative Initiatives

The amount appropriated by the Legislature for the implementation of:

- FY 2014 - Oracle Forms and Reports Modernization (Yr. 1)
- FY 2014 - HB 2562 - 401(a) and LTD for Ineligibles
- FY 2012 - SB 1614 - ASRS Contribution Rate
- FY 2011 - HB 2389 - ASRS Plan Design Changes
- FY 2011 - ASRS Operating Budget and LTD Admin
 - HB 2024, Section 93 modified the FY 2011 ASRS appropriations to be non-lapsing appropriations. The ASRS has the ability to utilize the unspent portion of these appropriations in ensuing fiscal years.

Explanation of Columns

- 1) The *Appropriations* column represents funds that have been approved by the Legislature and the ASRS Board for FY 2015, and includes prior year legislative appropriations.
- 2) The *Expended* column represents the expenditures to date.
- 3) The *% Expended* column identifies the portion of each line item that has been expended to date. This column is intended to be a guide to the rate of spending during the fiscal year.

ASRS FISCAL YEAR 2015, CONTINUOUSLY APPROPRIATED REPORT

(with summarized Appropriated Expenses)

DESCRIPTION	EXPENDED YTD as of 10/31/14	ESTIMATED ANNUAL EXPENSES <small>(Projections updated quarterly)</small>	EST. ANNUAL EXPENSES AS % OF AUM	EST. ANNUAL EXPENSES PER MEMBER
Custodial Banking, Security Lending and Master Cash STIF Fees	425,000	2,692,000		
Internal Investment Management (Salaries and Benefits)	508,000	1,500,000		
<i>Public Markets</i>				
External Investment Management Fees	5,149,000	72,327,000		
Transactional and Other Fees	457,000	3,616,000		
<i>Private Markets</i>				
Private Debt and Equity Management Fees	10,933,000	39,160,000		
Private Debt and Equity Performance Incentive and Other Fees	20,002,000	33,286,000		
Real Estate, Farmland and Timber and Infrastructure Management Fees	5,968,000	25,523,000		
Real Estate, Farmland and Timber and Infrastructure Performance Incentive and Other Fees	10,933,000	24,246,000		
Opportunistic Debt and Equity Management Fees	2,860,000	15,000,000		
Opportunistic Debt and Equity Performance Incentive and Other Fees	5,359,000	30,000,000		
Investment Management Expenses	\$ 62,594,000	\$ 247,350,000	0.725%	\$ 456.11
Investment Consulting Services	1,080,000	4,831,000		
Investment Related Legal Services	397,000	906,000		
Investment Electronic Information Services	208,000	1,577,000		
External Financial Consulting Services	-	75,000		
Investment Related Consulting, Legal and Information Services	\$ 1,685,000	\$ 7,389,000	0.022%	\$ 13.63
Rent	370,000	1,505,000	0.004%	\$ 2.78
Actuarial Consulting Fees	101,000	1,225,000	0.004%	\$ 2.26
Retiree Payroll (Disbursement Administration)	595,000	2,216,000	0.006%	\$ 4.09
Total Continuously Appropriated Expenses	\$ 65,345,000	\$ 259,685,000	0.761%	\$ 478.86
*Total Current Year Appropriated Expenses	\$ 7,878,100	\$ 29,794,700	0.087%	\$ 54.94
<i>*Includes estimate prior year non-lapsing legislative appropriations of \$500,000</i>				
Total Expenses (Continuously Appropriated and Appropriated)	\$ 73,223,100	\$ 289,479,700	0.848%	\$ 533.80

ASRS Estimated Total Market Value of Assets Under Management (AUM) as of September 30, 2014

\$ 34,118,037,000

ASRS Total Membership as of June 30, 2013

542,300

Continuously Appropriated Expenses for FY 2015 Estimated Expenditures

The Arizona State Retirement System (ASRS) investment and administrative costs are expended in accordance with Arizona Revised Statutes (A.R.S.), Title 38, Chapter 5, Article 2, Section 38-721. A.R.S. Section 38-721, Subsection C, lists specific expenditures that are continuously appropriated and are allowable in the amount deemed necessary by the Board.

These specific expenditures are described below:

1. Investment management fees and related consulting fees necessary to meet the Board's investment objectives

Internal Investment management

- ASRS Investment Management Division staff base salaries and employer portion of staff benefits and payroll taxes.

External investment management fees

- Public Markets
 - External investment management fees (public).
 - Management fees (public) year-to-date expenditure amounts reflect thirty percent of the fees due for the first quarter of FY 2015.
 - Transactional and other fees include foreign taxes and commissions on derivatives and other incidental costs.
- Private Markets
 - Private Debt and Equity, Real Estate, Farmland and Timber and Infrastructure and Opportunistic Debt and Equity investment management fees.
 - Performance incentive fees include performance incentives and carried interest, which are only paid upon successful performance of the manager after other return hurdles are met. Other fees are the ASRS proportional share of the transactional and operational cost of the underlying investment structure. Each of these fees is only paid if earned or incurred, and therefore may vary each quarter.
 - Management and performance incentive fees year-to-date expenditure amounts reflect the fees due for the first quarter of FY 2015.

