

Investment Performance Review
Period Ending September 30, 2018

Washoe County 457 & 401a Plans



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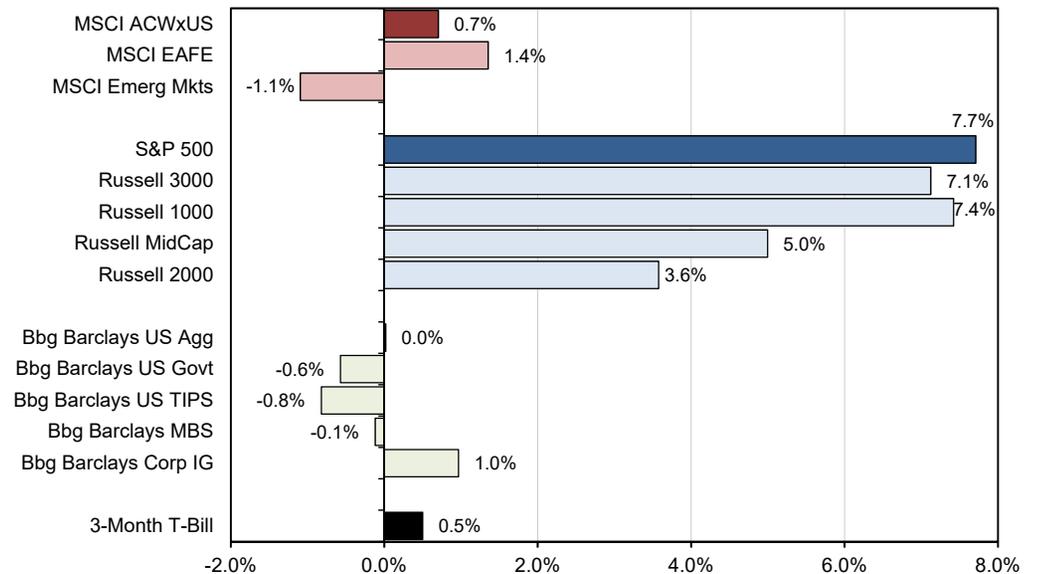


3rd Quarter 2018 Market Environment

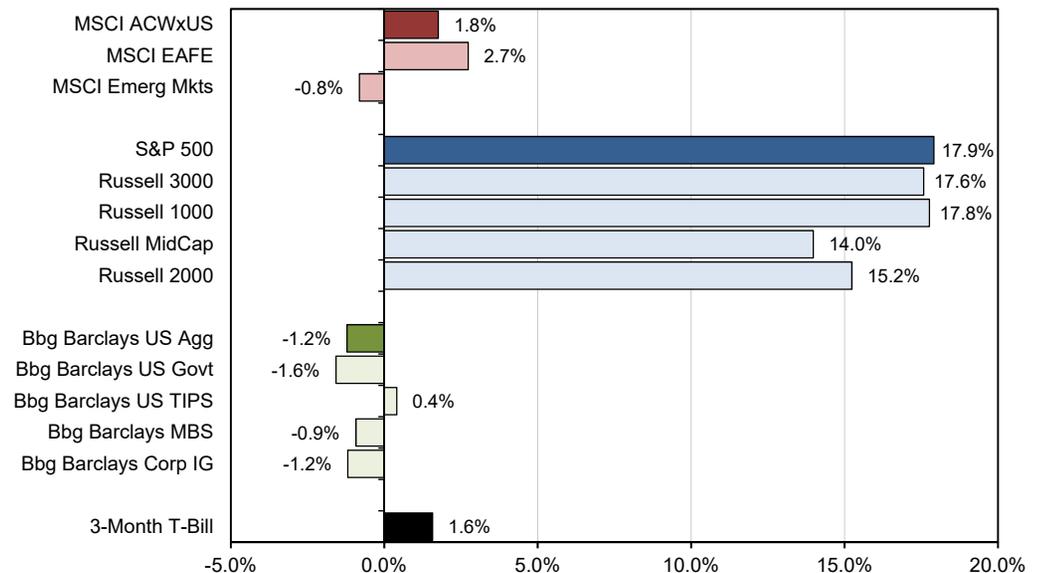


- Market returns were mixed across major equity and fixed income indices for the 3rd quarter of 2018 with many themes from the 2nd quarter repeating during the current period. Broad domestic equity indices pushed higher on continued strength in both economic and corporate earnings data. Corporate earnings continue to benefit from fiscal stimulus tailwinds in the form of the late 2017 tax reform. International indices underperformed domestic indices during the period, posting more muted returns in US dollar (USD) terms, as investors weighed relatively soft economic data, a strengthening USD and geopolitical concerns, especially around global trade relations. Fixed income returns were flat for the quarter as interest rates continued to rise. Domestic stocks rose as concerns around ongoing monetary policy tightening by the Federal Reserve (Fed) and an escalating trade war between the US and China were not substantial enough to dampen investor enthusiasm around the ongoing strength of the US economy. The US stock market represented by the Russell 3000 Index returned 7.1% and 17.6% for the quarter and 1-year period respectively.
- International equity returns finished the quarter slightly positive with the MSCI ACWI ex US Index returning 0.7%. Developed market stocks pushed higher through the period, however, relatively subdued economic growth and ongoing political and trade uncertainty tempered returns versus domestic equities. The developed market MSCI EAFE Index gained 1.4% during the quarter. Emerging market stocks struggled in comparison, posting negative returns for the period, as trade tensions grew between the US and China. In addition, a strengthening USD caused headwinds for most international markets, but caused particular difficulties for emerging market countries that issue debt in USD. The MSCI Emerging Markets Index posted a small decline of -1.1% during the 3rd quarter. The relative outperformance of developed markets can also be seen in the 1-year period with the MSCI EAFE and MSCI Emerging Markets indices returning 2.7% and -0.8% respectively.
- Interest rates on the US Treasury Yield Curve continued their year-to-date rise during the 3rd quarter as investor expectations for further Fed tightening of monetary policy increased during the period. The yield curve did flatten slightly as interest rates had the greatest increase in short-term maturities, but overall, the shift in rates was fairly consistent throughout the entire curve. The Fed did implement another interest rate increase following their September meeting citing the continued strength of the US economy and stable inflation. The broad market Bloomberg Barclays US Aggregate Index was flat for the quarter returning 0.0% and is slightly negative over the 1-year period returning -1.2%. Corporate issues rebounded following underperformance during the first half of the year and were the only investment grade sector to post a positive return during the quarter, as they benefitted from tightening credit spreads and strong investor demand.

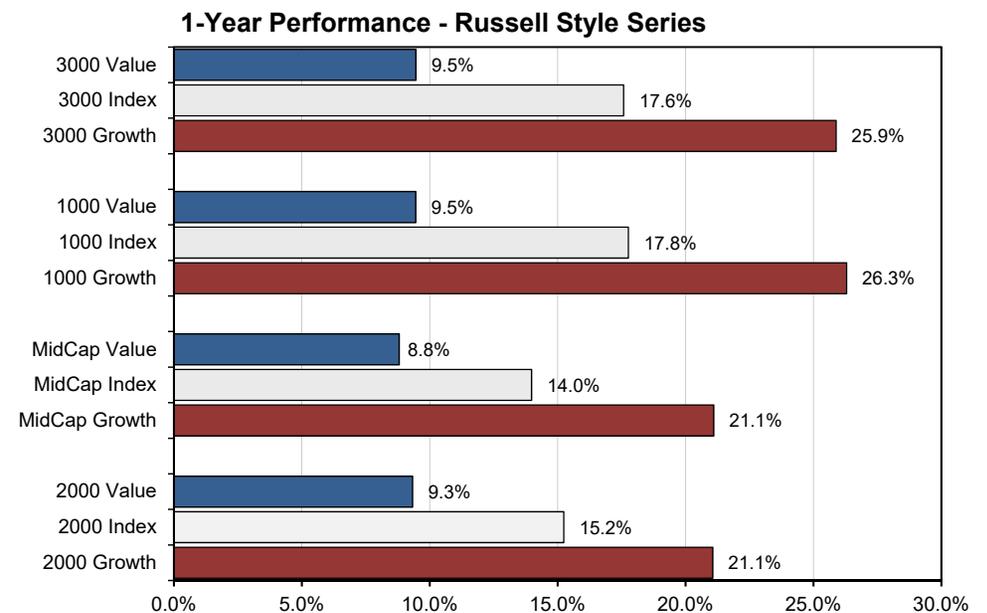
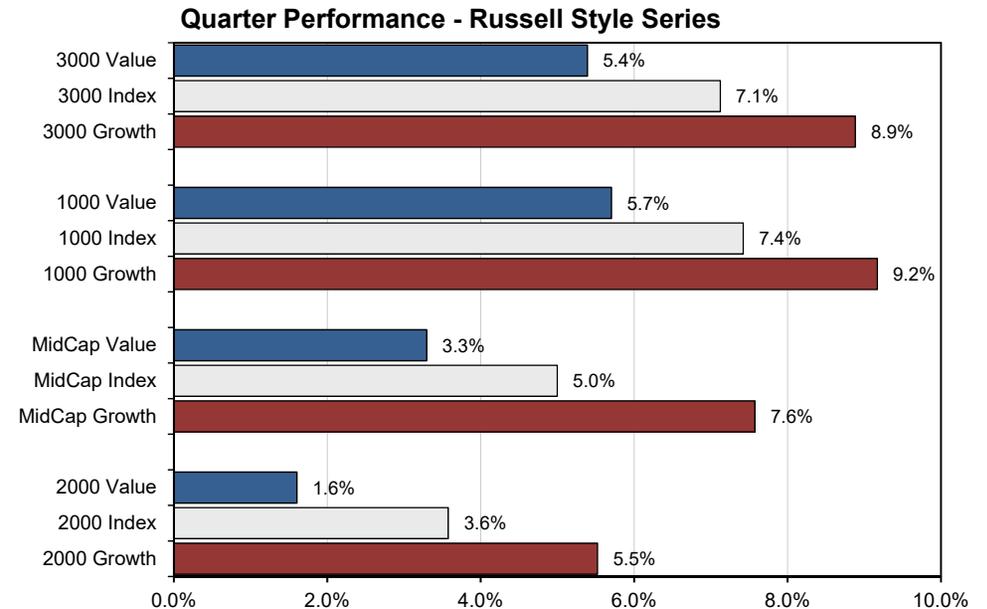
Quarter Performance



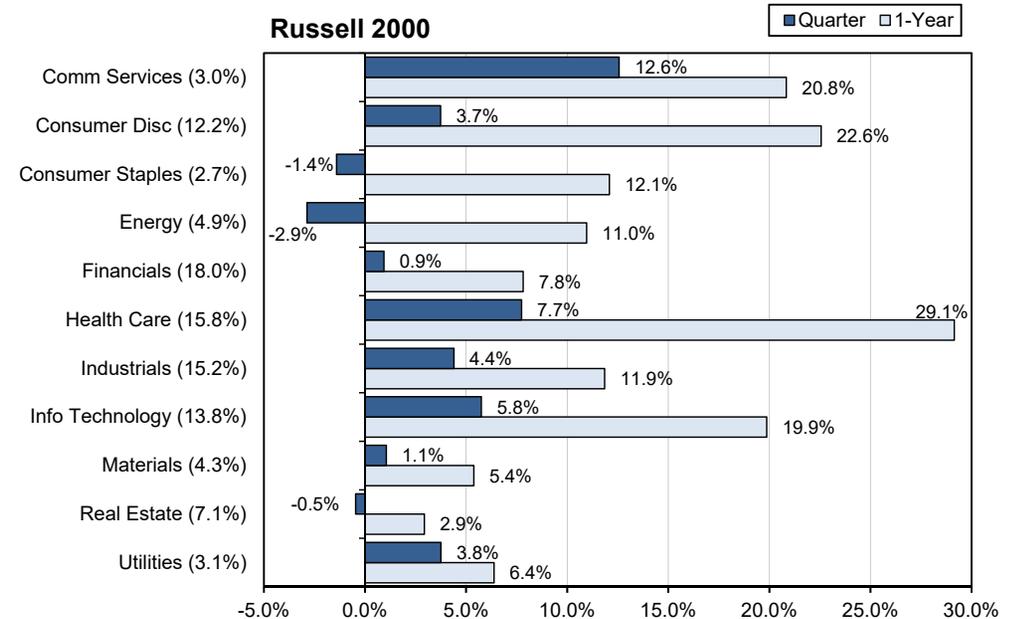
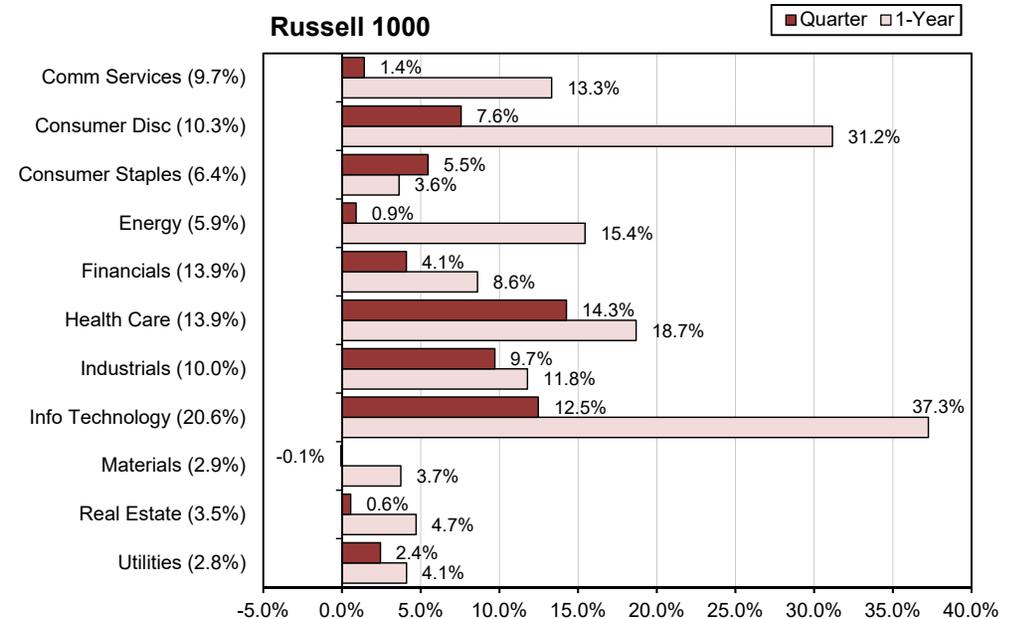
1-Year Performance



- US equity index returns were positive across the style and capitalization spectrum during the 3rd quarter of 2018. US equity markets were pushed higher by the ongoing strength in US economic data and corporate earnings. Positive data releases in GDP, unemployment, retail sales, consumer consumption and investor sentiment highlighted the continued health of the US economy. Corporate earnings released during the quarter were also impressive. Earnings reported for S&P 500 companies were up over 20% on a year-over-year basis for the second straight quarter as corporate profits continued to benefit from the new tax code. The current expansion in US equity markets now marks the longest bull market in history. While the positive economic data drove returns through the quarter, trade negotiations with China broke down with both the US and China instituting several rounds of new tariffs during the period. Currently the US is imposing tariffs on \$250 billion of Chinese imports with China placing tariffs on \$110 billion worth of goods. Further action has been threatened by both countries. While negotiations with China have been unsuccessful, progress was made in the renegotiation of the North American Free Trade Agreement (NAFTA) and discussions with the European Union (EU) appear to be moving ahead productively.
- During the quarter, large cap stocks outperformed mid and small cap equities across growth, value and core indices. The large cap Russell 1000 Index returned 7.4% for the quarter versus a 3.6% return for the Russell 2000 Index. The Russell 1000 benefitted from strong performance from some of its largest exposures. Apple Inc, Microsoft Corp and Amazon.com Inc alone make up over 10% of the index and posted quarterly returns of 22.4%, 16.4% and 17.8% respectively. Those same three stocks have gained 48.7%, 56.3% and 108.4% over the 1-year period. This strong performance from some of the index's largest constituents has helped large caps outperform small caps over the 1-year period as well with the Russell 1000 returning 17.8% over the trailing year while the Russell 2000 posted a still solid return of 15.2%.
- Growth stocks outperformed value stocks across the market cap spectrum during the 3rd quarter. The large cap Russell 1000 Growth Index was the best performing style index for the period returning a notable 9.2% for the quarter. The outperformance of growth indices relative to value indices is also evident over the 1-year period as growth indices continue to show significant outperformance relative to their value counterparts. The returns for growth indices more than double the returns of the corresponding value indices over the last 12 months. Growth benchmarks benefitted from larger exposures to more cyclical names within the information technology, consumer discretionary, health care and industrials sectors. They also benefitted from underweights to more defensive sectors such as REITs and utilities.



- Both S&P Dow Jones Indices and MSCI made changes to the Global Industry Classification Standard (GICS) sector configurations of their indices, creating a new GICS sector classification called Communication Services which replaced the Telecommunications sector on September 28, 2018. The Communication Services sector is comprised of companies in the Telecommunications sector, as well as certain companies formerly classified as Consumer Discretionary and Information Technology. As a result, the sector, went from a weighting of about 2% of the Russell 1000 Index to almost 10% post reclassification. Notable names now classified under Communication Services include Netflix, Alphabet, Facebook and Disney. This is just the second change to the GICS classifications since 1999.
- Sector performance was broadly positive across large cap sectors for the 3rd quarter. Ten of eleven sectors had positive returns for the quarter with four outpacing the Russell 1000 Index return. The consumer discretionary sector continues to do well on the back of strong retail sales and increased consumer spending, gaining 7.6% for the period. Health care and technology stocks increased 14.3% and 12.5% during the quarter respectively, with companies in both sectors reporting strong earnings. Industrials benefitted from continued economic strength returning 9.7%. The largest detractors for the quarter were the materials, real estate and energy sectors which returned -0.1%, 0.6% and 0.9% respectively. Over the trailing 1-year period, all large cap all sectors were positive. The information technology and consumer discretionary sectors were the best performers, returning over 30% over the last 12 months, and six of eleven sectors have returns over 10% for the year.
- Quarterly results for small cap sectors were generally lower relative to their large capitalization counterparts. Nine of eleven sectors had positive returns during the period with six of eleven economic sectors outpacing the Russell 2000 Index return for the quarter. Energy, consumer staples and real estate posted negative returns for the period returning -2.9%, -1.4% and -0.5% respectively. Communications services and health care were the best performers returning 12.6% and 7.7%. Over the trailing 1-year period, all eleven sectors posted gains. Health care stocks were the best performers within the Russell 2000 for the trailing year returning a solid 29.1%. Communication services, technology, and consumer discretionary also had particularly robust returns for the 1-year period.
- Using S&P 500 sector valuations as a proxy for the market, forward P/E ratios for seven of the eleven GICS sectors were higher than their long-term averages at quarter-end. Using these historical P/E measures, the utilities, consumer discretionary and real estate sectors appear the most extended. In contrast the financials, technology and health care sectors were trading at a discount to their long-term average P/E ratios.