Consulting fees

- Includes investment related consulting and legal fees, electronic information services and subscriptions, custodial banking administrative fees, external auditing service fees.

2. Rent

- Costs associated with rent as tenants for occupancy in the 3300 Tower in Phoenix and in the satellite office in Tucson.

3. Actuarial consulting fees

- Costs associated with actuarial services related to plan design, administration and valuations.

4. Retiree Payroll

- Costs associated with administering retiree pension benefits and disbursements, including third-party payroll administration fees, postage and benefit related consulting fees.
-

The report includes projected expenditures for the current fiscal year. Actual expenditures are reported monthly and estimated annual expenses are reviewed and adjusted quarterly. The estimated annual expenses reflected were last updated as of the close of the quarter ending September 30, 2014.

**Arizona State Retirement System
Staffing Report
(October 31, 2014)**

ASRS by Division	247 Full Time Equivalents (FTEs)	New Hires	New Exits	Vacancies	Vacancy Rate
Administrative Services Division (ASD)	16	0.0	0.0	1.5	9.38%
Director's Office (DIR)	11	0.0	1.0	1.0	9.09%
External Affairs (EAD)	11	0.0	0.0	0.0	0.00%
Financial Services (FSD)	62	0.0	0.	2.75	4.44%
Technology Services (TSD)	49	0.0	0.0	6.0	12.24%
Internal Audit (IAD)	5	0.0	0.0	0	0.00%
Investment Management (IMD)	11	0.0	0.0	2.0	18.18%
Member Services (MSD)	82	0.0	0.0	2.0	2.44%
	247	0.0	1.0	15.25	6.17%

Turnover	October 2014 New Hires	October 2014 Exits	Total Exits (Last 12 Months)	Annualized Turnover %
	0	1.0	25.75	11.25%

DIR – Administrative Project Analyst: Recruitment complete, start date 11/10/2014
 IMD – Assistant Portfolio Manager: Recruitment complete, start date 11/24/2014
 TSD – Help Desk Analyst: Recruitment complete, start date 11/03/2014
 TSD – Software Engineer (2): Currently recruiting for two positions
 TSD – Project Management/Business Analyst: Recruitment complete, start date 11/10/2014
 TSD – Technical Lead: Recruitment complete, start date 11/03/2014

Impact of Staffing (Vacancies, Recruitments, Internal Transfers) on ASRS Operational Performance

Agency Divisions	Services and Functions	Staffing Impact	Comments
Impact of Staffing on ASRS Operations: Green = Normal risk Yellow = Greater than normal risk Red = Negative impact			
MSD	MAC (Call Center)		
MSD	One-on-one Counseling (Appointments/Walk-ins)		
MSD	E-mail and Written Correspondence		
MSD	Outreach Education		
MSD	Tucson: Appointments/Walk-ins/Outreach		
MSD	Benefit Estimates		
FSD	Monthly Pension Payroll Processing		
FSD	New Retiree Processing		During October 2014, New Retiree Processing did not meet their strategic objectives for audits. Three experienced FTEs are on extended leave and three new hires are in training. New Retiree Processing will return to normal risk once training has been completed and all FTEs have returned.
MSD	New Retiree Processing		
FSD	Survivor Benefit Processing		During October 2014, Survivor Benefit Processing did not meet one of their strategic objectives for disbursing survivor benefits timely. Three experienced FTEs are on extended leave and three new hires are in training. Survivor Benefit Processing will return to normal risk once training has been completed and all FTEs have returned.

Impact of Staffing (Vacancies, Recruitments, Internal Transfers) on ASRS Operational Performance

Agency Divisions	Services and Functions	Staffing Impact	Comments
Impact of Staffing on ASRS Operations: Green = Normal risk Yellow = Greater than normal risk Red = Negative impact			
MSD	Survivor Benefit Processing	●○○○	
MSD	Refund Processing	●○○○	
MSD/FSD	Service Purchase Processing	●○○○	
FSD	Records Management (data processing/imaging)	●○○○	
IA	Internal Audit	●○○○	
EA	Employer Relations	●○○○	
EA	Rule Writing	●○○○	
EA	Legislative Relations	●○○○	
EA	Communications/Media Relations	●○○○	
EA	Web Services	●○○○	
EA	Health Insurance/LTD Benefits Administration and Communication	●○○○	
MSD	LTD Member Contacts, Benefit Processing	●○○○	