The Market Environment
Top 10 Index Weights & Quarterly Performance for the Russell 1000 & 2000
As of September 30, 2018

Top 10 Weighted Stocks				
Russell 1000	Weight	1-Qtr Return	1-Year Return	Sector
Apple Inc	3.97%	22.4%	48.7%	Information Technology
Microsoft Corp	3.15%	16.4%	56.3%	Information Technology
Amazon.com Inc	2.96%	17.8%	108.4%	Consumer Discretionary
Berkshire Hathaway Inc B	1.51%	14.7%	16.8%	Financials
Facebook Inc A	1.42%	-15.4%	-3.8%	Communication Services
JPMorgan Chase & Co	1.37%	8.9%	20.7%	Financials
Johnson & Johnson	1.35%	14.6%	9.1%	Health Care
Alphabet Inc Class C	1.32%	7.0%	24.4%	Communication Services
Alphabet Inc A	1.31%	6.9%	24.0%	Communication Services
Exxon Mobil Corp	1.31%	3.8%	7.9%	Energy

Top 10 Weighted Stocks				
Russell 2000	Weight	1-Qtr Return	1-Year Return	Sector
Five Below Inc	0.31%	33.1%	137.0%	Consumer Discretionary
Etsy Inc	0.27%	21.8%	204.4%	Consumer Discretionary
Integrated Device Technology Inc	0.27%	47.5%	76.9%	Information Technology
LivaNova PLC	0.27%	24.2%	76.9%	Health Care
Haemonetics Corp	0.26%	27.8%	155.4%	Health Care
Teladoc Health Inc	0.25%	48.8%	160.5%	Health Care
Ligand Pharmaceuticals Inc	0.25%	32.5%	101.6%	Health Care
HubSpot Inc	0.24%	20.4%	79.6%	Information Technology
Primerica Inc	0.23%	21.3%	49.2%	Financials
HealthEquity Inc	0.22%	25.7%	86.7%	Health Care

Top 10 Performing Stocks (by Quarter)				
Russell 1000	Weight	1-Qtr Return	1-Year Return	Sector
Advanced Micro Devices Inc	0.10%	106.1%	142.3%	Information Technology
Square Inc A	0.10%	60.6%	243.7%	Information Technology
Paycom Software Inc	0.03%	57.2%	107.3%	Information Technology
Twilio Inc A	0.02%	54.0%	189.0%	Information Technology
Atlassian Corporation PLC A	0.03%	53.8%	173.5%	Information Technology
Molina Healthcare Inc	0.03%	51.8%	116.3%	Health Care
DexCom Inc	0.05%	50.6%	192.4%	Health Care
Match Group Inc	0.01%	49.5%	149.7%	Communication Services
Fortinet Inc	0.05%	47.8%	157.4%	Information Technology
IAC/InterActiveCorp	0.06%	42.1%	84.3%	Communication Services

Top 10 Performing Stocks (by Quarter)				
Russell 2000	Weight	1-Qtr Return	1-Year Return	Sector
CareDx Inc	0.04%	135.7%	679.7%	Health Care
Reata Pharmaceuticals Inc A	0.07%	133.8%	162.9%	Health Care
Invitae Corp	0.05%	127.6%	78.5%	Health Care
RigNet Inc	0.01%	97.6%	18.3%	Energy
Tandem Diabetes Care Inc	0.10%	94.6%	486.8%	Health Care
Health Insurance Innovations Inc	0.03%	90.6%	325.2%	Financials
Funko Inc Class A	0.01%	88.8%	N/A	Consumer Discretionary
LSB Industries Inc	0.01%	84.5%	23.2%	Materials
Viking Therapeutics Inc	0.04%	83.6%	812.0%	Health Care
Ra Pharmaceuticals Inc	0.01%	81.8%	23.9%	Health Care

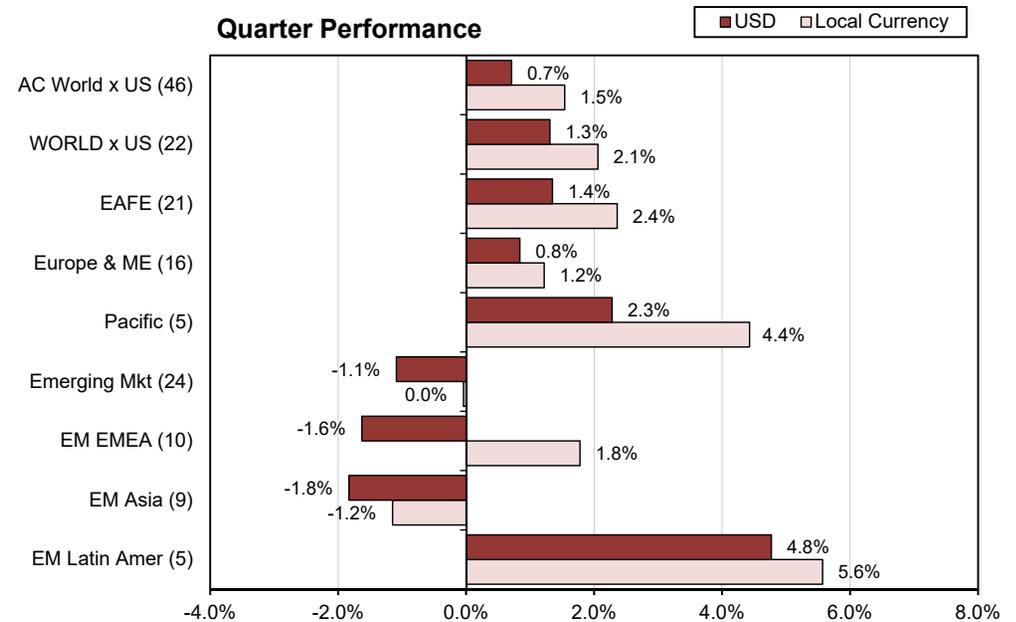
Bottom 10 Performing Stocks (by Quarter)				
Russell 1000	Weight	1-Qtr Return	1-Year Return	Sector
Floor & Decor Holdings Inc	0.01%	-38.8%	-22.5%	Consumer Discretionary
Twitter Inc	0.07%	-34.8%	68.7%	Communication Services
IPG Photonics Corp	0.02%	-29.3%	-15.7%	Information Technology
Visteon Corp	0.01%	-28.1%	-24.9%	Consumer Discretionary
Zillow Group Inc A	0.01%	-26.0%	10.1%	Communication Services
Zillow Group Inc C	0.02%	-25.1%	10.0%	Communication Services
Western Digital Corp	0.06%	-23.7%	-30.4%	Information Technology
Wynn Resorts Ltd	0.05%	-23.7%	-13.3%	Consumer Discretionary
Extraction Oil & Gas Inc	0.00%	-23.1%	-26.6%	Energy
Tesla Inc	0.13%	-22.8%	-22.4%	Consumer Discretionary

Bottom 10 Performing Stocks (by Quarter)				
Russell 2000	Weight	1-Qtr Return	1-Year Return	Sector
Vital Therapies Inc	0.00%	-96.0%	-94.5%	Health Care
GTx Inc	0.00%	-89.7%	-81.4%	Health Care
Ampio Pharmaceuticals Inc	0.00%	-76.9%	-16.9%	Health Care
Innovate Biopharmaceuticals Inc	0.01%	-71.0%	-2.4%	Health Care
Zion Oil & Gas Inc	0.00%	-68.4%	-62.5%	Energy
Endologix Inc	0.01%	-66.3%	-57.2%	Health Care
Lannett Co Inc	0.01%	-65.1%	-74.3%	Health Care
Maiden Holdings Ltd	0.01%	-62.6%	-61.1%	Financials
Diebold Nixdorf Inc	0.02%	-62.3%	-80.1%	Information Technology
Sears Holdings Corp	0.00%	-59.2%	-86.7%	Consumer Discretionary

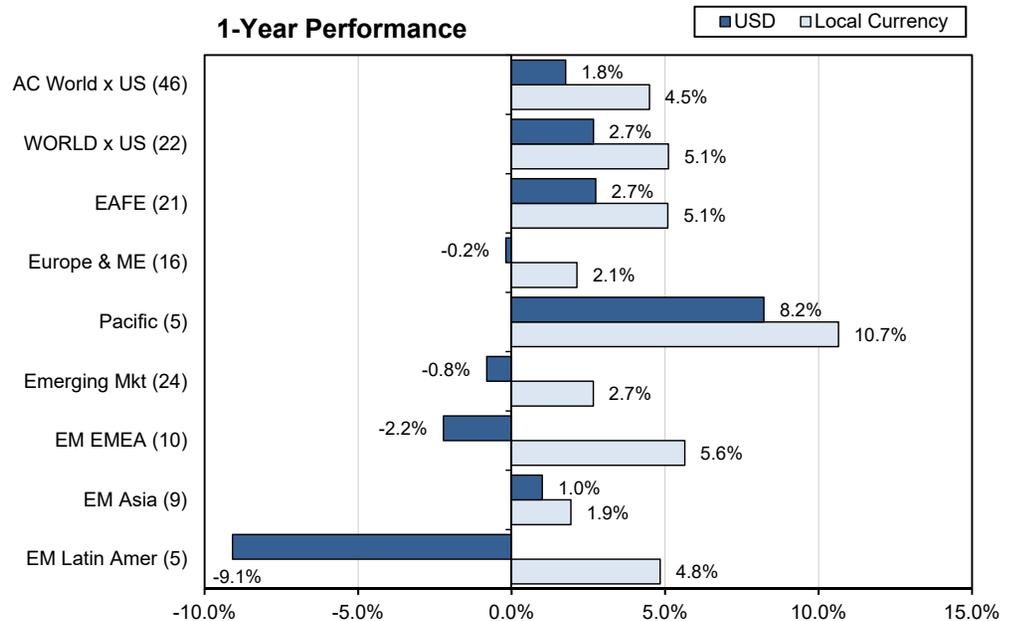


- Broad international equity returns were mixed for the quarter. Most developed markets were positive in local currency and USD terms whereas emerging markets were negative in both local currency and USD terms. Performance was largely driven by the same catalysts as the US equity markets for the second straight quarter. We saw global macroeconomic data slow, but remain generally positive through the period, with returns being tempered by global trade tensions and ongoing political uncertainty. The USD continued to strengthen against most currencies for the period as relatively strong US economic fundamentals and the continued divergence in global monetary policy hurt US investors in international markets. The MSCI ACWI ex US Index gained 1.5% in local currency terms and 0.7% in USD terms during the 3rd quarter. Returns over the 1-year period are modestly positive in both local currency and USD terms with the MSCI ACWI ex US returning 4.5% and 1.8% respectively.
- Third quarter results for developed market international indices were positive in local currency terms and USD terms with the MSCI EAFE Index returning 2.4% and 1.4% respectively. Returns were dampened for US investors as continued strength in the USD pushed returns lower. Developed markets were pushed higher by broadly positive, but slowing, global economic and earnings data despite several significant political events in Europe during the quarter. Concerns over a “no deal” Brexit and worries over a pending budget approval in Italy weighed on returns, while markets were encouraged by progress in trade negotiations between the US and the eurozone and signs of continued political stability in Japan. The MSCI EAFE Index returned 5.1% and 2.7% for the last twelve months in local currency and USD terms respectively.
- Emerging markets underperformed relative to developed markets for the 3rd quarter, posting a flat return in local currency terms that was exacerbated by the rising USD. The MSCI Emerging Markets Index returned 0.0% and -1.1% in local currency and USD terms respectively. Returns in emerging markets were the hurt by the deterioration in trade negotiations between the US and China followed by several rounds of new tariffs enacted by both countries. Emerging market stocks were also negatively affected by rising US interest rates coupled with an appreciating USD. Many emerging market countries and companies issue debt denominated in USD and the combination of higher interest rates and a relatively weaker local currency can put stress on the balance sheets of these borrowers, especially those heavily dependent on external capital. This was particularly problematic for Turkey, Argentina and South Africa during the 3rd quarter with Argentina having to expedite their request for an emergency bailout of \$50 billion from the World Monetary Fund. In positive news, Mexico and the US made progress toward the renegotiation of NAFTA. One year returns for the MSCI Emerging Market Index were 2.7% in local currency terms and -0.8% in USD terms.

Quarter Performance



1-Year Performance



The Market Environment
US Dollar International Index Attribution & Country Detail
As of September 30, 2018

MSCI - EAFE	Sector Weight	Quarter Return	1-Year Return
Communication Services	5.4%	3.3%	-2.4%
Consumer Discretionary	11.1%	-0.5%	3.3%
Consumer Staples	11.3%	-0.1%	2.5%
Energy	6.0%	3.5%	24.6%
Financials	19.8%	0.9%	-4.0%
Health Care	10.9%	5.6%	7.1%
Industrials	14.3%	2.6%	4.2%
Information Technology	6.2%	0.3%	7.4%
Materials	8.1%	0.4%	5.1%
Real Estate	3.5%	-3.0%	1.0%
Utilities	3.3%	-0.6%	0.7%
Total	100.0%	1.4%	2.7%

MSCI - ACWIXUS	Sector Weight	Quarter Return	1-Year Return
Communication Services	7.6%	-3.0%	-4.1%
Consumer Discretionary	10.7%	-3.2%	-1.4%
Consumer Staples	9.7%	-0.6%	1.6%
Energy	7.1%	4.1%	18.3%
Financials	22.0%	1.7%	-1.9%
Health Care	8.3%	4.5%	7.6%
Industrials	11.7%	2.8%	3.8%
Information Technology	8.5%	1.3%	5.6%
Materials	8.2%	0.4%	5.2%
Real Estate	3.2%	-3.5%	-2.7%
Utilities	3.0%	-0.9%	-1.2%
Total	100.0%	0.7%	1.8%

MSCI - Emerging Mkt	Sector Weight	Quarter Return	1-Year Return
Communication Services	14.8%	-9.4%	-6.0%
Consumer Discretionary	11.3%	-9.9%	-13.2%
Consumer Staples	6.7%	-2.9%	-1.9%
Energy	6.3%	14.5%	26.0%
Financials	23.3%	1.5%	0.4%
Health Care	3.1%	-7.2%	11.4%
Industrials	5.3%	2.5%	-4.3%
Information Technology	15.9%	2.2%	2.3%
Materials	7.8%	4.5%	8.6%
Real Estate	2.9%	-5.6%	-15.1%
Utilities	2.5%	-1.9%	-5.4%
Total	100.0%	-1.1%	-0.8%

Country	MSCI-EAFE Weight	MSCI-ACWIXUS Weight	Quarter Return	1-Year Return
Japan	24.6%	16.9%	3.7%	10.2%
United Kingdom	17.5%	12.0%	-1.7%	2.9%
France	11.2%	7.7%	2.8%	4.2%
Germany	9.4%	6.5%	-0.6%	-5.4%
Switzerland	8.3%	5.7%	7.3%	1.6%
Australia	6.8%	4.7%	-0.9%	4.4%
Hong Kong	3.5%	2.4%	-1.0%	2.9%
Netherlands	3.3%	2.3%	-1.5%	-1.6%
Spain	3.0%	2.0%	-2.4%	-9.7%
Sweden	2.7%	1.9%	7.0%	-3.3%
Italy	2.3%	1.6%	-4.5%	-8.9%
Denmark	1.7%	1.2%	2.3%	-4.2%
Singapore	1.3%	0.9%	2.2%	6.9%
Finland	1.1%	0.7%	3.2%	10.3%
Belgium	1.0%	0.7%	-5.2%	-11.8%
Norway	0.8%	0.5%	6.7%	13.7%
Israel	0.6%	0.4%	5.1%	14.9%
Ireland	0.5%	0.4%	-5.4%	-6.1%
Austria	0.2%	0.2%	0.2%	-3.1%
New Zealand	0.2%	0.2%	2.4%	4.4%
Portugal	0.2%	0.1%	-0.6%	1.7%
Total EAFE Countries	100.0%	68.7%	1.4%	2.7%
Canada		6.7%	0.8%	1.9%
Total Developed Countries		75.3%	1.3%	2.7%
China		7.6%	-7.5%	-2.2%
Korea		3.7%	0.7%	1.4%
Taiwan		3.0%	6.5%	9.7%
India		2.1%	-2.3%	1.1%
Brazil		1.5%	6.1%	-14.0%
South Africa		1.5%	-7.4%	-5.1%
Russia		0.9%	6.2%	13.7%
Mexico		0.8%	6.9%	-4.4%
Thailand		0.6%	13.6%	15.2%
Malaysia		0.6%	3.8%	7.6%
Indonesia		0.5%	2.0%	-10.4%
Poland		0.3%	10.6%	-5.0%
Chile		0.3%	-2.0%	-5.7%
Philippines		0.2%	1.0%	-15.6%
Qatar		0.2%	12.8%	25.3%
United Arab Emirates		0.2%	3.1%	-6.9%
Turkey		0.2%	-20.5%	-41.7%
Colombia		0.1%	-2.5%	10.0%
Peru		0.1%	-2.1%	12.2%
Greece		0.1%	-17.6%	-14.8%
Hungary		0.1%	4.7%	-5.0%
Czech Republic		0.1%	4.0%	12.8%
Egypt		0.0%	-6.8%	-7.1%
Pakistan		0.0%	-4.9%	-20.6%
Total Emerging Countries		24.7%	-1.1%	-0.8%
Total ACWIXUS Countries		100.0%	0.7%	1.8%

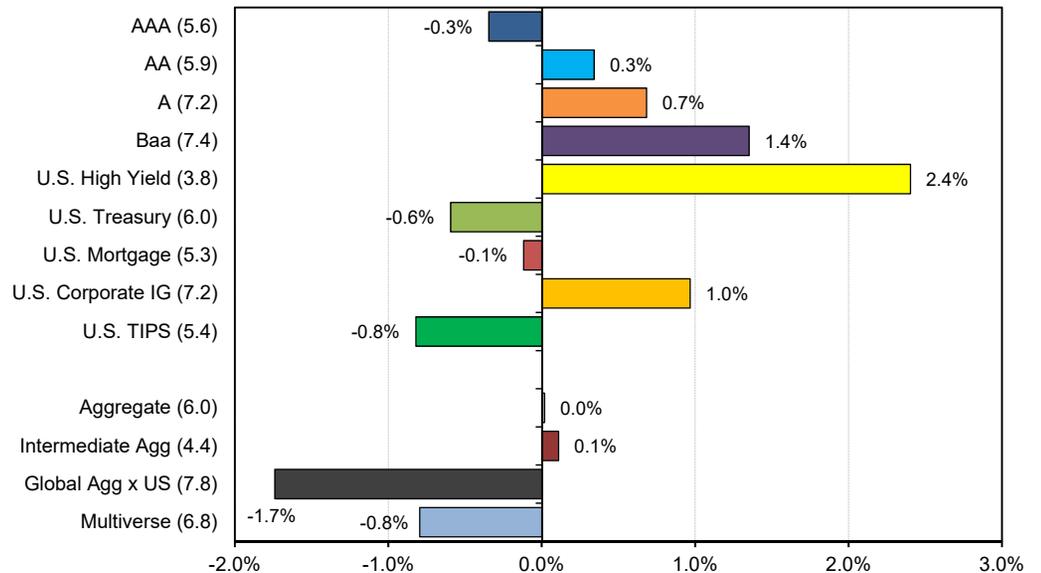
Source: Morningstar Direct, MSCI Global Index Monitor (Returns are Net in USD)

As a result of the GICS classification changes on 9/28/2018 and certain associated reporting limitations, sector performance represents backward looking performance for the prior year of each sector's current constituency, post creation of the Communication Services sector.

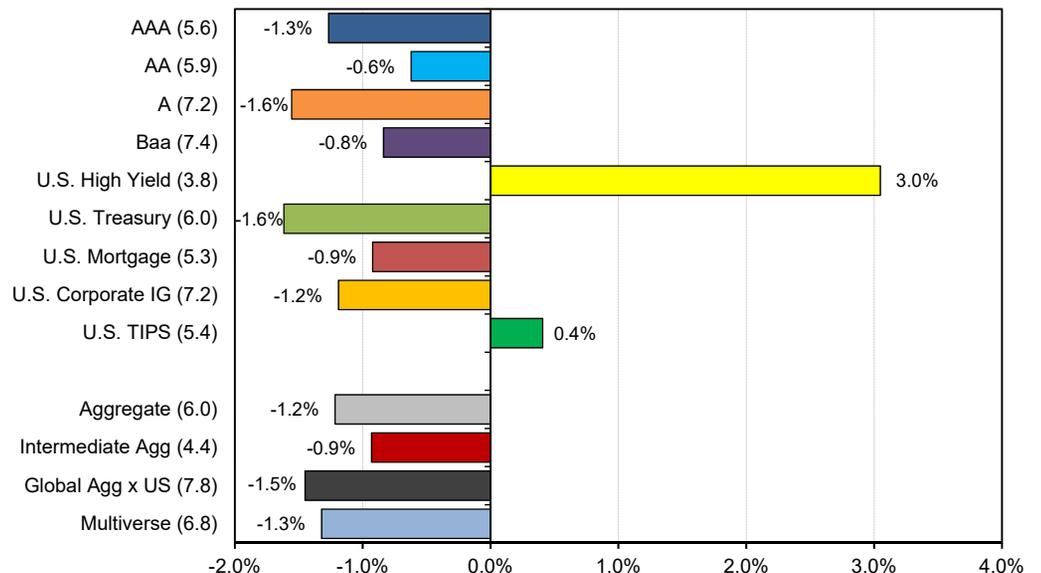


- Broad fixed income benchmarks had mixed results during the 3rd quarter. Interest rates rose across all maturities on the US Treasury Yield Curve. The Federal Open Market Committee (FOMC), decided to increase short-term interest rates by 25 basis points at their September meeting citing continued strength in the economy and stable inflation. This is the third rate hike of 2018. The current Fed Funds Rate target range sits at 2.00%-2.25%. The FOMC also changed the language used in its policy statement, removing the word “accommodative”, which investors took as a signal that the Fed plans to continue its trend of monetary policy tightening. The yield curve continued to flatten, although very gradually, as short-term yields rose at a greater rate than long-term yields during the quarter. The difference in yields between the 2-year and 10-year Treasury now sits at just 0.24%. As the curve continues to flatten, it moves closer to becoming “inverted”, which happens when short-term maturities have greater yields than long-term securities. Historically, an inverted yield curve has signaled a greater probability of a recession. The Fed is also continuing the reduction of the size of its balance sheet by slowing its pace of reinvestment as the securities it holds mature. The Bloomberg Barclays US Aggregate Index was flat during the quarter, posting a 0.0% return. Over the 1-year period the index has fallen -1.2%.
- Within investment grade credit, lower quality corporate issues outperformed higher quality issues as credit spreads tightened steadily over the quarter. On an absolute basis, without negating the duration differences in the sub-indices, Baa rated credit was the best performing investment grade credit quality segment returning 1.4% for the quarter, while AAA was the worst performing, falling -0.3%. High yield debt outperformed relative to investment grade credit, returning 2.0%, as spreads tightened to a greater degree for these issues and the index benefitted from less sensitivity to rising interest rates due to its lower duration. Returns are negative for all investment grade quality segments when viewed over the 1-year period while high yield continues to outperform with a return of 3.0%.
- Of the Bloomberg Barclays US Aggregate Index’s three broad sectors, US investment grade corporates were the best performing investment grade sector through the quarter, returning 1.0%, and the only sector to post a positive return for the period. Corporate credit outperformed as credit spreads tightened. Demand for these securities outweighed supply for the period despite considerable new issuance and a headwind from the sectors higher duration relative to other index sectors. Treasuries were the worst performing sector posting a -0.6% return. Over the 1-year period, all three broad investment grade sectors posted losses with mortgages, investment grade credit and Treasuries falling -0.9%, -1.2% and -1.6% respectively.