Impact of Staffing (Vacancies, Recruitments, Internal Transfers) on ASRS Operational Performance

Agency Divisions	Services and Functions	Staffing Impact	Comments
Impact of Staffing on ASRS Operations: Green = Normal risk Yellow = Greater than normal risk Red = Negative impact			
FSD	Health Insurance Member Contacts, Benefit Processing Transfer Processing	● ○ ○	
MSD	Health Insurance	● ○ ○	
FSD	Transfer Processing	● ○ ○	
FSD	General Accounting	● ○ ○	
FSD	Contribution Collections and Posting	● ○ ○	
TSD	Network Support	○ ● ○	NIS continues to struggle with security activities. Additional security resources are necessary to meet the business needs. Recruitment for a Helpdesk Analyst is complete and will start in November 2014.
TSD	Business Applications Development and Support	● ○ ○	The planned workload requires a complement of 44 total resources (31 FTEs and 13 external resources). Our current complement of resources for October was at 41 (27 FTEs and 14 external resources). In November, we are planning to add one FTE Technical Lead, one FTE Project Manager/Business Analyst and one contract Quality Assurance Engineer to reach the complement of 44 total resources. We are currently recruiting for two FTEs Software Engineers.
IMD	Investment Management	● ○ ○	
DIR	Board/Executive Staff Support	○ ● ○	The management support staff struggled to meet business needs and strategic objectives. Recruitment for one position was completed in September; recruitment for the remaining vacancy is complete and scheduled to start in November 2014. Greater than normal risk will

Impact of Staffing (Vacancies, Recruitments, Internal Transfers) on ASRS Operational Performance

Agency Divisions	Services and Functions	Staffing Impact	Comments
Impact of Staffing on ASRS Operations: Green = Normal risk Yellow = Greater than normal risk Red = Negative impact			
			continue until the new hire completes training.
DIR	Strategic Planning/Analysis	● ○ ○	
ASD	Human Resources	● ○ ○	
ASD	Training and Development	● ○ ○	
ASD	Contracts and Procurement	● ○ ○	
ASD	Facilities Management	● ○ ○	
ASD	Budget Administration	● ○ ○	

ARIZONA STATE RETIREMENT SYSTEM
COMBINED STATEMENT OF CHANGES IN TOTAL FUND CASH
FOR THE MONTH ENDED OCTOBER 31, 2014

	Retirement Plan Fund	Retirement System Fund	Health Benefit Supplement Fund	Long-Term Disability Fund	Current Period October	Fiscal 2015 YTD October	Fiscal 2014 YTD October
ADDITIONS							
Contributions							
Member contributions	\$ 96,494,088	\$ 4,502	\$ -	\$ 1,012,564	\$ 97,511,155	\$ 322,484,437	\$ 303,639,453
Employer contributions	90,302,857	4,502	4,957,971	1,012,421	96,277,752	321,915,288	303,815,466
Alternative contributions (ACR)	2,391,169	-	51,368	15,411	2,457,948	7,731,657	6,964,602
Transfers from other plans	4,244	-	-	-	4,244	241,902	309,018
Purchased service	2,007,621	-	-	-	2,007,621	9,594,200	14,976,177
TOTAL CONTRIBUTIONS	191,199,979	9,005	5,009,339	2,040,396	198,258,719	661,967,484	629,704,717
DEDUCTIONS							
Investment management fees	5,325,382	-	-	-	5,325,382	23,694,965	28,113,015
Custody fees	-	-	-	-	-	-	-
Consultant and legal fees	529,313	-	-	-	529,313	1,476,731	802,834
Internal investment activity expense	116,840	-	-	-	116,840	576,024	925,084
Retirement and disability benefits	215,256,252	3,233,184	8,634,091	5,100,446	232,223,973	937,737,948	902,075,360
Survivor benefits	3,405,677	-	-	-	3,405,677	12,675,479	12,514,140
Refunds to withdrawing members, including interest	18,252,074	305	-	-	18,252,380	94,355,783	97,528,900
Administrative expenses	3,043,422	-	-	195,320	3,238,742	10,530,677	9,912,360
Transfers to other plans	8,693	-	-	-	8,693	205,482	299,101
Other	151	-	-	-	151	4,419	13,083
TOTAL DEDUCTIONS	245,937,805	3,233,489	8,634,091	5,295,766	263,101,151	1,081,257,509	1,052,183,878
INCREASE (DECREASE)	(54,737,826)	(3,224,485)	(3,624,751)	(3,255,370)	(64,842,432)	(419,290,024)	(422,479,161)
From securities lending activities:							
Security loan program	251,483	-	-	-	251,483	659,374	848,496
Security loan interest expense / (Rebate)	2,185	-	-	-	2,185	(75,491)	20,490
Net income from securities lending activities	249,298	-	-	-	249,298	734,865	828,006
Capital Calls / (Distributions)							
Farmland and Timber	28,199,825	340,611	1,250,263	-	29,790,698	40,168,605	79,522,471
Opportunistic Debt	(12,724,651)	(214,747)	(606,294)	-	(13,545,692)	108,681,374	9,633,255
Opportunistic Equity	180,710	1,493	7,942	-	190,145	19,804,764	43,192,708
Private Debt	(53,073,472)	(660,838)	(2,361,593)	-	(56,095,903)	(18,571,259)	154,293,067
Private Equity	567,561	-	8,991	-	576,552	69,664,367	15,319,800
Real Estate	(17,682,549)	(187,150)	(787,731)	-	(18,657,431)	(78,485,980)	(97,044,895)
TOTAL Capital Calls	(54,532,576)	(720,632)	(2,488,423)	-	(57,741,632)	141,261,871	204,916,407
NET INCREASE (DECREASE)	\$ 44,048	\$ (2,503,852)	\$ (1,136,328)	\$ (3,255,370)	\$ (6,851,503)	\$ (559,817,030)	\$ (626,567,563)