Quarter Performance

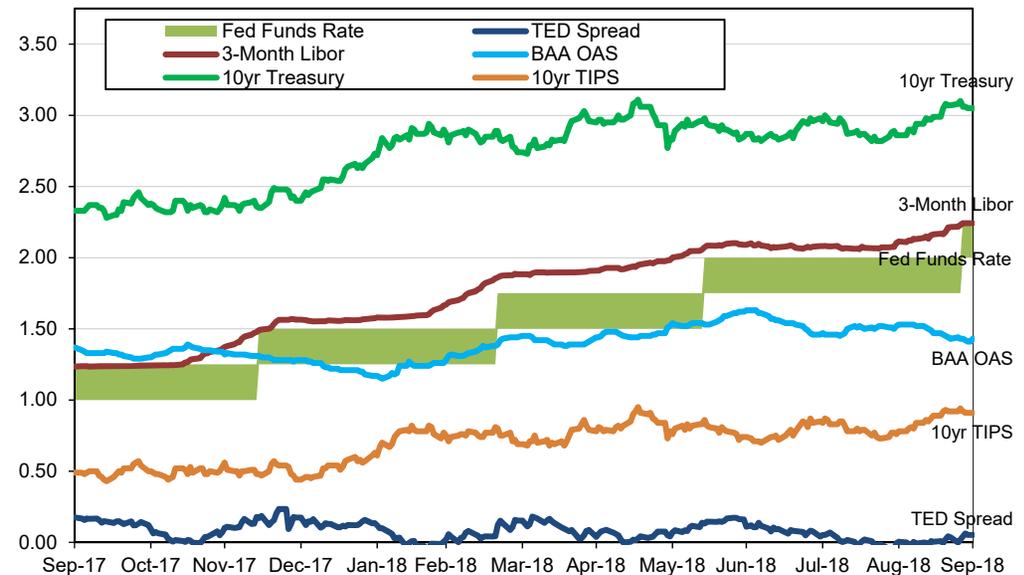


1-Year Performance

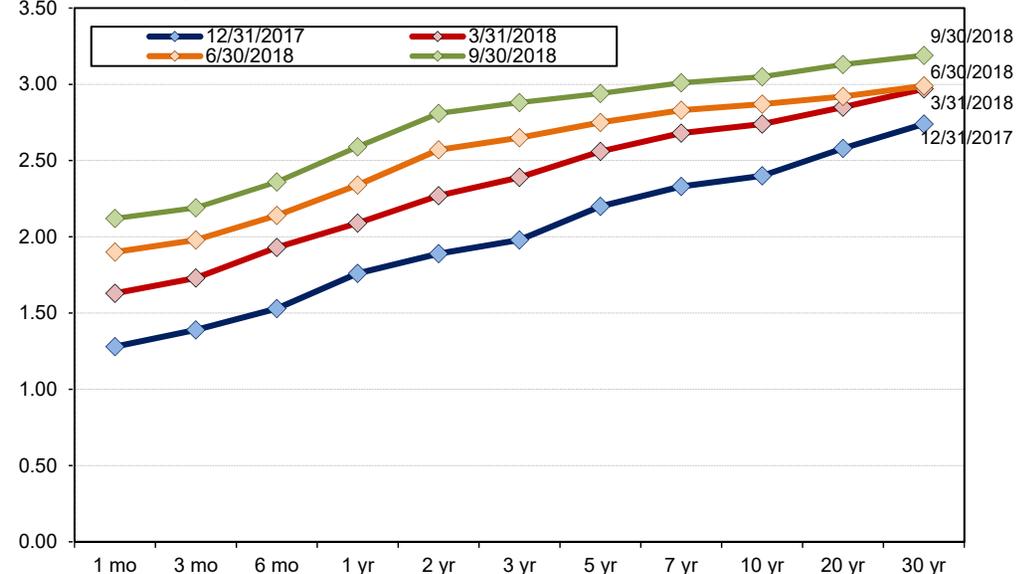


- Global fixed income indices continue to struggle relative to their domestic counterparts, underperforming during the 3rd quarter. These indices have lower yields and their relatively high duration acted as a headwind to performance in the current quarter as interest rates increased. The returns of these indices are also significantly influenced by fluctuations in their currency denomination relative to the USD. During the 3rd quarter the USD strengthened against most other currencies, negatively impacting the returns on global bond indices. The return on global bonds, as represented by the Bloomberg Barclays Global Aggregate ex US Index, was -1.7% and -1.5% for the quarter and 1-year period respectively. As the global economy continues to recover, several international central banks have started to move toward less accommodative postures. Notably, the ECB, began to slow its monthly bond purchase program in September, reducing new purchases to 15 billion euro per month from 30 billion euro per month, as well as forecasting an end to the program by the end of the year assuming the eurozone recovery continues to flourish. However, they have indicated a continuation of reinvestment in maturing securities and would likely not raise interest rates from current levels until summer 2019. The Bank of England increased interest rates by 0.25% during the quarter citing improvement in their near-term economic outlook and the Bank of Japan has changed its policy to allow flexibility for future tightening in the future.
- Much of the index performance detailed in the bar graphs on the previous page is visible on a time series basis by reviewing the line graphs to the right. The '1-Year Trailing Market Rates' chart illustrates that the 10-year Treasury yield (green line) rose steadily during the end of the 3rd quarter, ending the period at 3.05%. The blue line illustrates changes in the BAA OAS (Option Adjusted Spread). This measure quantifies the additional yield premium that investors require to purchase and hold non-Treasury issues. This line illustrates a steady increase in credit spreads through the first two quarters of 2018, followed by a smooth decline during the 3rd quarter. This decline is equivalent to an interest rate decrease on corporate bonds, which produces an additional tailwind for corporate bond index returns. These credit spreads have tightened by about 20 basis points over the last 3-months. The green band across the graph illustrates the gradual increase in the Federal Funds Rate (three increases in the last twelve months) due to the continued unwinding of accommodative US monetary policy.
- The lower graph provides a snapshot of the US Treasury yield curve at the end of each of the last four calendar quarters. As mentioned, the yield curve continues to flatten as yields on shorter-term maturities have risen more than interest rates on the long end of the curve. The upward momentum of interest rates as well as a general flattening of the yield curve are clearly visible over the last twelve months.

1-Year Trailing Market Rates



Treasury Yield Curve



Evaluation Process

This section presents charts and graphs that highlight the investment character of each portfolio analyzed. The performance, portfolio characteristics, risk profile, and style traits of each portfolio are compared against those of its benchmark(s) and other funds with similar objectives. Eight criteria-specific rankings are developed, and then combined, to establish each portfolio's overall status.

The table below describes the evaluation standards used. Significant changes in portfolio characteristics compared to historical positioning, large performance deficits, and risk or style shortcomings are fundamental factors in concluding if remedial action is advisable. However, a violation of one of more of the standards does not automatically require remedial action.

Investment Policy Criteria	Weighting	Summary of Evaluation
Manager Performance		
Investment Returns vs. Peer Group	20%	A fund is evaluated relative to where its 1, 3 and 5-year returns fall within its peer group. The results for each period are combined to determine total ranking (satisfactory, modest breach, significant concern). A similar process is used to evaluate the fund's performance relative to its benchmark(s).
Historical Performance vs. Benchmark	20%	
Portfolio Characteristics		
Adherence to Standards	10%	These criteria compare portfolio characteristics such as market capitalization, number of holdings, cash, and concentration of holdings against objective standards and benchmarks. For example, a fund with a high allocation to cash or with a high/low average market capitalization relative to its benchmark will receive a lower grade. Additionally, funds having less than three years of performance history or having manager tenure of less than three years will receive a lower grade.
Inception & Manager Tenure	10%	
Risk Profile		
Sharpe Ratio & Standard Deviation Relative to Peer Group	10%	A fund is evaluated relative to where its 3- and 5-year Sharpe ratio and standard deviation fall within its peer group. The results for each period are combined to determine total ranking. A similar process is used to evaluate the fund's Sharpe ratio and standard deviation relative to its benchmark(s).
Sharpe Ratio & Standard Deviation Relative to Benchmark	10%	
Style Traits		
Adherence to Investment Objectives	10%	A fund's style is evaluated based upon how closely it adheres to its stated investment objective and how stable its style has been historically. Criteria used to evaluate a fund's style traits include returns-based style analysis, statistics such as r-squared, and portfolio characteristics such as price/earnings ratio. Funds with style traits that are inconsistent with their stated objective or historically unstable receive lower grades.
Historical Style Stability	10%	
Status		
Overall Status		The results for all criteria are combined to determine an overall ranking for the fund. Rankings include Satisfactory, Modest Breach ("Guarded" status) and Significant Concern ("Watch List" status).

Note: Grades are based on AndCo's Proprietary scale



Portfolio Evaluation Summary

This report provides opinions, analysis, and supporting statistical information concerning:

- the performance, volatility, and characteristics of each designated Plan fund
- the continuing suitability of each fund as a Plan investment option

Portfolio Performance and Suitability of Plan Funds

Our overall evaluation of the Plan's investment funds may be summarized as follows:

Summary Evaluation	Number of Funds
Pass (Satisfactory)	15
Guarded	3
Watch	0

See the Plan Funds Observations and Comments, below, for further explanation.

Plan Fund Observations and Comments

The majority of Plan funds have substantially achieved their category-specific standards for performance, controlled volatility, and portfolio characteristics. The charts in the following pages reveal some modest breaches compared to established

evaluation standards; however, we do not find divergences from the funds' stated objectives or styles that are worrisome except as discussed below.

Fund Commentary

Hotchkis & Wiley Mid Cap Value remains on **GUARDED** status due to continued lagging returns relative to its benchmark and peers. The fund has underperformed the benchmark index over the three and five years periods, while outperforming during the last ten years annualized. The year to date performance has been very strong and has helped to raise the longer term results closer to the benchmark and peer group. Relative peer group rankings are improving, and are favorable when looking at consistency during the last ten years annual periods. The value style has certainly provided most of the drag on returns. We will continue to monitor.

The Lazard Emerging Markets Fund remains on **GUARDED** status due to an poor year to date performance, which has negatively impacted the funds improving results. Emerging markets funds experienced severe downside volatility during the last three quarters. The value style of Lazard was also a cause for the funds severe underperformance during the quarter. We continue to believe that Lazard is still a strong long-term EM strategy. We will continue to monitor.

AMG Managers Special Equities remains on **GUARDED** status due to significant underperformance relative to its benchmark and peers in the last three quarters. The fund has underperformed the benchmark index over the three and five years periods, while outperforming during the last seven and ten years annualized. Relative peer group rankings are mixed in the near term, but are favorable when looking at consistency during the last seven and ten years annual periods. The value style has certainly provided most of the drag on returns. We will continue to monitor.



Portfolio Evaluation Summary

- 1 Trailing 1, 3 and 5-year portfolio returns versus peer group
- 2 Historic performance relative to benchmark
- 3 Portfolio characteristics compared to established standards
- 4 At least 3 years of investment performance/At least 3 years with current fund manager
- 5 Sharpe ratio and standard deviation of fund relative to peer group
- 6 Sharpe ratio and standard deviation of fund relative to benchmark
- 7 Style consistent with fund objective
- 8 Style historically stable
- 9 Summary Evaluation

Pass (Satisfactory)

Guarded

Watch

Investment Funds	1	2	3	4	5	6	7	8	9
Lazard Emerging Markets Equity (LZOEX)	Guarded	Guarded	Pass	Pass	Pass	Guarded	Pass	Pass	Guarded
DFA International Small Cap Value (DISVX)	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
American Funds EuroPacific Growth (REMGX)	Pass	Pass	Pass	Pass	Guarded	Pass	Pass	Pass	Pass
Wells Fargo Small Co Growth R6 (WSCRX)	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Vanguard Small Cap Index Adm (VSMAX)	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
AMG Managers Skyline Special Equities (SKSEX)	Guarded	Guarded	Pass	Pass	Pass	Guarded	Pass	Pass	Guarded
Hartford Mid Cap (HIMCX)	Pass	Pass	Pass	Pass	Guarded	Pass	Pass	Pass	Pass
Vanguard Mid Cap Index Adm (VIMAX)	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Hotchkis & Wiley Mid Cap Value (HWMIX)	Guarded	Guarded	Pass	Pass	Pass	Guarded	Pass	Pass	Guarded
American Funds Growth Fund of America (RGAGX)	Pass	Guarded	Pass	Pass	Guarded	Pass	Pass	Pass	Pass
Wells Fargo Disciplined US Core (EVSIX)	Pass	Pass	Pass	Pass	Guarded	Pass	Pass	Pass	Pass
Vanguard Institutional Index (VINIX)	Pass	Pass	Pass	Guarded	Pass	Pass	Pass	Pass	Pass
American Century Equity Income (AEUDX)	Pass	Pass	Pass	Pass	Guarded	Pass	Pass	Pass	Pass
American Funds American Balanced (RLBGX)	Pass	Pass	Pass	Pass	Guarded	Guarded	Pass	Pass	Pass
PIMCO High Yield (PHIYX)	Pass	Guarded	Pass	Pass	Guarded	Pass	Pass	Pass	Pass
PIMCO Foreign Bond USD-Hedged (PFORX)	Pass	Pass	Pass	Pass	Guarded	Pass	Pass	Pass	Pass
Hartford Total Return Bond (HIABX)	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
MassMutual Guaranteed Interest Account	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass



Historical Summary Evaluation

Pass (Satisfactory)
Guarded
Watch

Investment Funds	2Q18	1Q18	4Q17	3Q17	2Q17	1Q17	4Q16	3Q16	2Q16
Lazard Emerging Markets Equity (LZOEX)	Guarded	Pass	Guarded	Guarded	Guarded	Pass	Pass	Pass	Pass
DFA International Small Cap Value (DISVX)	Pass	Pass	Pass						
American Funds EuroPacific Growth (RERGX)	Pass	Pass	Pass						
Wells Fargo Small Co Growth R6 (WSCRX)	Pass	Pass	Pass	Pass					
Vanguard Small Cap Index Adm (VSMAX)	Pass	Pass	Pass						
AMG Managers Skyline Special Equities (SKSEX)	Guarded	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Hartford Mid Cap (HIMCX)	Pass	Pass	Pass						
Vanguard Mid Cap Index Adm (VIMAX)	Pass	Pass	Pass						
Hotchkis & Wiley Mid Cap Value (HWMIX)	Guarded	Watch	Watch						
American Funds Growth Fund of America (RGAGX)	Pass	Pass	Pass						
Wells Fargo Disciplined US Core (EVSIX)	Pass								
Vanguard Institutional Index (VINIX)	Pass	Pass	Pass						
American Century Equity Income (AEUDX)	Pass	Pass	Pass						
American Funds American Balanced (RLBGX)	Pass	Pass	Pass						
PIMCO High Yield (PHIYX)	Pass	Pass	Pass						
PIMCO Foreign Bond USD-Hedged (PFORX)	Pass	Pass	Pass						
Hartford Total Return Bond (HIABX)	Pass	Pass	Pass						
MassMutual Guaranteed Interest Account	Pass	Pass	Pass						



Asset Allocation Attributes	Sep-2018		Jun-2018		Mar-2018	
	(\$)	%	(\$)	%	(\$)	%
Total 457 Fund	168,165,817	100.00	163,438,442	100.00	162,200,397	100.00
International Equity						
Lazard Emerging Markets Equity (LZOEX)	1,257,641	0.75	1,236,329	0.76	1,494,673	0.92
DFA International Small Cap Value (DISVX)	1,502,311	0.89	1,528,399	0.94	1,655,204	1.02
American Funds EuroPacific Growth (RERGX)	4,670,446	2.78	4,760,334	2.91	4,982,417	3.07
Domestic Equity						
Wells Fargo Small Co Growth (WSCRX)	3,208,533	1.91	3,010,395	1.84	2,696,090	1.66
Vanguard Small Cap Index (VSMAX)	2,916,459	1.73	2,725,317	1.67	2,648,315	1.63
AMG Managers Skyline Special Equities (SKSEX)	2,689,557	1.60	2,815,385	1.72	2,827,756	1.74
Hartford Mid Cap (HIMCX)	9,686,310	5.76	9,272,485	5.67	9,013,471	5.56
Vanguard Mid Cap Index (VIMAX)	2,947,832	1.75	2,750,781	1.68	2,485,051	1.53
Hotchkis & Wiley Mid Cap Value (HWMIX)	3,247,238	1.93	3,234,063	1.98	3,087,896	1.90
AF Growth Fund of America (RGAGX)	15,496,479	9.21	14,770,965	9.04	13,909,074	8.58
Wells Fargo Disciplined US Core (EVSIX)	12,936,065	7.69	12,333,868	7.55	12,483,633	7.70
Vanguard Institutional Index (VINIX)	12,586,588	7.48	11,592,073	7.09	11,315,922	6.98
American Century Equity Income (AEUDX)	6,909,990	4.11	6,692,783	4.09	7,178,799	4.43
Balanced Fund						
American Funds American Balanced (RLBGX)	5,997,891	3.57	5,763,007	3.53	5,625,161	3.47
Fixed Income						
PIMCO High Yield (PHIYX)	2,117,851	1.26	2,103,283	1.29	2,153,947	1.33
PIMCO Foreign Bond USD-Hedged (PFORX)	926,980	0.55	931,097	0.57	878,431	0.54
Hartford Total Return Bond (HIABX)	3,329,622	1.98	3,391,915	2.08	3,516,314	2.17
Cash						
MassMutual Guaranteed Interest Account	73,051,392	43.44	71,911,388	44.00	71,746,231	44.23
Loan Account	2,686,632	1.60	2,614,576	1.60	2,502,011	1.54



Asset Allocation
457 Retirement Models
As of September 30, 2018

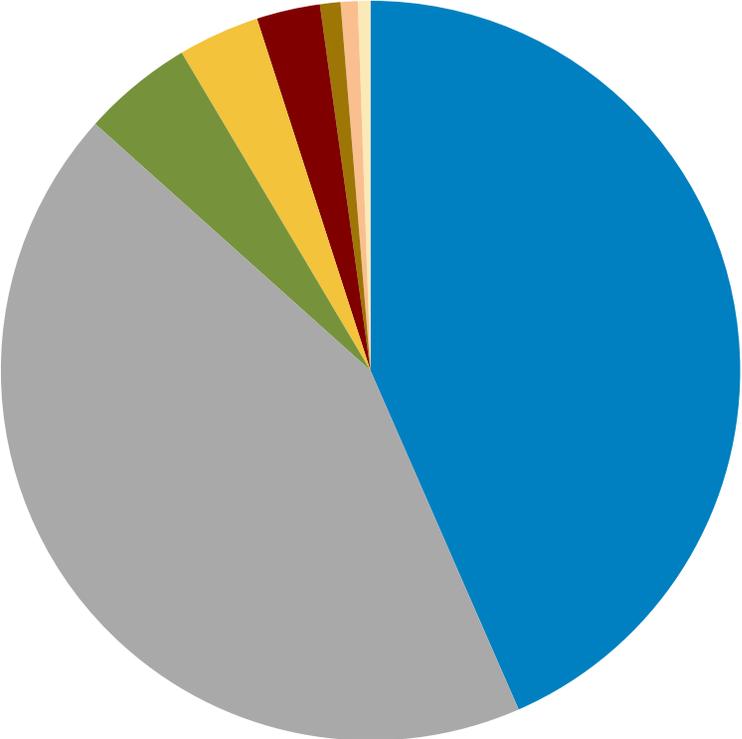
Asset Allocation Attributes	Sep-2018		Jun-2018		Mar-2018	
	(\$)	%	(\$)	%	(\$)	%
WCAB 2060 Retirement	734	0.01	-	0.00	-	0.00
WCAB 2055 Retirement	15,459	0.16	9,851	0.11	7,742	0.09
WCAB 2050 Retirement	1,059,838	11.03	978,760	10.97	956,144	11.10
WCAB 2045 Retirement	208,629	2.17	128,197	1.44	95,104	1.10
WCAB 2040 Retirement	2,259,765	23.51	2,115,904	23.71	2,011,782	23.35
WCAB 2035 Retirement	320,512	3.34	301,182	3.37	255,368	2.96
WCAB 2030 Retirement	2,983,402	31.04	2,869,481	32.15	2,824,104	32.78
WCAB 2025 Retirement	1,185,110	12.33	962,429	10.78	833,365	9.67
WCAB 2020 Retirement	1,506,985	15.68	1,483,445	16.62	1,508,510	17.51
WCAB 2015 Retirement	-	0.00	-	0.00	26,923	0.31
WCAB Income Retirement	69,534	0.72	74,909	0.84	96,867	1.12
Model Portfolios Total	9,609,968	100.00	8,924,157	100.00	8,615,908	100.00



September 30, 2018 : \$168,165,817

Allocation

	Market Value	Allocation
Cash	73,051,392	43.4
US Equity	72,625,052	43.2
US Fixed Income	8,134,105	4.8
US Balanced	5,997,891	3.6
International Equity	4,670,446	2.8
International-Developed Equity	1,502,311	0.9
International-Emerging Equity	1,257,641	0.7
International Fixed Income	926,980	0.6

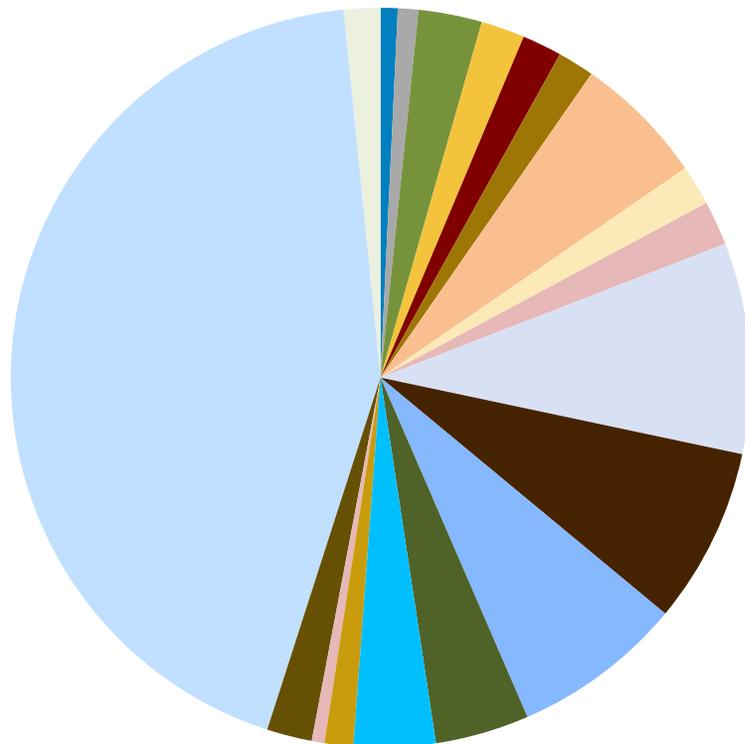


Asset Allocation By Manager

457 Total Plan

As of September 30, 2018

September 30, 2018 : \$168,165,817



Allocation

	Market Value	Allocation
Lazard Emerging Markets Equity (LZOEX)	1,257,641	0.7
DFA International Small Cap Value (DISVX)	1,502,311	0.9
American Funds EuroPacific Growth (RERGX)	4,670,446	2.8
Wells Fargo Small Co Growth (WSCRX)	3,208,533	1.9
Vanguard Small Cap Index (VSMAX)	2,916,459	1.7
AMG Managers Skyline Special Equities (SKSEX)	2,689,557	1.6
Hartford Mid Cap (HIMCX)	9,686,310	5.8
Vanguard Mid Cap Index (VIMAX)	2,947,832	1.8
Hotchkis & Wiley Mid Cap Value (HWMIX)	3,247,238	1.9
AF Growth Fund of America (RGAGX)	15,496,479	9.2
Wells Fargo Disciplined US Core (EVSIX)	12,936,065	7.7
Vanguard Institutional Index (VINIX)	12,586,588	7.5
American Century Equity Income (AEUDX)	6,909,990	4.1
American Funds American Balanced (RLBGX)	5,997,891	3.6
PIMCO High Yield (PHIYX)	2,117,851	1.3
PIMCO Foreign Bond USD-Hedged (PFORX)	926,980	0.6
Hartford Total Return Bond (HIABX)	3,329,622	2.0
MassMutual Guaranteed Interest Account	73,051,392	43.4
Loan Account	2,686,632	1.6



Asset Allocation Attributes	Sep-2018		Jun-2018		Mar-2018	
	(\$)	%	(\$)	%	(\$)	%
Total 401(a) Fund	12,244,204	100.00	11,806,197	100.00	11,538,526	100.00
International Equity						
Lazard Emerging Markets Equity (LZOEX)	147,098	1.20	144,959	1.23	164,294	1.42
DFA International Small Cap Value (DISVX)	165,538	1.35	164,836	1.40	173,632	1.50
American Funds EuroPacific Growth (RERGX)	407,480	3.33	411,568	3.49	428,993	3.72
Domestic Equity						
Wells Fargo Small Co Growth (WSCRX)	323,815	2.64	303,725	2.57	285,206	2.47
Vanguard Small Cap Index (VSMAX)	304,418	2.49	286,159	2.42	216,826	1.88
AMG Managers Skyline Special Equities (SKSEX)	296,589	2.42	297,690	2.52	286,272	2.48
Hartford Mid Cap (HIMCX)	841,765	6.87	803,915	6.81	751,621	6.51
Vanguard Mid Cap Index (VIMAX)	272,261	2.22	255,763	2.17	221,714	1.92
Hotchkis & Wiley Mid Cap Value (HWMIX)	301,859	2.47	288,965	2.45	266,336	2.31
American Funds Growth Fund of America (RGAGX)	847,470	6.92	784,609	6.65	765,514	6.63
Wells Fargo Disciplined US Core (EVSIX)	923,053	7.54	864,204	7.32	853,957	7.40
Vanguard Institutional Index (VINIX)	1,193,311	9.75	1,101,825	9.33	1,091,764	9.46
American Century Equity Income (AEUDX)	649,115	5.30	618,080	5.24	720,220	6.24
Balanced Fund						
American Funds American Balanced (RLBGX)	542,494	4.43	510,350	4.32	491,704	4.26
Fixed Income						
PIMCO High Yield (PHIYX)	140,303	1.15	150,441	1.27	159,396	1.38
PIMCO Foreign Bond USD-Hedged (PFORX)	97,033	0.79	104,872	0.89	102,199	0.89
Hartford Total Return Bond (HIABX)	340,444	2.78	395,694	3.35	431,615	3.74
Cash						
MassMutual Guaranteed Interest Account	4,224,815	34.50	4,114,185	34.85	3,892,626	33.74
Loan Account	225,343	1.84	204,356	1.73	234,636	2.03



Asset Allocation
401(a) Retirement Models
As of September 30, 2018

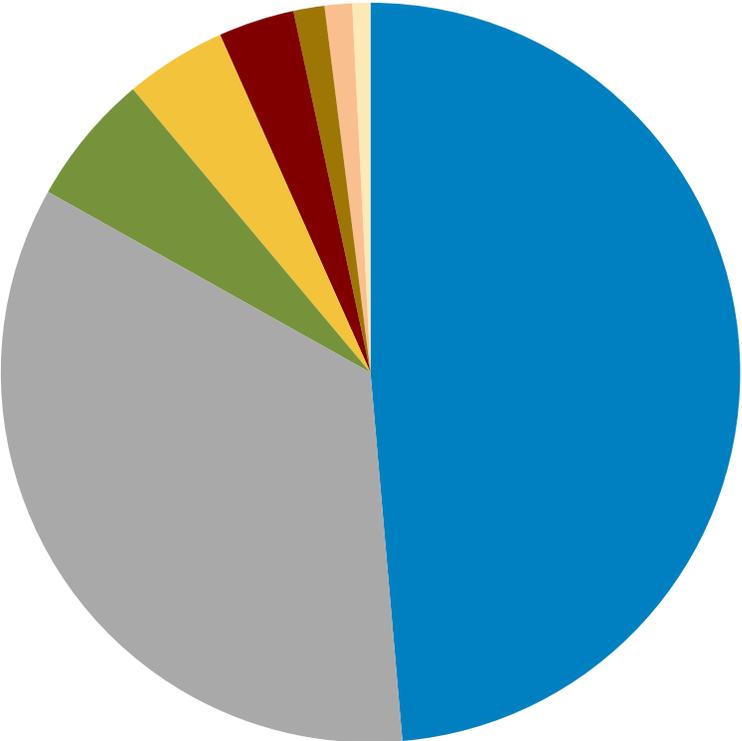
Asset Allocation Attributes	Sep-2018		Jun-2018		Mar-2018	
	(\$)	%	(\$)	%	(\$)	%
WCAB 2060 Retirement	-	0.00	-	0.00	-	0.00
WCAB 2055 Retirement	-	0.00	-	0.00	-	0.00
WCAB 2050 Retirement	58,079	4.93	53,457	4.64	50,308	4.49
WCAB 2045 Retirement	-	0.00	-	0.00	-	0.00
WCAB 2040 Retirement	167,950	14.25	158,066	13.73	151,869	13.54
WCAB 2035 Retirement	60,005	5.09	57,687	5.01	56,490	5.04
WCAB 2030 Retirement	183,979	15.61	196,180	17.04	189,931	16.94
WCAB 2025 Retirement	473,488	40.17	454,923	39.52	444,177	39.61
WCAB 2020 Retirement	-	0.00	-	0.00	-	0.00
WCAB 2015 Retirement	-	0.00	-	0.00	-	0.00
WCAB Income Retirement	235,161	19.95	230,817	20.05	228,738	20.40
Total Model Portfolios	1,178,662	100.00	1,151,130	100.00	1,121,513	100.00



Asset Allocation By Asset Class
401(a) Total Plan
As of September 30, 2018

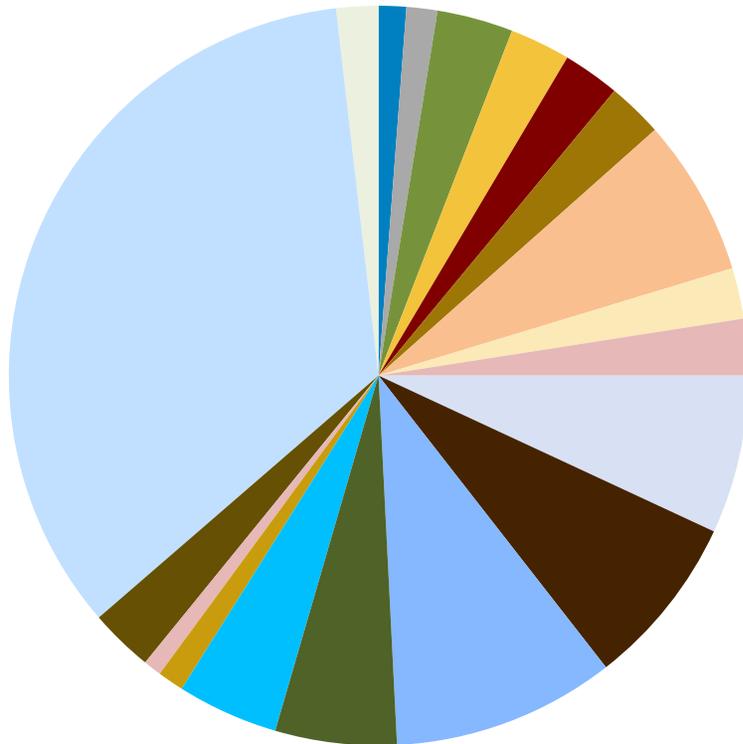
September 30, 2018 : \$12,244,204

Allocation	Market Value	Allocation
■ US Equity	5,953,657	48.6
■ Cash	4,224,815	34.5
■ US Fixed Income	706,090	5.8
■ US Balanced	542,494	4.4
■ International Equity	407,480	3.3
■ International-Developed Equity	165,538	1.4
■ International-Emerging Equity	147,098	1.2
■ International Fixed Income	97,033	0.8



Asset Allocation By Manager
401(a) Total Plan
As of September 30, 2018

September 30, 2018 : \$12,244,204



Allocation

	Market Value	Allocation
Lazard Emerging Markets Equity (LZOEX)	147,098	1.2
DFA International Small Cap Value (DISVX)	165,538	1.4
American Funds EuroPacific Growth (RERGX)	407,480	3.3
Wells Fargo Small Co Growth (WSCRX)	323,815	2.6
Vanguard Small Cap Index (VSMAX)	304,418	2.5
AMG Managers Skyline Special Equities (SKSEX)	296,589	2.4
Hartford Mid Cap (HIMCX)	841,765	6.9
Vanguard Mid Cap Index (VIMAX)	272,261	2.2
Hotchkis & Wiley Mid Cap Value (HWMIX)	301,859	2.5
American Funds Growth Fund of America (RGAGX)	847,470	6.9
Wells Fargo Disciplined US Core (EVSIX)	923,053	7.5
Vanguard Institutional Index (VINIX)	1,193,311	9.7
American Century Equity Income (AEUDX)	649,115	5.3
American Funds American Balanced (RLBGX)	542,494	4.4
PIMCO High Yield (PHIYX)	140,303	1.1
PIMCO Foreign Bond USD-Hedged (PFORX)	97,033	0.8
Hartford Total Return Bond (HIABX)	340,444	2.8
MassMutual Guaranteed Interest Account	4,224,815	34.5
Loan Account	225,343	1.8



Comparative Performance
401(a) Trailing Returns
As of September 30, 2018

Comparative Performance	QTR		YTD		1 YR		3 YR		5 YR		7 YR		10 YR	
International Equity														
Lazard Emerging Markets Equity (LZOEX)	-1.70	(39)	-13.48	(87)	-8.12	(85)	9.80	(57)	0.56	(85)	3.44	(81)	3.69	(82)
MSCI Emerging Markets (Net) Index	-1.09	(25)	-7.68	(28)	-0.81	(24)	12.36	(21)	3.61	(32)	5.03	(42)	5.40	(35)
IM Emerging Markets Equity (MF) Median	-2.42		-9.72		-3.97		10.24		2.92		4.70		4.74	
DFA International Small Cap Value (DISVX)	-0.97	(43)	-6.58	(82)	-3.00	(85)	10.34	(61)	6.59	(48)	11.13	(34)	8.51	(59)
MSCI AC World ex USA Small Cap (Net)	-1.51	(52)	-4.41	(65)	1.86	(53)	11.24	(45)	6.14	(56)	9.05	(79)	8.73	(55)
IM International SMID Cap Equity (MF) Median	-1.49		-3.06		2.27		10.89		6.45		10.66		8.78	
American Funds EuroPacific Growth (RERGX)	-0.84	(98)	-2.65	(51)	1.47	(45)	9.93	(6)	6.20	(1)	9.54	(2)	N/A	
MSCI EAFE (Net) Index	1.35	(22)	-1.43	(27)	2.74	(15)	9.23	(13)	4.42	(19)	8.30	(38)	5.38	(41)
IM International Large Cap Core Equity (MF) Median	0.52		-2.63		1.34		8.17		3.55		8.07		4.83	
Domestic Equity														
Wells Fargo Small Co Growth (WSCRX)	7.13	(48)	21.90	(48)	28.08	(39)	16.60	(67)	N/A		N/A		N/A	
Russell 2000 Growth Index	5.52	(57)	15.76	(69)	21.06	(52)	17.98	(45)	12.14	(23)	17.52	(41)	12.65	(47)
IM U.S. Small Cap Growth Equity (MF) Median	6.13		18.57		21.14		17.63		9.84		17.10		11.84	
Vanguard Small Cap Index (VSMAX)	4.77	(13)	11.04	(34)	16.70	(15)	16.34	(41)	11.48	(26)	16.80	(34)	12.36	(26)
Vanguard Spliced Small Cap Index	4.77	(13)	11.02	(35)	16.68	(15)	16.31	(41)	11.46	(26)	16.77	(34)	12.30	(26)
IM U.S. Small Cap Core Equity (MF) Median	2.26		8.46		11.41		15.41		10.36		15.72		11.11	
AMG Managers Skyline Special Equities (SKSEX)	-0.07	(72)	1.98	(83)	2.91	(94)	10.45	(90)	8.09	(47)	16.09	(19)	12.39	(7)
Russell 2000 Value Index	1.60	(30)	7.14	(43)	9.33	(58)	16.12	(38)	9.91	(23)	15.26	(34)	9.52	(57)
IM U.S. Small Cap Value Equity (MF) Median	0.97		6.63		10.11		14.27		7.73		14.20		9.71	
Hartford Mid Cap (HIMCX)	4.59	(84)	12.44	(70)	20.79	(56)	17.13	(38)	14.12	(15)	18.65	(5)	12.93	(26)
Russell Midcap Growth Index	7.57	(41)	13.38	(60)	21.10	(52)	16.65	(44)	13.00	(35)	16.86	(36)	13.46	(18)
IM U.S. Mid Cap Growth Equity (MF) Median	7.27		14.60		21.39		16.02		11.92		16.16		12.00	
Vanguard Mid Cap Index (VIMAX)	4.67	(35)	7.37	(23)	13.42	(29)	13.78	(35)	11.66	(12)	15.90	(14)	12.42	(8)
Vanguard Spliced Mid Cap Index	4.65	(35)	7.37	(22)	13.44	(29)	13.81	(34)	11.71	(10)	15.95	(13)	12.46	(7)
IM U.S. Mid Cap Core Equity (MF) Median	3.82		4.99		10.70		12.56		9.46		14.37		10.62	
Hotchkis & Wiley Mid Cap Value (HWMIX)	3.00	(43)	8.75	(1)	13.74	(2)	12.40	(36)	8.19	(82)	17.66	(1)	14.22	(1)
Russell Midcap Value Index	3.30	(28)	3.13	(50)	8.81	(40)	13.09	(27)	10.72	(10)	15.54	(19)	11.29	(37)
IM U.S. Mid Cap Value Equity (MF) Median	2.87		3.11		7.84		11.55		9.17		14.59		10.78	
American Funds Growth Fund of America (RGAGX)	5.05	(95)	14.67	(77)	22.70	(72)	19.41	(32)	14.91	(55)	18.23	(32)	N/A	
Russell 1000 Growth Index	9.17	(11)	17.09	(54)	26.30	(39)	20.55	(16)	16.58	(16)	18.69	(17)	14.31	(21)
IM U.S. Large Cap Growth Equity (MF) Median	7.78		17.54		25.12		18.77		15.12		17.57		12.92	

Returns for periods greater than one year are annualized.
Returns are expressed as percentages.