OUTSTANDING ASRS APPEALS

Date Received	Appeals	Issues/Questions Regarding	Status/Comments
04/16/2012	Arizona State University	Appellant is disputing an ASRS employer termination incentive program invoice.	ASU appealed to the Court of Appeals 02/12/2014. Court of Appeals case number is CA-CV 14-0083. Briefing completed 09/03/2014.
06/21/2012	Bonnie Pendergast	Appellant is seeking to purchase 9.89 service years.	ASRS Board denied service purchase in excess of five years. Superior Court overturned ASRS Board decision. Court of Appeals upheld Superior court decision. ASRS filed Petition for Review to the AZ Supreme Court on 07/01/2014. Pendergast filed Response to ASRS Petition on 10/09/2014.
07/01/2014	Lenny Tasa-Bennett	Disputing the denial of his LTD benefits.	OAH Hearing held on 08/18/2014. Recommended decision on 10/24/2014 agenda for Board action.
07/14/2014	Richard K. Hillis & Sharon Di Giacinto	Disputing the ASRS determination that a DRO term is unacceptable.	OAH Hearing re-scheduled for 10/22/2014.
10/06/2014	Elana Kaminski	Disputing membership eligibility from July 2006 through June 2012.	OAH Hearing scheduled for 12/10/2014.
10/20/2014	Doug Campos-Outcalt	Disputing official retirement date.	Request to Waive Time Requirement received from appellant 11/03/2014. Awaiting response from appellant to schedule hearing date.
10/27/2014	Joseph Bertoldo	Appellant is requesting interest be paid on underpayment of pension benefit.	OAH Hearing scheduled for 11/07/2014.

- Please note any updates have been bolded.



ARIZONA STATE RETIREMENT SYSTEM

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Paul Matson
Director

MEMORANDUM

TO: Mr. Kevin McCarthy, Chair, Arizona State Retirement System (ASRS) Board
FROM: Mr. Paul Matson, Director
DATE: November 20, 2014
RE: Delinquent Employers

As of November 20, 2014, the following employers have failed to remit contributions by a date certain. These employers have received a letter advising them that the ASRS will initiate collection procedures unless they contact us within five days:

Starshine Academy	\$ 27,000*
Destiny School	\$ 5,200*
American Heritage Academy	\$ 39,000*
Esperanza Comm Collegial Academy	\$ 2,000*
NO AZ Academy for Career Development	\$ 18,000*
AZ Conservatory for Arts & Academics	\$ 39,000*
Westwind Middle School	\$ 2,000*
Westwind Academy	\$ 48,000*
Caurus Academy	\$ 24,000*
Park View Middle School	\$ 16,000*
Three Points Fire District	\$ 600*
Sonoran Science Academy-Broadway	\$ 9,000*
Sonoran Science Academy-Tucson	\$ 25,000*
Sonoran Science Academy-Phoenix	\$ 9,000*
Tusayan Fire District	\$ 3,000*
Sequoia Choice School	\$ 51,000*
Sequoia Village School	\$ 24,000*
Sequoia Charter School	\$ 18,000*
Pathfinder Academy	\$ 39,000*
Sequoia Ranch School	\$ 69,000*
Sequoia Sch for the Deaf & Hard of Hearing	\$ 15,000*
Redwood Elementary Academy	\$ 17,000*
Sequoia Pathway Academy	<u>\$ 75,000*</u>
Total	<u>\$574,800*</u>

*Estimated amount

Additionally, the following employer has filed for Chapter 11 Bankruptcy Protection and is delinquent in their ASRS contributions:

Luz Academy of Tucson	\$ 18,600
Total	<u>\$593,400*</u>