Comparative Performance
401(a) Trailing Returns
As of September 30, 2018

	QTR		YTD		1 YR		3 YR		5 YR		7 YR		10 YR	
Wells Fargo Disciplined US Core (EVSIX)	6.62	(67)	6.99	(72)	13.90	(69)	15.60	(47)	13.67	(16)	16.98	(15)	N/A	
S&P 500 Index	7.71	(30)	10.56	(24)	17.91	(26)	17.31	(14)	13.95	(12)	16.91	(17)	11.97	(18)
IM U.S. Large Cap Core Equity (MF) Median	7.24		8.78		15.84		15.42		12.25		15.63		10.90	
Vanguard Institutional Index (VINIX)	7.70	(31)	10.53	(25)	17.86	(27)	17.27	(14)	13.92	(12)	16.88	(17)	11.96	(18)
S&P 500 Index	7.71	(30)	10.56	(24)	17.91	(26)	17.31	(14)	13.95	(12)	16.91	(17)	11.97	(18)
IM U.S. Large Cap Core Equity (MF) Median	7.24		8.78		15.84		15.42		12.25		15.63		10.90	
American Century Equity Income (AEUDX)	4.93	(79)	3.45	(67)	7.48	(85)	14.61	(27)	11.15	(21)	N/A		N/A	
Russell 1000 Value Index	5.70	(57)	3.92	(59)	9.45	(59)	13.55	(47)	10.72	(33)	15.02	(28)	9.79	(41)
IM U.S. Large Cap Value Equity (MF) Median	5.93		4.32		10.24		13.39		10.21		14.24		9.46	
Balanced Fund														
American Funds American Balanced (RLBGX)	3.36	(30)	4.40	(18)	9.20	(20)	11.45	(21)	9.54	(3)	12.05	(9)	N/A	
American Balanced Fund Hybrid	3.82	(16)	4.42	(18)	8.07	(32)	9.17	(45)	8.04	(23)	9.39	(43)	8.09	(28)
IM All Balanced (MF) Median	2.60		2.41		6.06		8.66		6.33		8.72		7.18	
WCAB 2060 Retirement	3.60	(51)	5.44	(12)	10.50	(20)	N/A		N/A		N/A		N/A	
The WCAB 2060 Retirement Portfolio Policy	5.21	(1)	6.58	(2)	12.44	(1)	N/A		N/A		N/A		N/A	
IM Mixed-Asset Target 2055 (MF) Median	3.61		4.19		9.32		12.37		8.67		12.09		8.65	
WCAB 2055 Retirement	3.60	(51)	5.44	(12)	10.50	(20)	N/A		N/A		N/A		N/A	
The WCAB 2055 Retirement Portfolio Policy	5.21	(1)	6.58	(2)	12.44	(1)	N/A		N/A		N/A		N/A	
IM Mixed-Asset Target 2055 (MF) Median	3.61		4.19		9.32		12.37		8.67		12.09		8.65	
WCAB 2050 Retirement	3.55	(54)	5.36	(11)	10.34	(19)	13.14	(12)	9.47	(9)	12.81	(11)	9.78	(3)
The WCAB 2050 Retirement Portfolio Policy	5.13	(1)	6.46	(3)	12.24	(1)	13.69	(3)	10.35	(1)	13.11	(3)	9.77	(5)
IM Mixed-Asset Target 2050 (MF) Median	3.58		4.08		9.18		12.10		8.53		11.80		8.51	
WCAB 2045 Retirement	3.50	(56)	5.32	(12)	10.24	(20)	N/A		N/A		N/A		N/A	
The WCAB 2045 Retirement Portfolio Policy	5.06	(1)	6.37	(2)	12.08	(1)	N/A		N/A		N/A		N/A	
IM Mixed-Asset Target 2045 (MF) Median	3.53		4.08		9.10		12.13		8.52		11.70		8.57	
WCAB 2040 Retirement	3.35	(54)	5.02	(12)	9.73	(18)	12.54	(20)	9.10	(11)	12.00	(23)	9.53	(6)
The WCAB 2040 Retirement Portfolio Policy	4.78	(1)	6.00	(1)	11.44	(1)	12.82	(13)	9.69	(3)	12.10	(20)	9.19	(14)
IM Mixed-Asset Target 2040 (MF) Median	3.40		3.72		8.50		11.46		8.09		11.23		8.20	
WCAB 2035 Retirement	3.17	(48)	4.67	(10)	9.15	(18)	N/A		N/A		N/A		N/A	
The WCAB 2035 Retirement Portfolio Policy	4.42	(2)	5.52	(2)	10.60	(2)	N/A		N/A		N/A		N/A	
IM Mixed-Asset Target 2035 (MF) Median	3.15		3.44		7.91		11.00		7.76		10.86		8.11	
WCAB 2030 Retirement	3.12	(17)	4.90	(2)	9.05	(2)	11.55	(3)	8.49	(3)	11.04	(16)	9.04	(5)
The WCAB 2030 Retirement Portfolio Policy	4.19	(1)	5.37	(1)	10.06	(1)	11.31	(8)	8.73	(2)	10.91	(20)	8.49	(14)
IM Mixed-Asset Target 2030 (MF) Median	2.75		2.78		6.77		9.93		6.95		9.81		7.54	

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Returns are expressed as percentages.



Comparative Performance
401(a) Trailing Returns
As of September 30, 2018

	QTR		YTD		1 YR		3 YR		5 YR		7 YR		10 YR	
WCAB 2025 Retirement	2.88	(15)	4.36	(1)	8.13	(2)	N/A		N/A		N/A		N/A	
The WCAB 2025 Retirement Portfolio Policy	3.69	(1)	4.72	(1)	8.89	(1)	N/A		N/A		N/A		N/A	
IM Mixed-Asset Target 2025 (MF) Median	2.34		2.31		5.76		8.80		6.32		9.06		7.34	
WCAB 2020 Retirement	2.55	(11)	3.77	(1)	7.15	(2)	9.65	(1)	7.35	(1)	9.36	(7)	8.11	(2)
The WCAB 2020 Retirement Portfolio Policy	3.13	(1)	3.99	(1)	7.62	(1)	8.98	(5)	7.13	(1)	8.85	(21)	7.22	(21)
IM Mixed-Asset Target 2020 (MF) Median	2.02		1.65		4.59		7.57		5.58		7.75		6.58	
WCAB 2015 Retirement	2.31	(13)	3.79	(1)	6.78	(1)	N/A		N/A		N/A		N/A	
The WCAB 2015 Retirement Portfolio Policy	2.80	(2)	3.77	(1)	6.96	(1)	N/A		N/A		N/A		N/A	
IM Mixed-Asset Target 2015 (MF) Median	1.79		1.53		4.17		7.14		5.42		7.72		6.41	
WCAB Income Retirement	1.90	(17)	2.79	(1)	5.24	(1)	7.49	(1)	6.16	(1)	7.68	(1)	7.17	(1)
The WCAB Income Retirement Portfolio Policy	2.10	(10)	2.61	(2)	5.14	(2)	6.36	(20)	5.33	(8)	6.59	(12)	5.73	(29)
IM Mixed-Asset Target Today (MF) Median	1.41		0.61		2.86		5.19		3.82		4.96		5.19	
Fixed Income														
PIMCO High Yield (PHIYX)	2.62	(9)	1.73	(55)	1.89	(64)	6.86	(37)	5.07	(19)	6.97	(28)	8.42	(20)
ICE BofAML High Yield Master II	2.44	(21)	2.52	(25)	2.94	(27)	8.19	(5)	5.54	(9)	7.58	(11)	9.38	(5)
IM U.S. High Yield Bonds (MF) Median	2.11		1.82		2.26		6.45		4.30		6.53		7.68	
PIMCO Foreign Bond USD-Hedged (PFORX)	0.01	(25)	1.92	(1)	2.94	(1)	4.36	(6)	5.02	(3)	5.43	(1)	7.02	(3)
Bloomberg Barclays Global Aggregate	-0.92	(63)	-2.36	(48)	-1.31	(33)	1.98	(78)	0.75	(57)	0.86	(64)	2.89	(72)
IM International Fixed Income (MF) Median	-0.63		-2.74		-2.20		3.00		0.96		1.55		4.09	
Hartford Total Return Bond (HIABX)	0.33	(19)	-1.18	(18)	-0.56	(11)	2.57	(5)	2.92	(6)	2.96	(11)	4.54	(25)
Blmbg. Barc. U.S. Aggregate Index	0.02	(64)	-1.60	(43)	-1.22	(40)	1.31	(53)	2.16	(42)	2.02	(59)	3.77	(66)
IM U.S. Broad Market Core Fixed Income (MF) Median	0.10		-1.67		-1.35		1.34		2.06		2.16		4.05	
Cash														
MassMutual Guaranteed Interest Account	0.85	(2)	2.58	(1)	3.45	(1)	3.73	(1)	3.84	(1)	3.89	(1)	N/A	
Ryan 3 Yr GIC Master Index	0.50	(95)	1.42	(95)	1.85	(95)	1.57	(95)	1.37	(100)	1.38	(100)	2.07	(73)
IM U.S. GIC/Stable Value (SA+CF) Median	0.56		1.60		2.08		1.94		1.85		1.89		2.31	

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Comparative Performance
401(a) Calendar Returns
As of September 30, 2018

Comparative Performance	2017		2016		2015		2014		2013		2012		2011		2010		2009		2008	
International Equity																				
Lazard Emerging Markets Equity (LZOEX)	27.73	(82)	20.17	(6)	-20.33	(93)	-4.39	(69)	-1.14	(48)	22.03	(18)	-18.02	(32)	22.43	(22)	69.14	(63)	-48.09	(17)
MSCI Emerging Markets (Net) Index	37.28	(42)	11.19	(30)	-14.92	(63)	-2.19	(43)	-2.60	(58)	18.23	(56)	-18.42	(36)	18.88	(44)	78.51	(26)	-53.33	(42)
IM Emerging Markets Equity (MF) Median	35.37	8.35	-13.66	-2.92	-1.42	18.78	-19.51	18.32	72.67	-54.63										
DFA International Small Cap Value (DISVX)	27.98	(89)	8.00	(10)	3.99	(54)	-4.99	(27)	32.39	(12)	22.26	(31)	-17.46	(56)	18.10	(88)	39.51	(89)	-41.68	(4)
MSCI AC World ex USA Small Cap (Net)	31.65	(54)	3.91	(37)	2.60	(59)	-4.03	(22)	19.73	(90)	18.52	(77)	-18.50	(66)	25.21	(7)	62.91	(20)	-50.23	(48)
IM International SMID Cap Core Equity (MF) Median	32.17	1.04	5.00	-6.18	24.95	20.35	-16.85	23.85	46.14	-50.75										
American Funds EuroPacific Growth (RERGX)	31.17	(9)	1.01	(59)	-0.48	(16)	-2.29	(26)	20.58	(47)	19.64	(30)	-13.31	(55)	9.76	(23)	N/A		N/A	
MSCI EAFE (Net) Index	25.03	(37)	1.00	(59)	-0.81	(20)	-4.90	(34)	22.78	(21)	17.32	(55)	-12.14	(38)	7.75	(41)	31.78	(28)	-43.38	(59)
IM International Large Cap Core Equity (MF) Median	24.43	1.63	-2.34	-5.89	20.41	17.70	-13.09	7.28	29.51	-42.07										
Domestic Equity																				
Wells Fargo Small Co Growth (WSCRX)	20.68	(26)	7.76	(75)	-4.33	(59)	N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Russell 2000 Growth Index	22.17	(21)	11.32	(44)	-1.38	(40)	5.60	(5)	43.30	(42)	14.59	(29)	-2.91	(26)	29.09	(31)	34.47	(44)	-38.54	(14)
IM U.S. Small Cap Growth Equity (MF) Median	14.46	9.98	-3.22	0.60	42.21	11.97	-5.03	26.71	33.15	-42.74										
Vanguard Small Cap Index (VSMAX)	16.24	(19)	18.30	(81)	-3.64	(36)	7.50	(8)	37.81	(39)	18.24	(17)	-2.69	(35)	27.89	(25)	36.33	(30)	-36.00	(47)
Vanguard Spliced Small Cap Index	16.24	(19)	18.26	(81)	-3.68	(37)	7.54	(7)	37.77	(40)	18.20	(17)	-2.75	(36)	27.82	(25)	36.15	(30)	-36.20	(48)
IM U.S. Small Cap Core Equity (MF) Median	10.46	22.25	-4.92	3.64	36.11	13.81	-4.56	24.96	28.23	-36.37										
AMG Managers Skyline Special Equities (SKSEX)	8.39	(49)	21.32	(84)	-6.05	(24)	4.02	(32)	51.59	(5)	19.34	(23)	-2.05	(40)	26.07	(37)	52.79	(13)	-40.15	(77)
Russell 2000 Value Index	7.84	(54)	31.74	(22)	-7.47	(37)	4.22	(32)	34.52	(55)	18.05	(29)	-5.50	(63)	24.50	(55)	20.58	(83)	-28.92	(24)
IM U.S. Small Cap Value Equity (MF) Median	8.23	29.65	-9.59	1.56	35.20	15.36	-3.06	24.82	28.57	-31.86										
Hartford Mid Cap (HIMCX)	24.47	(55)	11.98	(8)	1.60	(35)	11.37	(13)	39.82	(14)	19.44	(7)	-7.92	(78)	23.45	(67)	30.96	(74)	-35.32	(5)
Russell Midcap Growth Index	25.27	(43)	7.33	(29)	-0.20	(54)	11.90	(11)	35.74	(45)	15.81	(31)	-1.65	(30)	26.38	(47)	46.29	(22)	-44.32	(48)
IM U.S. Mid Cap Growth Equity (MF) Median	24.77	5.13	0.21	7.28	35.23	14.19	-4.40	25.91	39.62	-44.65										
Vanguard Mid Cap Index (VIMAX)	19.25	(17)	11.22	(78)	-1.34	(23)	13.76	(8)	35.15	(45)	15.99	(53)	-1.97	(32)	25.59	(24)	40.48	(17)	-41.78	(74)
Vanguard Spliced Mid Cap Index	19.30	(16)	11.25	(77)	-1.28	(21)	13.83	(8)	35.21	(43)	16.04	(52)	-1.91	(31)	25.69	(21)	40.49	(17)	-41.80	(74)
IM U.S. Mid Cap Core Equity (MF) Median	15.29	14.63	-3.18	9.09	34.37	16.18	-3.31	23.41	33.70	-38.53										
Hotchkis & Wiley Mid Cap Value (HWMIX)	7.78	(90)	21.00	(25)	-12.53	(97)	12.18	(26)	42.55	(4)	31.09	(1)	-8.60	(96)	34.41	(1)	56.49	(5)	-43.05	(89)
Russell Midcap Value Index	13.34	(47)	20.00	(35)	-4.78	(52)	14.75	(11)	33.46	(75)	18.51	(23)	-1.38	(34)	24.75	(31)	34.21	(60)	-38.44	(51)
IM U.S. Mid Cap Value Equity (MF) Median	12.74	17.46	-4.58	10.41	35.98	16.55	-3.01	21.70	36.97	-38.36										
American Funds Growth Fund of America (RGAGX)	26.53	(77)	8.82	(2)	5.70	(54)	9.63	(60)	34.29	(47)	20.98	(3)	-4.53	(76)	12.67	(71)	N/A		N/A	
Russell 1000 Growth Index	30.21	(41)	7.08	(8)	5.67	(54)	13.05	(22)	33.48	(55)	15.26	(45)	2.64	(10)	16.71	(34)	37.21	(42)	-38.44	(39)
IM U.S. Large Cap Growth Equity (MF) Median	29.44	2.05	6.01	10.46	33.93	14.75	-1.77	15.19	35.22	-39.77										

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Comparative Performance
401(a) Calendar Returns
As of September 30, 2018

	2017		2016		2015		2014		2013		2012		2011		2010		2009		2008	
Wells Fargo Disciplined US Core (EVSIX)	20.88	(53)	12.09	(25)	2.53	(20)	15.69	(4)	33.97	(22)	14.90	(57)	4.12	(13)	N/A		N/A		N/A	
S&P 500 Index	21.83	(36)	11.96	(27)	1.38	(31)	13.69	(15)	32.39	(39)	16.00	(40)	2.11	(22)	15.06	(25)	26.46	(52)	-37.00	(49)
IM U.S. Large Cap Core Equity (MF) Median	21.00		10.23		0.08		11.34		31.78		15.38		-0.60		13.15		26.71		-37.08	
Vanguard Institutional Index (VINIX)	21.79	(37)	11.93	(27)	1.37	(31)	13.65	(16)	32.35	(40)	15.98	(40)	2.09	(22)	15.05	(25)	26.63	(51)	-36.95	(49)
S&P 500 Index	21.83	(36)	11.96	(27)	1.38	(31)	13.69	(15)	32.39	(39)	16.00	(40)	2.11	(22)	15.06	(25)	26.46	(52)	-37.00	(49)
IM U.S. Large Cap Core Equity (MF) Median	21.00		10.23		0.08		11.34		31.78		15.38		-0.60		13.15		26.71		-37.08	
American Century Equity Income (AEUDX)	13.83	(74)	19.88	(9)	0.94	(4)	12.84	(15)	N/A		N/A									
Russell 1000 Value Index	13.66	(75)	17.34	(21)	-3.83	(55)	13.45	(8)	32.53	(47)	17.51	(29)	0.39	(27)	15.51	(22)	19.69	(72)	-36.85	(48)
IM U.S. Large Cap Value Equity (MF) Median	16.25		14.00		-3.62		10.88		32.23		15.83		-2.31		12.94		24.00		-37.02	
Balanced Fund																				
American Funds American Balanced (RLBGX)	15.84	(40)	8.90	(18)	2.03	(3)	9.22	(5)	22.12	(19)	14.57	(23)	4.16	(6)	13.39	(34)	N/A		N/A	
American Balanced Fund Hybrid	12.37	(63)	7.38	(40)	1.21	(4)	9.85	(4)	14.08	(55)	10.13	(73)	5.28	(4)	11.29	(65)	16.34	(91)	-17.94	(13)
IM All Balanced (MF) Median	14.23		6.80		-1.59		4.74		15.24		12.14		-1.48		12.30		26.02		-29.54	
WCAB 2060 Retirement	19.06	(87)	N/A		N/A															
The WCAB 2060 Retirement Portfolio Policy	20.16	(72)	N/A		N/A															
IM Mixed-Asset Target 2055 (MF) Median	21.17		8.27		-1.60		5.45		23.21		15.58		-4.66		14.78		30.80		-40.69	
WCAB 2055 Retirement	19.06	(87)	N/A		N/A															
The WCAB 2055 Retirement Portfolio Policy	20.16	(72)	N/A		N/A															
IM Mixed-Asset Target 2055 (MF) Median	21.17		8.27		-1.60		5.45		23.21		15.58		-4.66		14.78		30.80		-40.69	
WCAB 2050 Retirement	18.90	(84)	11.88	(5)	-1.95	(59)	6.64	(25)	25.10	(23)	16.28	(25)	-4.13	(44)	17.93	(1)	33.46	(34)	-34.84	(6)
The WCAB 2050 Retirement Portfolio Policy	19.96	(72)	9.74	(14)	-0.34	(14)	8.81	(3)	24.71	(26)	14.68	(72)	-0.69	(7)	14.29	(58)	26.79	(99)	-33.35	(1)
IM Mixed-Asset Target 2050 (MF) Median	20.80		8.10		-1.64		5.61		23.08		15.47		-4.38		14.80		31.42		-39.08	
WCAB 2045 Retirement	18.72	(84)	N/A		N/A															
The WCAB 2045 Retirement Portfolio Policy	19.74	(69)	N/A		N/A															
IM Mixed-Asset Target 2045 (MF) Median	20.65		8.14		-1.66		5.55		23.07		15.47		-4.03		15.03		31.12		-38.51	
WCAB 2040 Retirement	18.16	(79)	11.43	(5)	-1.44	(44)	6.39	(26)	22.17	(46)	15.41	(37)	-2.67	(24)	16.48	(9)	31.03	(49)	-31.07	(1)
The WCAB 2040 Retirement Portfolio Policy	18.88	(70)	9.17	(16)	-0.24	(13)	8.23	(3)	21.96	(48)	13.52	(79)	-0.23	(6)	13.31	(70)	24.59	(95)	-30.38	(1)
IM Mixed-Asset Target 2040 (MF) Median	19.74		7.91		-1.67		5.38		21.61		14.92		-3.93		14.63		30.70		-38.09	
WCAB 2035 Retirement	17.40	(75)	N/A		N/A															
The WCAB 2035 Retirement Portfolio Policy	17.82	(71)	N/A		N/A															
IM Mixed-Asset Target 2035 (MF) Median	18.72		7.75		-1.54		5.40		20.78		14.75		-3.34		14.57		30.99		-36.09	
WCAB 2030 Retirement	15.96	(66)	11.11	(5)	-1.35	(45)	6.36	(20)	19.21	(40)	14.56	(36)	-1.71	(30)	15.53	(11)	29.56	(43)	-28.65	(1)
The WCAB 2030 Retirement Portfolio Policy	16.16	(61)	8.41	(18)	-0.08	(7)	7.93	(1)	19.45	(38)	12.40	(76)	0.41	(8)	12.40	(79)	22.29	(94)	-27.19	(1)
IM Mixed-Asset Target 2030 (MF) Median	16.92		7.30		-1.47		5.18		17.87		13.71		-2.56		13.63		28.81		-36.38	

Returns for periods greater than one year are annualized.
Returns are expressed as percentages.



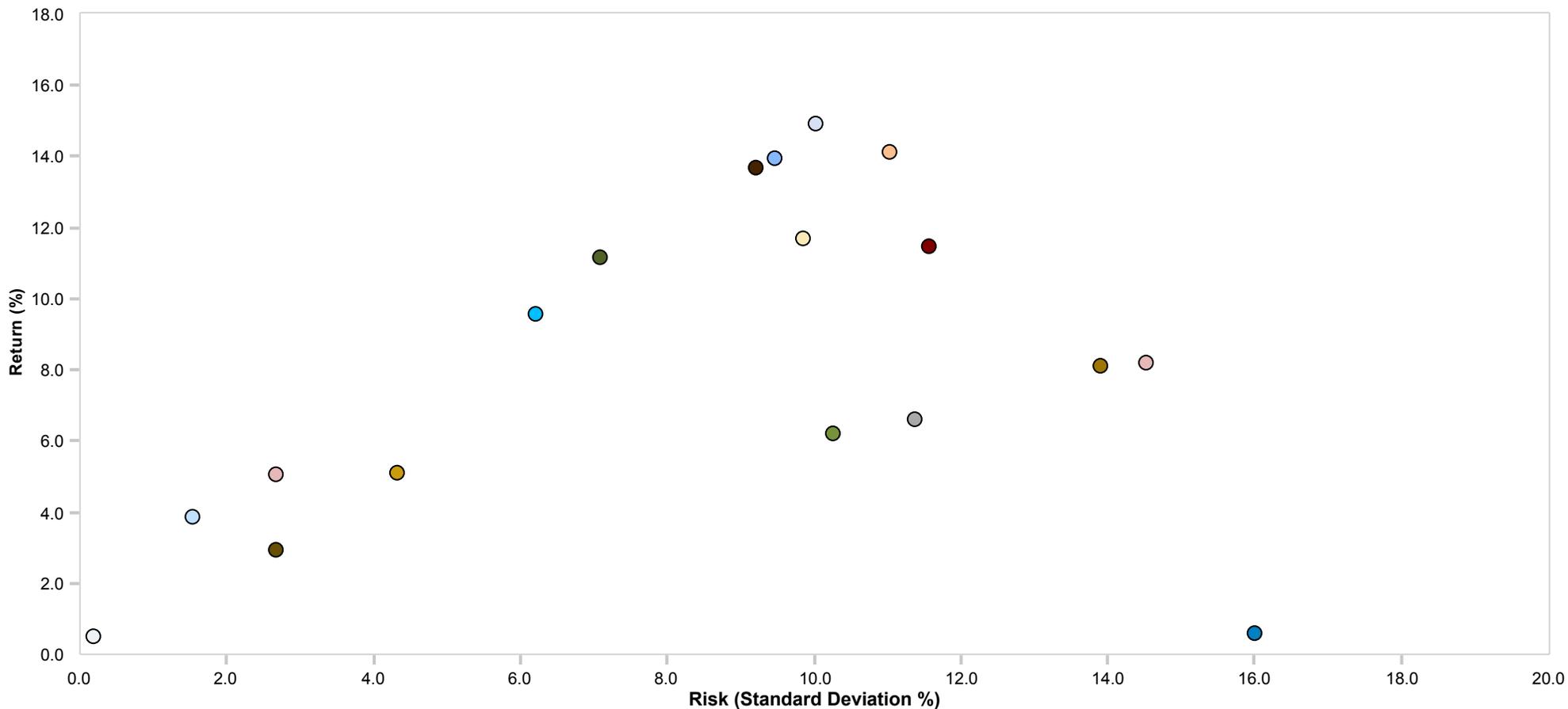
Comparative Performance
401(a) Calendar Returns
As of September 30, 2018

	2017		2016		2015		2014		2013		2012		2011		2010		2009		2008	
WCAB 2025 Retirement	14.73	(53)	N/A		N/A															
The WCAB 2025 Retirement Portfolio Policy	14.49	(57)	N/A		N/A															
IM Mixed-Asset Target 2025 (MF) Median	14.95		6.86		-1.38		5.19		15.85		13.00		-2.03		13.42		28.95		-35.04	
WCAB 2020 Retirement	13.52	(30)	9.56	(1)	-0.71	(23)	6.09	(12)	14.86	(27)	12.96	(28)	-0.23	(46)	13.65	(24)	25.92	(51)	-23.68	(13)
The WCAB 2020 Retirement Portfolio Policy	12.81	(48)	7.02	(28)	0.07	(4)	7.07	(1)	14.96	(26)	10.45	(72)	1.18	(21)	10.65	(82)	18.43	(93)	-21.50	(8)
IM Mixed-Asset Target 2020 (MF) Median	12.69		6.36		-1.45		4.72		11.84		11.53		-0.43		12.31		26.02		-31.77	
WCAB 2015 Retirement	11.81	(38)	N/A		N/A															
The WCAB 2015 Retirement Portfolio Policy	10.98	(62)	N/A		N/A															
IM Mixed-Asset Target 2015 (MF) Median	11.40		6.39		-1.30		4.47		10.42		10.81		-0.11		11.49		25.34		-29.31	
WCAB Income Retirement	10.22	(28)	7.81	(6)	0.10	(3)	6.27	(2)	10.99	(2)	11.15	(8)	1.66	(75)	11.58	(9)	21.97	(28)	-18.10	(71)
The WCAB Income Retirement Portfolio Policy	9.06	(47)	5.19	(47)	0.26	(1)	6.08	(4)	10.51	(5)	8.08	(66)	2.13	(68)	8.66	(67)	13.73	(83)	-14.85	(35)
IM Mixed-Asset Target Today (MF) Median	8.85		5.07		-1.42		3.87		5.29		8.84		2.78		9.39		18.26		-16.26	
Fixed Income																				
PIMCO High Yield (PHIYX)	7.02	(38)	12.68	(65)	-1.88	(24)	3.31	(12)	5.77	(70)	14.57	(53)	4.00	(37)	14.28	(45)	44.09	(64)	-23.62	(38)
ICE BofAML High Yield Master II	7.48	(25)	17.49	(5)	-4.64	(64)	2.50	(22)	7.42	(30)	15.58	(33)	4.38	(27)	15.19	(28)	57.51	(11)	-26.39	(61)
IM U.S. High Yield Bonds (MF) Median	6.65		13.52		-3.85		1.48		6.61		14.72		3.32		14.04		47.59		-24.95	
PIMCO Foreign Bond USD-Hedged (PFORX)	3.53	(69)	7.03	(7)	0.40	(9)	11.16	(3)	0.90	(17)	11.19	(22)	6.77	(8)	9.19	(30)	19.04	(17)	-2.36	(80)
Bloomberg Barclays Global Aggregate	7.39	(59)	2.09	(61)	-3.15	(24)	0.59	(52)	-2.60	(37)	4.32	(79)	5.64	(17)	5.54	(69)	6.93	(66)	4.79	(33)
IM International Fixed Income (MF) Median	9.80		3.34		-5.82		0.63		-3.74		7.43		2.56		7.26		10.01		2.41	
Hartford Total Return Bond (HIABX)	5.16	(4)	4.49	(8)	-0.59	(74)	5.89	(32)	-1.36	(26)	7.54	(20)	6.99	(37)	7.51	(42)	15.01	(32)	-7.62	(70)
Blmbg. Barc. U.S. Aggregate Index	3.54	(53)	2.65	(61)	0.55	(20)	5.97	(26)	-2.02	(53)	4.21	(81)	7.84	(11)	6.54	(69)	5.93	(90)	5.24	(10)
IM U.S. Broad Market Core Fixed Income (MF) Median	3.58		2.85		0.09		5.55		-1.98		5.99		6.65		7.25		12.12		-3.46	
Cash																				
MassMutual Guaranteed Interest Account	3.67	(1)	3.94	(1)	4.00	(1)	4.00	(1)	4.00	(1)	4.00	(3)	4.00	(5)	N/A		N/A		N/A	
Ryan 3 Yr GIC Master Index	1.60	(95)	1.39	(94)	1.16	(94)	1.03	(95)	1.06	(92)	1.48	(99)	2.44	(62)	3.53	(41)	4.49	(11)	4.79	(27)
IM U.S. GIC/Stable Value (SA+CF) Median	1.86		1.85		1.82		1.70		1.73		2.39		2.91		3.39		3.67		4.65	

Returns for periods greater than one year are annualized.
Returns are expressed as percentages.



Risk and Return



- Lazard Emerging Markets Equity (LZOEX)
- Wells Fargo Small Co Growth (WSCRX)
- Hartford Mid Cap (HIMCX)
- American Funds Growth Fund of America (RGAGX)
- American Century Equity Income (AEUDX)
- PIMCO Foreign Bond USD-Hedged (PFORX)
- 90 Day U.S. Treasury Bill
- DFA International Small Cap Value (DISVX)
- Vanguard Small Cap Index (VSMAX)
- Vanguard Mid Cap Index (VIMAX)
- Wells Fargo Disciplined US Core (EVSIX)
- American Funds American Balanced (RLBGX)
- Hartford Total Return Bond (HIABX)
- American Funds EuroPacific Growth (RERGX)
- AMG Managers Skyline Special Equities (SKSEX)
- Hotchkis & Wiley Mid Cap Value (HWMIX)
- Vanguard Institutional Index (VINIX)
- PIMCO High Yield (PHIYX)
- MassMutual Guaranteed Interest Account

Calculation based on monthly periodicity.



Age Based Strategy Model Allocation by Broad Asset Class

Investment Name	Stocks	Bonds	Cash	Other	Total
Washoe County Age Based Strategy Model 2050	79.5%	13.6%	4.3%	2.7%	100.0%
Washoe County Age Based Strategy Model 2040	71.4%	17.5%	8.2%	3.0%	100.0%
Washoe County Age Based Strategy Model 2030	63.6%	22.4%	11.0%	3.1%	100.0%
Washoe County Age Based Strategy Model 2020	50.2%	30.4%	16.4%	3.0%	100.0%
Washoe County Age Based Strategy Model 2010	36.4%	35.5%	25.5%	2.6%	100.0%

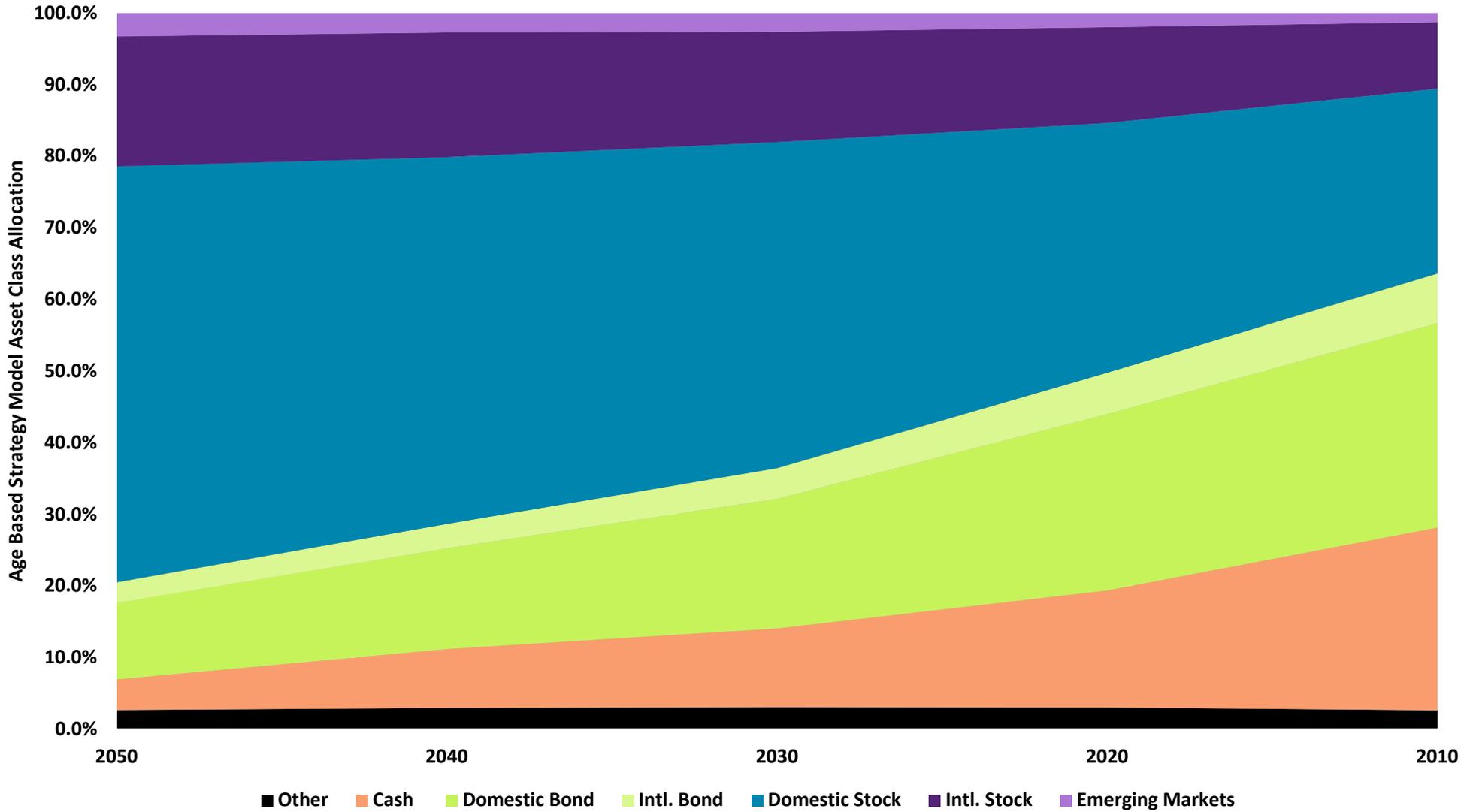


Age Based Strategy Model Allocation by Sub Asset Class

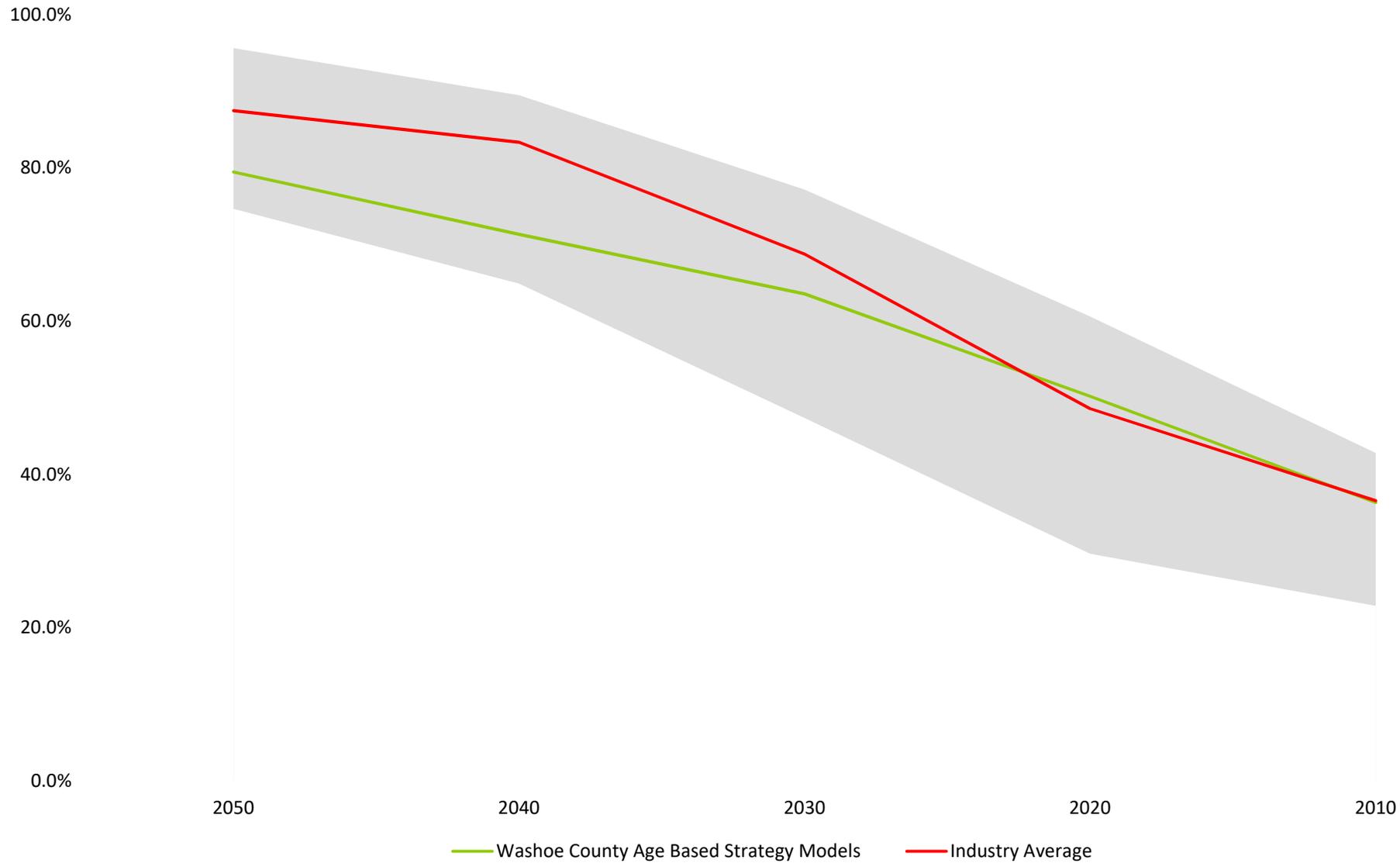
Investment Name	Emerging Markets	Intl. Stock	Domestic Stock	Intl. Bond	Domestic Bond	Cash	Other	Total
Washoe County Age Based Strategy Model 2050	3.3%	18.1%	58.1%	2.9%	10.7%	4.3%	2.7%	100.0%
Washoe County Age Based Strategy Model 2040	2.7%	17.4%	51.2%	3.4%	14.1%	8.2%	3.0%	100.0%
Washoe County Age Based Strategy Model 2030	2.6%	15.4%	45.5%	4.3%	18.1%	11.0%	3.1%	100.0%
Washoe County Age Based Strategy Model 2020	2.0%	13.4%	34.9%	5.8%	24.6%	16.4%	3.0%	100.0%
Washoe County Age Based Strategy Model 2010	1.3%	9.3%	25.8%	6.9%	28.5%	25.5%	2.6%	100.0%



Age Based Strategy Model Allocation Graph by Sub Asset Class



Age Based Strategy Model Equity Glide Path Ranges



Fee and Expense Summary

Mass Mutual requires 0.08% in revenue from the plan assets annually, 0.02% per quarter.

AndCo Consulting bills quarterly. The fee structure is 0.03% per annum, paid in quarterly cash payments excluding the WCAB Assets.

The WCAB Assets are billed at 0.10% per annum on invested assets, capped at \$10,000 per year.

Plan Demographics

Total Assets*	\$177,498,046
Number of Participants with a Balance (active and terminated)	2,498

Expense Type Estimates (annual)	Percent of Assets	Dollar Cost	% Cost
MassMutual Recordkeeping fees	0.08%	\$141,998	0.08%
AndCo Consulting fees	0.03%	\$50,227	
AndCo Consulting fees WCAB	0.10%	\$10,075	
Total AndCo Consulting fees		\$ 60,302	0.03%
Total plan expenses		\$ 202,301	0.11%

Revenue Sharing Estimates (annual)

Revenue from participant annual fee	0.13%	\$230,747
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Net plan fee surplus (annual)		\$28,447	0.02%
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Annual average total plan recordkeeping and administrative cost per participant (gross)**		\$92.37
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*Does not include outstanding loan values

**All revenue sharing monies are reimbursed to the participant accounts that utilize those funds. This policy was implemented on 1/1/18.



Weighted Fee and Revenue Sharing Evaluation

	Market Value	Expense Ratio	Expense Ratio Weighted Fee	Revenue Sharing	*Revenue Sharing \$
Lazard Emerging Markets Equity (LZOEX)	\$1,404,739	1.34%	\$18,824	0.40%	\$5,619
DFA International Small Cap Value (DISVX)	\$1,667,849	0.68%	\$11,341	0.00%	\$0
American Funds EuroPacific Growth (RERGX)	\$5,077,926	0.50%	\$25,390	0.00%	\$0
Wells Fargo Small Co Growth (WSCRX)	\$3,532,348	0.90%	\$31,791	0.00%	\$0
Vanguard Small Cap Index (VSMAX)	\$3,220,877	0.05%	\$1,610	0.00%	\$0
AMG Managers Skyline Special Equities (SKSEX)	\$2,986,146	1.25%	\$37,327	0.25%	\$7,465
Hartford Mid Cap (HIMCX)	\$10,528,075	0.70%	\$73,697	0.25%	\$26,320
Vanguard Mid Cap Index (VIMAX)	\$3,220,093	0.05%	\$1,610	0.00%	\$0
Hotchkis & Wiley Mid Cap Value (HWMIX)	\$3,549,097	1.03%	\$36,556	0.40%	\$14,196
AF Growth Fund of America (RGAGX)	\$16,343,949	0.33%	\$53,935	0.00%	\$0
Wells Fargo Disciplined US Core (EVSIX)	\$13,859,118	0.48%	\$66,524	0.15%	\$20,789
Vanguard Institutional Index (VINIX)	\$13,779,899	0.04%	\$5,512	0.00%	\$0
American Century Equity Income (AEUDX)	\$7,559,105	0.56%	\$42,331	0.00%	\$0
American Funds American Balanced (RLBGX)	\$6,540,385	0.28%	\$18,313	0.00%	\$0
PIMCO High Yield (PHIYX)	\$2,258,154	0.55%	\$12,420	0.00%	\$0
PIMCO Foreign Bond USD-Hedged (PFORX)	\$1,024,013	0.50%	\$5,120	0.00%	\$0
Hartford Total Return Bond (HIABX)	\$3,670,066	0.51%	\$18,717	0.25%	\$9,175
MassMutual Guaranteed Interest Account	\$77,276,207	0.00%	\$0	0.00%	\$0
TOTAL	\$177,498,046	0.26%	\$461,017	0.05%	\$83,565

*All revenue sharing monies are reimbursed to the participant accounts that utilize those funds. This policy was implemented on 1/1/18.



Plan Benchmarking – The Basics

Why should fiduciaries benchmark their plans?

- To determine the competitiveness of the Plan compared to peers and the industry
- To document an understanding of the fees being charged for the services performed
- To confirm that current services meet the needs of the Participants
- To check that the Plan is consistent with best practices

When should fiduciaries benchmark their plans?

- On a regular schedule that is best for the Plan
- Between formal RFPs, especially as industry conditions change
- When an activity or event significantly alters Plan demographics
- When there are changes to Plan design or services, such as:
 - the addition of auto-enrollment
 - the elimination or reduction of on-site education services
 - the revision of a Plan investment menu
 - the addition of a managed account service

62.7%
of Plan Sponsors
benchmarked plan
features within the
past 12 months*

*Profit Sharing Council of America 60th annual survey - 2017



Plan Benchmarking – Metrics To Consider

Plan Sponsors should carefully determine the area(s) of the Plan they would like to evaluate before beginning the process. Below is a list of services that the Plan Sponsor may want to include, but is not limited to the following:

Plan Administration

- Plan Fees
- Educational Services
- Trustee & Reporting Services

Plan Participant

- Transaction-based Fees
- Loan Programs
- Managed Account Services

Plan Metrics

- Participation Rates
- Deferral Rates
- Plan Design Features
- Income Replacement Goals



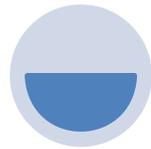
Plan Benchmarking – Selecting Methods

There are several ways to conduct comparisons of fees and services that vary in depth and detail. Regardless of the method for benchmarking, it is important to document the relevant discussions and results of the benchmark. In addition, determine a plan for any necessary follow-up action items.



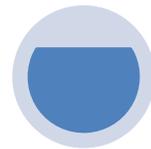
Survey Comparison

Comparing the Plan Metrics to relevant industry surveys



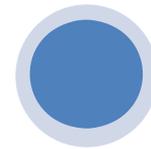
Fee Benchmark

A snapshot comparison of Plan fees relative to current industry trends



Request for Information

Detailed plan benchmarking of Plan Sponsor & Participant Fees and Services



Request for Proposal

Thorough examination of plan services, firm experience & service teams

Next Quarter's Module Topic: Reviewing the Fiduciary File



2018 Fiduciary Documentation

Quarterly	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
Review of plan investments and compliance with investment policy statement	✓	✓	✓	✓
Follow required procedures, including documentation of all meetings and decisions	✓	✓	✓	✓
Review performance of providers	✓	✓	✓	✓
Annually				
Review QDIA selection	✓			
Allocation fund (Target Date or Risk-based) analysis	✓	✓	✓	✓
Investment policy statement review			✓	
Employee education review	✓	✓	✓	✓
Plan recordkeeping & administration services review	✓	✓	✓	✓
Fee analysis	✓	✓	✓	✓
Other Projects				
Record-keeping administrator search			✓	



Fund Information

Portfolio Manager : Team Managed Ticker : LZOEX
PM Tenure : Inception Date : 01/08/1997
Fund Assets : \$1,170 Million Portfolio Turnover : 14%

Fund Investment Policy

The Fund seeks long term capital appreciation by investing primarily in equity securities, principally common stocks of non -U.S. companies whose principal activities are located in emerging market countries and that Lazard believes are undervalued based on their earning, cash flow or asset values.

Comparative Performance - Trailing

	QTR	YTD	1 YR	3 YR	5 YR	7 YR	10 YR
Lazard Emerging Markets Equity (LZOEX)	-1.70 (39)	-13.48 (87)	-8.12 (85)	9.80 (57)	0.56 (85)	3.44 (81)	3.69 (82)
MSCI Emerging Markets (Net) Index	-1.09 (25)	-7.68 (28)	-0.81 (24)	12.36 (21)	3.61 (32)	5.03 (42)	5.40 (35)
IM Emerging Markets Equity (MF) 1st Quartile	-1.13	-7.33	-0.97	12.03	3.97	5.96	5.84
IM Emerging Markets Equity (MF) Median	-2.42	-9.72	-3.97	10.24	2.92	4.70	4.74
IM Emerging Markets Equity (MF) 3rd Quartile	-4.56	-12.44	-6.88	7.77	1.48	3.72	3.98

Comparative Performance - Calendar

	2017	2016	2015	2014	2013	2012	2011
Lazard Emerging Markets Equity (LZOEX)	27.73 (82)	20.17 (6)	-20.33 (93)	-4.39 (69)	-1.14 (48)	22.03 (18)	-18.02 (32)
MSCI Emerging Markets (Net) Index	37.28 (42)	11.19 (30)	-14.92 (63)	-2.19 (43)	-2.60 (58)	18.23 (56)	-18.42 (36)
IM Emerging Markets Equity (MF) 1st Quartile	40.40	11.80	-9.95	-0.22	2.73	20.70	-17.42
IM Emerging Markets Equity (MF) Median	35.37	8.35	-13.66	-2.92	-1.42	18.78	-19.51
IM Emerging Markets Equity (MF) 3rd Quartile	29.42	4.00	-16.19	-5.04	-4.73	15.35	-23.06

Comparative Performance - Quarterly

	Jun-2018	Mar-2018	Dec-2017	Sep-2017	Jun-2017	Mar-2017	Dec-2016
Lazard Emerging Markets Equity (LZOEX)	-13.67 (98)	1.94 (51)	6.20 (54)	6.80 (66)	2.04 (94)	10.36 (74)	-2.85 (19)
MSCI Emerging Markets (Net) Index	-7.96 (32)	1.42 (62)	7.44 (22)	7.89 (49)	6.27 (41)	11.44 (57)	-4.16 (32)
IM Emerging Markets Equity (MF) 1st Quartile	-7.46	3.01	7.31	9.34	7.09	13.06	-3.84
IM Emerging Markets Equity (MF) Median	-9.06	1.97	6.38	7.84	5.97	11.94	-5.21
IM Emerging Markets Equity (MF) 3rd Quartile	-10.26	0.74	5.21	5.72	4.68	10.25	-7.24

MPT Stats

	1 YR	3 YR	5 YR
Standard Deviation	14.81	15.05	16.00
Downside Risk	11.20	8.38	11.03
vs. MSCI Emerging Markets (Net) Index			
Alpha	-7.08	-2.25	-2.95
Beta	1.10	1.01	1.05
Down Market Capture	137.88	118.42	119.48
Information Ratio	-1.49	-0.43	-0.56
Tracking Error	4.90	5.05	4.97
Up Market Capture	96.83	100.90	103.08
vs. 90 Day U.S. Treasury Bill			
Sharpe Ratio	-0.60	0.64	0.08

Ranking vs. IM Emerging Markets Equity (MF) 4 Quarters Rolling Periods

	Periods	5-25	25-Median	Median-75	75-95
Lazard Emerging Markets Equity (LZOEX)	28	8 (29%)	5 (18%)	7 (25%)	8 (29%)
MSCI Emerging Markets (Net) Index	28	1 (4%)	18 (64%)	9 (32%)	0 (0%)

Ranking vs. IM Emerging Markets Equity (MF) 12 Quarters Rolling Periods

	Periods	5-25	25-Median	Median-75	75-95
Lazard Emerging Markets Equity (LZOEX)	28	5 (18%)	8 (29%)	10 (36%)	5 (18%)
MSCI Emerging Markets (Net) Index	28	1 (4%)	14 (50%)	13 (46%)	0 (0%)

Ranking vs. IM Emerging Markets Equity (MF) 20 Quarters Rolling Periods

	Periods	5-25	25-Median	Median-75	75-95
Lazard Emerging Markets Equity (LZOEX)	28	8 (29%)	8 (29%)	9 (32%)	3 (11%)
MSCI Emerging Markets (Net) Index	28	2 (7%)	17 (61%)	9 (32%)	0 (0%)



Portfolio Characteristics			Top Ten Equity Holdings						
	Portfolio		Benchmark			Port. Wt	Bench. Wt	Qtr Rtrn	Contr. Rtrn
Wtd. Avg. Mkt. Cap (\$)	52,254,639,318		78,601,645,080		China Construction Bank Corp	5.2	1.6	-0.7	0.0
Median Mkt. Cap (\$)	10,779,934,060		5,211,025,617		Taiwan Semiconductor	4.9	4.1	21.1	1.0
Price/Earnings ratio	9.9		12.7		China Mobile Ltd	4.1	1.2	12.9	0.5
Price/Book ratio	2.4		2.3		Sberbank of Russia OJSC	3.7	0.6	-10.7	-0.4
5 Yr. EPS Growth Rate (%)	7.4		13.7		SK Hynix Inc	3.3	0.7	-14.5	-0.5
Current Yield (%)	3.7		2.8		Tata Consultancy Serv	2.9	0.5	11.8	0.3
Beta (5 Years, Monthly)	1.05		1.00		Banco Do Brasil SA Bb Brasil	2.7	0.1	1.4	0.0
Number of Stocks	73		1,151		Netease Inc	2.5	0.3	-9.4	-0.2
					Shinhan Financial Group	2.3	0.3	4.2	0.1
					America Movil	2.2	0.5	-2.7	-0.1

Buy and Hold Sector Attribution - 1 Qtr							
	Allocation		Performance		Attribution		
	Portfolio	Benchmark	Portfolio	Benchmark	Sector	Stock	Total
Communication Services	16.0	14.6	-1.71	-9.43	-0.10	1.28	1.18
Consumer Discretionary	9.3	11.1	-3.77	-9.91	0.16	0.58	0.75
Consumer Staples	7.3	6.6	-7.23	-2.58	-0.01	-0.35	-0.36
Energy	9.2	7.4	7.04	14.63	0.27	-0.61	-0.34
Financials	28.9	23.1	-2.41	1.69	0.15	-1.19	-1.04
Health Care	0.8	3.1	-4.19	-7.30	0.15	0.02	0.17
Industrials	4.4	5.2	-8.65	3.24	-0.04	-0.55	-0.58
Information Technology	17.2	15.7	0.69	2.30	0.05	-0.28	-0.24
Materials	5.2	7.7	7.45	3.72	-0.12	0.19	0.07
Real Estate	0.0	3.0	0.00	-6.20	0.15	0.00	0.15
Utilities	1.7	2.5	-7.87	-1.96	0.03	-0.08	-0.06
Total	100.0	100.0	-1.27	-0.98	0.70	-0.99	-0.29

Ten Best Performers				
	Port. Wt	Bench. Wt	Qtr. Rtrn	Contr. Rtrn
PT Semen Gresik	0.7	0.0	33.6	0.3
Taiwan Semiconductor	4.9	4.1	21.1	1.0
Siam Cement Public Co Ltd	0.9	0.1	18.9	0.2
Cnooc Ltd	1.3	0.7	17.4	0.2
Gazprom PJSC	1.3	0.5	16.7	0.2
Oil Co LUKOIL PJSC	2.2	0.6	13.8	0.3
YPF	1.8	0.0	13.8	0.3
Uti Bank Ltd	2.2	0.3	13.3	0.3
China Mobile Ltd	4.1	1.2	12.9	0.5
PLDT Inc	0.8	0.0	12.8	0.1

Buy and Hold Region Attribution- 1 Qtr							
	Allocation		Performance		Attribution		
	Portfolio	Benchmark	Portfolio	Benchmark	Stock	Region	Total
EM Asia	47.7	61.2	1.25	0.15	0.50	-0.16	0.34
EM Europe	16.1	6.0	-5.77	3.06	-1.42	0.33	-1.10
EM Latin America	13.1	10.7	-3.03	5.78	-1.14	0.15	-1.00
EM Mid East+Africa	11.6	8.1	-5.67	-4.32	-0.15	-0.12	-0.27
Europe ex UK	0.0	0.3	0.00	-3.97	0.00	0.01	0.01
Frontier Markets	3.3	0.1	2.79	-4.19	0.22	-0.10	0.12
North America	0.0	0.1	0.00	-3.64	0.00	0.00	0.00
Pacific ex Japan	8.3	13.4	2.26	-10.37	1.08	0.52	1.59
United Kingdom	0.0	0.1	0.00	5.31	0.00	0.00	0.00
Other	0.0	0.1	0.00	-2.50	0.00	0.00	0.00
Total	100.0	100.0	-1.27	-0.98	-0.91	0.62	-0.29

Ten Worst Performers				
	Port. Wt	Bench. Wt	Qtr. Rtrn	Contr. Rtrn
Turk Telekomunikasyon AS	0.5	0.0	-44.3	-0.2
Turkiye Is Bankasi AS	0.1	0.0	-40.7	0.0
Akbank	0.4	0.0	-29.7	-0.1
AAC Technologies Holdings Inc	0.9	0.1	-25.9	-0.2
Hero MotoCrop Ltd	1.3	0.0	-19.4	-0.3
Magnit	0.8	0.1	-19.2	-0.1
Asm Pacific Technology Ltd	0.7	0.0	-18.3	-0.1
CCR SA	0.8	0.0	-18.1	-0.1
Cielo SA	1.1	0.1	-17.0	-0.2
SK Hynix Inc	3.3	0.7	-14.5	-0.5



Manager Profile
AMG Managers Skyline Special Equities (SKSEX)

As of September 30, 2018

Fund Information

Portfolio Manager : Fiedler/Maloney/Odegard Ticker : SKSEX
 PM Tenure : 2001--2001--2001 Inception Date : 04/23/1987
 Fund Assets : \$809 Million Portfolio Turnover : 33%

Fund Investment Policy

The Fund seeks maximum capital appreciation primarily through investment in common stocks that the adviser considers under valued.

Comparative Performance - Trailing

	QTR	YTD	1 YR	3 YR	5 YR	7 YR	10 YR
AMG Managers Skyline Special Equities (SKSEX)	-0.07 (72)	1.98 (83)	2.91 (94)	10.45 (90)	8.09 (47)	16.09 (19)	12.39 (7)
Russell 2000 Value Index	1.60 (30)	7.14 (43)	9.33 (58)	16.12 (38)	9.91 (23)	15.26 (34)	9.52 (57)
IM U.S. Small Cap Value Equity (MF) 1st Quartile	2.06	8.90	12.81	17.31	9.84	15.58	10.66
IM U.S. Small Cap Value Equity (MF) Median	0.97	6.63	10.11	14.27	7.73	14.20	9.71
IM U.S. Small Cap Value Equity (MF) 3rd Quartile	-0.31	3.80	6.46	12.24	5.70	11.51	7.93

Comparative Performance - Calendar

	2017	2016	2015	2014	2013	2012	2011
AMG Managers Skyline Special Equities (SKSEX)	8.39 (49)	21.32 (84)	-6.05 (24)	4.02 (32)	51.59 (5)	19.34 (23)	-2.05 (40)
Russell 2000 Value Index	7.84 (54)	31.74 (22)	-7.47 (37)	4.22 (32)	34.52 (55)	18.05 (29)	-5.50 (63)
IM U.S. Small Cap Value Equity (MF) 1st Quartile	11.91	31.38	-6.62	5.18	41.99	18.30	-0.95
IM U.S. Small Cap Value Equity (MF) Median	8.23	29.65	-9.59	1.56	35.20	15.36	-3.06
IM U.S. Small Cap Value Equity (MF) 3rd Quartile	5.49	23.28	-13.54	-0.85	31.63	11.63	-7.80

Comparative Performance - Quarterly

	Jun-2018	Mar-2018	Dec-2017	Sep-2017	Jun-2017	Mar-2017	Dec-2016
AMG Managers Skyline Special Equities (SKSEX)	3.43 (94)	-1.34 (38)	0.91 (92)	5.78 (43)	1.10 (46)	0.44 (24)	14.88 (28)
Russell 2000 Value Index	8.30 (45)	-2.64 (60)	2.05 (80)	5.11 (60)	0.67 (54)	-0.13 (31)	14.07 (33)
IM U.S. Small Cap Value Equity (MF) 1st Quartile	8.98	-0.65	4.40	6.28	2.49	0.24	15.16
IM U.S. Small Cap Value Equity (MF) Median	8.00	-1.97	3.59	5.56	0.84	-0.91	13.03
IM U.S. Small Cap Value Equity (MF) 3rd Quartile	6.31	-3.33	2.39	4.15	-0.32	-1.80	11.26

MPT Stats

	1 YR	3 YR	5 YR
Standard Deviation	8.05	14.04	13.90
Downside Risk	5.49	7.37	8.11
vs. Russell 2000 Value Index			
Alpha	-4.26	-4.87	-1.55
Beta	0.81	1.00	0.99
Down Market Capture	103.34	102.59	99.79
Information Ratio	-1.62	-1.18	-0.41
Tracking Error	3.81	4.21	4.00
Up Market Capture	66.93	82.03	93.12
vs. 90 Day U.S. Treasury Bill			
Sharpe Ratio	0.20	0.72	0.59

Ranking vs. IM U.S. Small Cap Value Equity (MF) 4 Quarters Rolling Periods

	Periods	5-25	25-Median	Median-75	75-95
AMG Managers Skyline Special Equities (SKSEX)	28	15 (54%)	6 (21%)	2 (7%)	5 (18%)
Russell 2000 Value Index	28	4 (14%)	13 (46%)	11 (39%)	0 (0%)

Ranking vs. IM U.S. Small Cap Value Equity (MF) 12 Quarters Rolling Periods

	Periods	5-25	25-Median	Median-75	75-95
AMG Managers Skyline Special Equities (SKSEX)	28	18 (64%)	6 (21%)	3 (11%)	1 (4%)
Russell 2000 Value Index	28	4 (14%)	19 (68%)	3 (11%)	2 (7%)

Ranking vs. IM U.S. Small Cap Value Equity (MF) 20 Quarters Rolling Periods

	Periods	5-25	25-Median	Median-75	75-95
AMG Managers Skyline Special Equities (SKSEX)	28	21 (75%)	7 (25%)	0 (0%)	0 (0%)
Russell 2000 Value Index	28	4 (14%)	12 (43%)	8 (29%)	4 (14%)



Manager Profile
AMG Managers Skyline Special Equities (SKSEX)

As of September 30, 2018

Portfolio Characteristics			Top Ten Equity Holdings				
	Portfolio	Benchmark		Port. Wt	Bench. Wt	Qtr Rtrn	Contr. Rtrn
Wtd. Avg. Mkt. Cap (\$)	2,769,076,913	2,150,159,017	The Children's Place	2.8	0.0	6.2	0.2
Median Mkt. Cap (\$)	2,101,728,090	820,325,840	Aaron's Inc	2.7	0.3	25.4	0.7
Price/Earnings ratio	16.4	15.5	Essent Group Ltd	2.4	0.2	23.5	0.6
Price/Book ratio	2.1	1.7	Brunswick Corp	2.4	0.0	4.2	0.1
5 Yr. EPS Growth Rate (%)	13.0	7.1	Orion Engineered Carbons SA	2.3	0.0	4.7	0.1
Current Yield (%)	1.1	2.0	Rexnord Corp	2.3	0.3	6.0	0.1
Beta (5 Years, Monthly)	0.99	1.00	TriMas Corp	2.2	0.1	3.4	0.1
Number of Stocks	63	1,387	Ferro Corp.	2.2	0.0	11.4	0.3
			Bancorpsouth Bank	2.1	0.3	-0.3	0.0
			First Busey Corp	2.1	0.1	-1.5	0.0

Buy and Hold Sector Attribution - 1 Qtr								Ten Best Performers				
	Allocation		Performance		Sector	Attribution		Port. Wt	Bench. Wt	Qtr. Rtrn	Contr. Rtrn	
	Portfolio	Benchmark	Portfolio	Benchmark		Stock	Total					
Communication Services	0.0	2.8	0.00	10.43	-0.25	0.00	-0.25	Aaron's Inc	2.7	0.3	25.4	0.7
Consumer Discretionary	11.9	9.4	5.55	1.84	0.01	0.43	0.44	NOW Inc	1.6	0.2	24.2	0.4
Consumer Staples	0.0	2.6	0.00	-6.80	0.23	0.00	0.23	Essent Group Ltd	2.4	0.2	23.5	0.6
Energy	0.0	7.4	0.00	-1.80	0.25	0.00	0.25	Zebra Technologies Corp.	2.0	0.0	23.4	0.5
Financials	25.4	28.5	-0.99	0.70	0.04	-0.44	-0.40	Gibraltar Industries Inc	1.8	0.1	21.6	0.4
Health Care	7.4	4.8	-6.07	7.49	0.16	-1.01	-0.85	Belden Inc	0.9	0.3	16.9	0.1
Industrials	26.0	11.8	-0.76	5.06	0.49	-1.51	-1.02	Knoll Inc	1.7	0.0	13.4	0.2
Information Technology	18.1	10.5	2.18	1.52	0.00	0.12	0.12	Ferro Corp.	2.2	0.0	11.4	0.3
Materials	9.8	4.4	2.31	1.20	-0.02	0.11	0.08	Hillenbrand Inc	1.3	0.0	11.4	0.1
Real Estate	1.4	11.8	-9.08	-0.90	0.26	-0.12	0.15	Anixter International Inc	1.7	0.2	11.1	0.2
Utilities	0.0	6.0	0.00	3.57	-0.12	0.00	-0.12					
Total	100.0	100.0	0.23	1.60	1.06	-2.42	-1.36					

Buy and Hold Style Attribution - 1 Qtr								Ten Worst Performers				
	Allocation		Performance		Style	Attribution		Port. Wt	Bench. Wt	Qtr. Rtrn	Contr. Rtrn	
	Portfolio	Benchmark	Portfolio	Benchmark		Stock	Total					
Mid Growth	3.7	0.1	9.87	-1.08	-0.06	0.30	0.24	Cross Country Healthcare Inc	0.7	0.0	-22.4	-0.2
Mid Neutral	5.8	1.6	-3.37	0.50	-0.06	-0.18	-0.24	Korn/Ferry International	0.8	0.0	-20.3	-0.2
Mid Value	12.2	13.6	-2.03	1.84	-0.01	-0.45	-0.46	Benchmark Electronics Inc	1.5	0.1	-19.2	-0.3
Small Growth	5.9	0.7	5.83	-2.22	-0.19	0.42	0.24	Winnebago Industries Inc.	0.8	0.0	-18.1	-0.2
Small Neutral	24.1	12.0	-0.07	2.58	0.13	-0.60	-0.46	NN Inc	0.6	0.0	-17.2	-0.1
Small Value	48.3	68.4	-0.14	1.00	0.12	-0.50	-0.38	Beacon Roofing Supply Inc	1.6	0.1	-15.1	-0.2
Unclassified	0.0	3.6	0.00	11.23	-0.30	0.00	-0.30	American Woodmark Corp	1.1	0.0	-14.3	-0.2
Total	100.0	100.0	0.23	1.60	-0.36	-1.00	-1.36	Acadia Healthcare Co Inc	1.4	0.0	-14.0	-0.2
								JELD-WEN Holding Inc	1.6	0.0	-13.7	-0.2
								Deluxe Corp	1.1	0.0	-13.6	-0.1



Manager Profile
Hotchkis & Wiley Mid Cap Value (HWMIX)
As of September 30, 2018

Fund Information

Portfolio Manager : Majcher/Davis, Jr./Miles Ticker : HWMIX
PM Tenure : 1997--1997--1997 Inception Date : 01/02/1997
Fund Assets : \$1,607 Million Portfolio Turnover : 37%

Fund Investment Policy

The Fund seeks capital appreciation by normally investing at least 80% of its net assets plus borrowings for investment purposes in common stocks of mid capitalization U.S. companies. The Advisor currently considers mid-cap companies to be those with market capitalizations like those found in the Russell Midcap Index.

Comparative Performance - Trailing

	QTR	YTD	1 YR	3 YR	5 YR	7 YR	10 YR
Hotchkis & Wiley Mid Cap Value (HWMIX)	3.00 (43)	8.75 (1)	13.74 (2)	12.40 (36)	8.19 (82)	17.66 (1)	14.22 (1)
Russell Midcap Value Index	3.30 (28)	3.13 (50)	8.81 (40)	13.09 (27)	10.72 (10)	15.54 (19)	11.29 (37)
IM U.S. Mid Cap Value Equity (MF) 1st Quartile	3.43	4.66	10.31	13.42	9.89	15.22	11.52
IM U.S. Mid Cap Value Equity (MF) Median	2.87	3.11	7.84	11.55	9.17	14.59	10.78
IM U.S. Mid Cap Value Equity (MF) 3rd Quartile	1.66	0.43	5.26	10.48	8.40	13.76	10.00

Comparative Performance - Calendar

	2017	2016	2015	2014	2013	2012	2011
Hotchkis & Wiley Mid Cap Value (HWMIX)	7.78 (90)	21.00 (25)	-12.53 (97)	12.18 (26)	42.55 (4)	31.09 (1)	-8.60 (96)
Russell Midcap Value Index	13.34 (47)	20.00 (35)	-4.78 (52)	14.75 (11)	33.46 (75)	18.51 (23)	-1.38 (34)
IM U.S. Mid Cap Value Equity (MF) 1st Quartile	15.79	20.87	-3.31	12.26	37.64	18.31	-0.61
IM U.S. Mid Cap Value Equity (MF) Median	12.74	17.46	-4.58	10.41	35.98	16.55	-3.01
IM U.S. Mid Cap Value Equity (MF) 3rd Quartile	10.80	15.70	-6.97	8.21	33.41	14.94	-6.24

Comparative Performance - Quarterly

	Jun-2018	Mar-2018	Dec-2017	Sep-2017	Jun-2017	Mar-2017	Dec-2016
Hotchkis & Wiley Mid Cap Value (HWMIX)	7.80 (1)	-2.05 (53)	4.58 (71)	3.53 (27)	-1.33 (97)	0.88 (97)	12.05 (3)
Russell Midcap Value Index	2.41 (37)	-2.50 (69)	5.50 (41)	2.14 (68)	1.37 (54)	3.76 (38)	5.52 (81)
IM U.S. Mid Cap Value Equity (MF) 1st Quartile	3.17	-1.37	6.12	3.56	1.99	4.34	8.58
IM U.S. Mid Cap Value Equity (MF) Median	1.99	-1.97	5.10	2.72	1.42	3.29	6.56
IM U.S. Mid Cap Value Equity (MF) 3rd Quartile	0.84	-2.92	4.49	1.84	0.28	2.60	5.77

MPT Stats

	1 YR	3 YR	5 YR
Standard Deviation	9.16	16.02	14.54
Downside Risk	5.56	8.75	8.46
vs. Russell Midcap Value Index			
Alpha	4.62	-5.43	-4.77
Beta	1.01	1.45	1.29
Down Market Capture	98.38	147.49	140.96
Information Ratio	0.80	0.02	-0.22
Tracking Error	5.80	8.99	7.91
Up Market Capture	131.54	117.07	108.73
vs. 90 Day U.S. Treasury Bill			
Sharpe Ratio	1.29	0.76	0.58

Ranking vs. IM U.S. Mid Cap Value Equity (MF) 4 Quarters Rolling Periods

	Periods	5-25	25-Median	Median-75	75-95
Hotchkis & Wiley Mid Cap Value (HWMIX)	28	15 (54%)	2 (7%)	1 (4%)	10 (36%)
Russell Midcap Value Index	28	7 (25%)	13 (46%)	8 (29%)	0 (0%)

Ranking vs. IM U.S. Mid Cap Value Equity (MF) 12 Quarters Rolling Periods

	Periods	5-25	25-Median	Median-75	75-95
Hotchkis & Wiley Mid Cap Value (HWMIX)	28	15 (54%)	2 (7%)	2 (7%)	9 (32%)
Russell Midcap Value Index	28	15 (54%)	13 (46%)	0 (0%)	0 (0%)

Ranking vs. IM U.S. Mid Cap Value Equity (MF) 20 Quarters Rolling Periods

	Periods	5-25	25-Median	Median-75	75-95
Hotchkis & Wiley Mid Cap Value (HWMIX)	28	15 (54%)	6 (21%)	2 (7%)	5 (18%)
Russell Midcap Value Index	28	17 (61%)	9 (32%)	2 (7%)	0 (0%)



Portfolio Characteristics			Top Ten Equity Holdings				
	Portfolio	Benchmark		Port. Wt	Bench. Wt	Qtr Rtrn	Contr. Rtrn
Wtd. Avg. Mkt. Cap (\$)	9,106,129,650	14,887,154,522	Whiting Petroleum Corp	5.1	0.1	0.6	0.0
Median Mkt. Cap (\$)	5,769,386,980	8,009,187,515	Popular Inc	5.1	0.1	13.9	0.7
Price/Earnings ratio	10.4	16.9	Hewlett Packard Enterprise Co	4.7	0.0	12.4	0.6
Price/Book ratio	1.6	2.2	ARRIS International plc	4.3	0.1	6.3	0.3
5 Yr. EPS Growth Rate (%)	8.4	10.5	Kosmos Energy Ltd	3.7	0.0	13.1	0.5
Current Yield (%)	1.5	2.2	Discovery Inc	3.6	0.2	16.0	0.6
Beta (5 Years, Monthly)	1.29	1.00	Cairn Energy PLC, Edinburgh	3.1	0.0	-8.0	-0.2
Number of Stocks	61	594	CIT Group Inc	3.1	0.1	2.9	0.1
			Telefonaktiebolaget LM Ericsson	3.1	0.0	14.7	0.5
			Citizens Financial Group Inc	2.9	0.4	-0.2	0.0

Buy and Hold Sector Attribution - 1 Qtr								Ten Best Performers				
	Allocation		Performance		Sector	Attribution		Port. Wt	Bench. Wt	Qtr. Rtrn	Contr. Rtrn	
	Portfolio	Benchmark	Portfolio	Benchmark		Stock	Total					
Communication Services	5.1	3.1	7.26	5.85	0.04	0.09	0.13	Mallinckrodt Plc	2.4	0.0	57.1	1.4
Consumer Discretionary	12.0	9.1	-5.58	0.13	-0.09	-0.70	-0.79	LifePoint Health Inc	0.3	0.0	32.0	0.1
Consumer Staples	1.5	5.0	-0.66	-0.46	0.14	-0.01	0.13	Corning Inc	2.2	0.6	29.0	0.6
Energy	22.8	7.7	-4.83	1.61	-0.28	-1.55	-1.83	Allison Transmission Inc.	0.6	0.0	28.9	0.2
Financials	21.8	18.1	5.74	1.44	-0.08	0.94	0.86	Office Depot Inc	2.9	0.0	26.8	0.8
Health Care	2.9	6.6	46.37	9.23	-0.22	0.83	0.61	NRG Energy Inc	2.7	0.3	21.9	0.6
Industrials	11.2	12.2	0.96	9.60	-0.06	-0.95	-1.01	Fluor Corp	0.6	0.2	19.5	0.1
Information Technology	16.6	8.8	11.30	7.77	0.34	0.56	0.90	KBR Inc	1.6	0.0	18.4	0.3
Materials	0.0	6.3	0.00	-1.06	0.28	0.00	0.28	Zimmer Biomet Holdings Inc	0.6	0.6	18.2	0.1
Real Estate	3.0	13.1	-5.87	0.56	0.27	-0.22	0.06	Discovery Inc	3.6	0.2	16.0	0.6
Utilities	3.1	10.0	17.60	3.14	0.01	0.43	0.45					
Total	100.0	100.0	3.08	3.30	0.35	-0.58	-0.23					

Buy and Hold Style Attribution - 1 Qtr								Ten Worst Performers				
	Allocation		Performance		Style	Attribution		Port. Wt	Bench. Wt	Qtr. Rtrn	Contr. Rtrn	
	Portfolio	Benchmark	Portfolio	Benchmark		Stock	Total					
Large Growth	0.0	0.1	0.00	15.22	-0.02	0.00	-0.02	Sanchez Energy Corp	0.3	0.0	-49.1	-0.1
Large Neutral	0.0	2.4	0.00	-2.22	0.11	0.00	0.11	Ophir Energy PLC	1.5	0.0	-25.8	-0.4
Large Value	0.0	1.6	0.00	-1.78	0.08	0.00	0.08	TRI Pointe Group Inc	2.0	0.0	-24.2	-0.5
Mid Growth	1.6	2.0	8.42	3.73	-0.01	0.07	0.07	Bed Bath & Beyond Inc.	1.3	0.0	-24.0	-0.3
Mid Neutral	5.9	34.6	16.12	4.45	-0.33	0.58	0.25	Embraer SA	1.2	0.0	-21.3	-0.3
Mid Value	58.1	54.5	4.08	2.90	-0.01	0.62	0.61	Adient Plc	0.7	0.1	-19.6	-0.1
Small Growth	0.3	0.0	-7.78	-13.58	-0.07	0.03	-0.04	Weatherford Intl	1.7	0.1	-17.6	-0.3
Small Neutral	4.8	0.6	3.21	3.31	-0.07	-0.01	-0.08	News Corp	0.8	0.1	-14.2	-0.1
Small Value	18.8	1.8	2.56	0.70	-0.56	0.38	-0.18	C&J Energy Services Inc	1.7	0.0	-11.9	-0.2
Unclassified	10.5	2.5	-4.32	4.62	0.21	-1.24	-1.03	Magna International Inc.	1.2	0.0	-9.2	-0.1
Total	100.0	100.0	3.08	3.30	-0.66	0.43	-0.23					



Historical Activity

Jul-2017

The Hartford Small Company Fund (HIASX) was replaced by Wells Fargo Small Company Growth Fund (WSCRX).

Nov-2016

The Hartford Capital Appreciation Fund (HIACX) was replaced by the Wells Fargo Disciplined US Core Fund (EVSIX).

The Deutsche Real Assets Fund (AAAVX) was removed from the Plans. The remaining balances were mapped into the American Funds American Balanced Fund (RLBGX).

The Plan added WCAB Models 2015, 2025, 2035, 2045, 2055, and 2060. The 2010 Model was replaced by the Income Model.

Dec-2015

The Plan was converted to the Mass Mutual platform. The following funds were changed:

The SSGA Index Fund were replaced by Vanguard Index Funds.
The Hartford Balanced was replaced by American Funds Balanced.
American Century Equity Income shares changed from ACIX to AEUDX.
Deutsche Alternative Asset Allocation shares changed from AAAAX to AAAVX.

Sep-2014

Lord Abbett Mid Cap Value closes 9/3/14. Assets will map to the Hotchkis & Wiley Mid Cap Value Fund on September 5, 2014.

Oct-2013

Pimco Foreign Bond (US Hedged) (PFORZ) was added to the fund lineup.

Apr-2011

The LifePath Funds were removed from the fund line-up.

Mar-2011

The Barclays LifePath Target Date Funds will be mapped to the Hartford Advisors HLS Fund.

Oct-2010

The following funds were moved to new share classes as follows:

American Funds EuroPacific Growth to R6 shares
SSgA Russell Small Cap to A shares
Lord Abbett Mid Cap Value to I shares
SSgA S&P Mid Cap Index to A shares
American Funds Growth Fund of America to R6 shares
SSgA S&P 500 Index to A shares
Pimco High Yield to Institutional shares.

Dec-2009

The LifePath 2010 fund was wrapped in with the Life Path Retirement Fund.



Sep-2009

Barclays merged with BlackRock. The LifePath funds took the BlackRock name.

Feb-2009

The Following new investment choices were added to the Plans:

American Century Capital, DFA Intl. Small Cap Value, DWS Alternative Asset Allocation, Lazard Emerging Markets, Lord Abbett Mid Cap Value.

Sep-2007

The Hartford Index HLS was replaced by the SSgA S&P 500 Flagship fund in the third quarter 2007. The TCW Opportunity Fund was renamed to the TCW Relative Value Small Cap Fund.

Jun-2007

The American Century Ultra Fund was removed from the fund lineup during the second quarter 2007.

Mar-2005

Changes to the fund lineup started on March 1, 2005 and concluded on March 31, 2005. Below is a list of the funds that were retained and a list of funds that were added to the lineup.

Retained Funds:

Hartford Small Company HLS
Skyline Special Equities Portfolio, Hartford Mid-Cap HLS
American Century Ultra, Hartford Capital Appreciation
Hartford Index HLS
American Century Equity Income
Hartford Advisors HLS
Hartford Total Return Bond HLS
General "Declared Interest"

Introduced Funds:

American Funds EuroPacific
TCW Opportunity
Artisan Mid-Cap
Hotchkis & Wiley Mid-Cap Value
American Funds Growth Fund
PIMCO High Yield
General Account (Declared)
Barclays Global Investors LifePath.



Common Index Definitions

The S&P 500® Index is a broad based unmanaged index of 500 stocks, which is widely recognized as representative of the equity market in general.

The Russell 1000® Index measures the performance of those 1,000 largest companies in the Russell 3000® Index, which represents approximately 92% of the total market capitalization of the Russell 3000® Index.

The Russell 1000® Value Index measures the performance of those Russell 1000® Index companies with lower price-to-book ratios and lower forecasted growth values.

The Russell 1000® Growth Index measures the performance of those Russell 1000® Index companies with higher price-to-book ratios and higher forecasted growth values.

The Russell 2000® Index, an unmanaged index, measures the performance of the 2,000 smallest companies in the Russell 3000® Index.

The Russell 2000® Value Index measures the performance of those Russell 2000® Index companies with lower price-to-book ratios and lower forecasted growth values.

The Russell 2000® Growth Index measures the performance of those Russell 2000® Index companies higher price-to-book ratios and higher forecasted growth values.

The Russell 3000® Index includes the 3,000 largest U.S.-traded stocks.

The Russell 3000® Value Index includes stocks from the Russell 3000® Index with lower price-to-book ratios and lower expected growth rates.

The Russell 3000® Growth Index includes companies that display signs of above average growth. The index is used to provide a gauge of the performance of growth stocks in the U.S.

The Russell Midcap® Index, an unmanaged index, measures the performance of the 800 smallest companies in the Russell 1000® Index.

The Russell Midcap® Value Index measures the performance of those Russell Midcap® Index companies with lower price-to book value ratios and lower forecasted growth values.

The Russell Midcap® Growth Index measures the performance of those Russell Midcap® Index companies with higher price-to book ratios and higher forecasted growth values.

The Russell Developed® Index measures the performance of the investable securities in developed countries globally across all market capitalization ranges.

The Bloomberg Barclays Intermediate Treasury Index includes Treasuries with maturities between 1 and 10 years.

The Bloomberg Barclays Aggregate Bond Index, is a market capitalization-weighted intermediate term index, meaning the securities in the index are weighted according to the market size of each bond type. Most U.S. traded investment grade bonds are represented. Municipal bonds, and Treasury Inflation-Protected Securities are excluded, due to tax treatment issues. The index includes Treasury securities, Government agency bonds, Mortgage-backed bonds, Corporate bonds, and a small amount of foreign bonds traded in U.S. The Bloomberg Barclays US Aggregate Bond Index is an index.

The BofA Merrill Lynch U.S. High Yield Index tracks the performance of below investment grade, but not in default, US dollardenominated corporate bonds publicly issued in the US domestic market, and includes issues with a credit rating of BBB or below, as rated by Moody's and S&P.



Active Return	- Arithmetic difference between the manager's performance and the designated benchmark return over a specified time period.
Alpha	- A measure of the difference between a portfolio's actual performance and its expected return based on its level of risk as determined by beta. It determines the portfolio's non-systemic return, or its historical performance not explained by movements of the market.
Beta	- A measure of the sensitivity of a portfolio to the movements in the market. It is a measure of the portfolio's systematic risk.
Consistency	- The percentage of quarters that a product achieved a rate of return higher than that of its benchmark. Higher consistency indicates the manager has contributed more to the product's performance.
Distributed to Paid In (DPI)	- The ratio of money distributed to Limited Partners by the fund, relative to contributions. It is calculated by dividing cumulative distributions by paid in capital. This multiple shows the investor how much money they got back. It is a good measure for evaluating a fund later in its life because there are more distributions to measure against.
Down Market Capture	- The ratio of average portfolio performance over the designated benchmark during periods of negative returns. A lower value indicates better product performance
Downside Risk	- A measure similar to standard deviation that utilizes only the negative movements of the return series. It is calculated by taking the standard deviation of the negative quarterly set of returns. A higher factor is indicative of a riskier product.
Excess Return	- Arithmetic difference between the manager's performance and the risk-free return over a specified time period.
Excess Risk	- A measure of the standard deviation of a portfolio's performance relative to the risk free return.
Information Ratio	- This calculates the value-added contribution of the manager and is derived by dividing the active rate of return of the portfolio by the tracking error. The higher the Information Ratio, the more the manager has added value to the portfolio.
Public Market Equivalent (PME)	- Designs a set of analyses used in the Private Equity Industry to evaluate the performance of a Private Equity Fund against a public benchmark or index.
R-Squared	- The percentage of a portfolio's performance that can be explained by the behavior of the appropriate benchmark. A high R-Squared means the portfolio's performance has historically moved in the same direction as the appropriate benchmark.
Return	- Compounded rate of return for the period.
Sharpe Ratio	- Represents the excess rate of return over the risk free return divided by the standard deviation of the excess return. The result is an absolute rate of return per unit of risk. A higher value demonstrates better historical risk-adjusted performance.
Standard Deviation	- A statistical measure of the range of a portfolio's performance. It represents the variability of returns around the average return over a specified time period.
Total Value to Paid In (TVPI)	- The ratio of the current value of remaining investments within a fund, plus the total value of all distributions to date, relative to the total amount of capital paid into the fund to date. It is a good measure of performance before the end of a fund's life
Tracking Error	- This is a measure of the standard deviation of a portfolio's returns in relation to the performance of its designated market benchmark.
Treynor Ratio	- Similar to Sharpe ratio but utilizes beta rather than excess risk as determined by standard deviation. It is calculated by taking the excess rate of return above the risk free rate divided by beta to derive the absolute rate of return per unit of risk. A higher value indicates a product has achieved better historical risk-adjusted performance.
Up Market Capture	- The ratio of average portfolio performance over the designated benchmark during periods of positive returns. A higher value indicates better product performance.



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