Target Date Fund Series Analysis June 30, 2019

# Washoe County 457 & 401a Plans



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#### Disclosure

The AndCo Target Date Universes are based on a set of proprietary screens that create a universe for the target year. Universes are screened based on the availability of asset allocation data through Morningstar Direct. These universes are used for research and comparison purposes only and does not reflect a recommendation from AndCo or its employees. Past performance is no guarantee of future returns. Registration with the SEC does not imply any level of expertise or training. Investment strategies contain the possibility of loss and other material risks. This presentation is provided for informational purposes only and should not be regarded as investment advice or as a recommendation regarding any particular course of action.

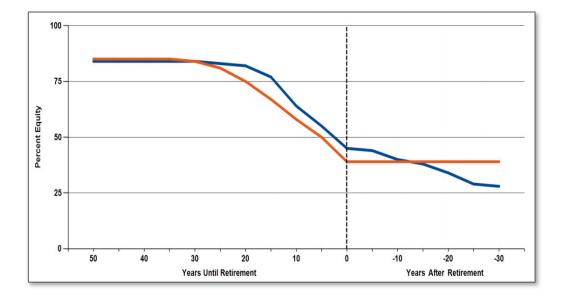


How Target Date Funds Work

Glide Path - A glide path represents the shift in asset allocation (becoming more conservative) as time passes. In general there are two distinct glide path strategies:

To - A 'to' approach reflects a target date fund whose asset allocation becomes most conservative at the target retirement date.

**Through** - A 'through' approach reflects a target date fund whose asset allocation typically contains a higher allocation to equities at target retirement date and continues reducing equity exposure until a future date during retirement.



# Average stock allocation in target-date funds

Target Date	"To" TDFs (%)	"Through" TDFs (%)
2015	30	45
2020	43	54
2025	54	63
2030	61	72
2035	72	80
2040	76	86
2045	84	88
2050	83	89
2055	86	90

(Numbers rounded to nearest percentage point.) Source: Morningstar

#### **Qualified Default Investment Alternatives**

A QDIA is a default investment option chosen by a plan fiduciary for participants who fail to make an investment election for their account balances. The intent is to ensure that an investment qualifying as a QDIA is appropriate as a single investment capable of meeting a worker's long-term retirement savings needs. The U.S. Dept. of Labor's final regulation identifies four types of QDIAs:

A product with a mix of investments that takes into account the individual's age or retirement date (an example of such a product could be a life-cycle or targeted-retirement-date fund);

An investment service that allocates contributions among existing plan options to provide an asset mix that takes into account the individual's age or retirement date (an example of such a service could be a managed accounts);

A product with a mix of investments that takes into account the characteristics of the group of employees as a whole, rather than each individual (an example of such a product could be a balanced fund);

A capital preservation product for only the first 120 days of participation (an option for plan sponsors wishing to simplify administration if workers opt-out of participation before incurring an additional tax).

While QDIA regulation is specifically for ERISA plans; it is considered an industry best practice for all plans.

Excerpts from Regulation Relating to Qualified Default Investment Alternatives in Participant-Directed Individual Account Plans DOL Fact Sheet April 2008



#### Guidelines for Selection and Review of Target Date Funds

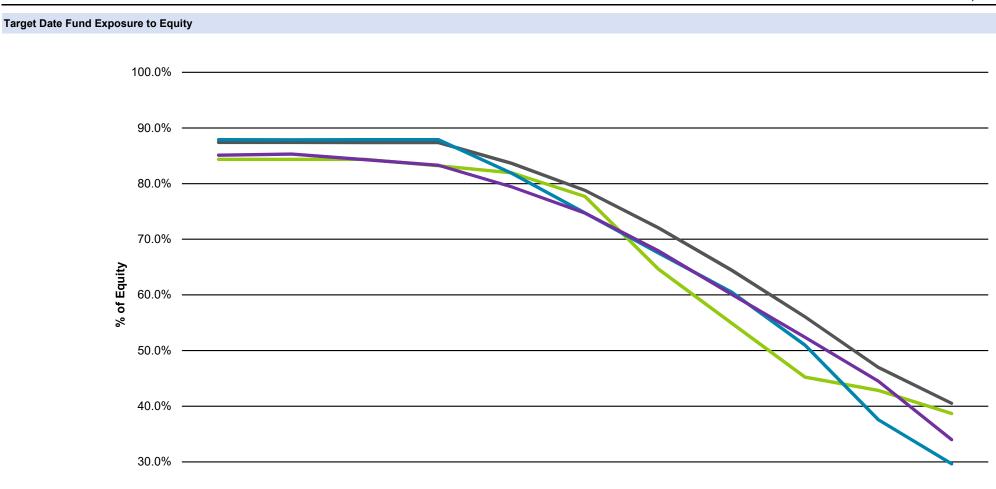
- Establish a process for comparing and selecting TDFs that considers employee demographics and complies with the Investment Policy Statement
- Establish a process for periodic review
- Understand the fund's investments the allocation in different asset classes (stocks, bonds, cash), individual investments, and how these will change over time
- Review the fund's fees and investment expenses
- Inquire about whether a custom or non-proprietary target date fund would be a better fit for your plan
- Develop effective employee communications
- Take advantage of available sources of information to evaluate the fund
- Review recommendations you received through the selection process
- Document the process



#### Target Date Fund Portfolio Construction

What goes into target date investments, including who manages those underlying investments, is a key consideration. Portfolio construction information is also presented, such as: whether the target date series is a fund of funds, the percentage of assets managed by firms affiliated with the target-date series versus those firms that are not affiliated, and how much of the series is comprised of a passive (index based) vs. actively managed strategies.

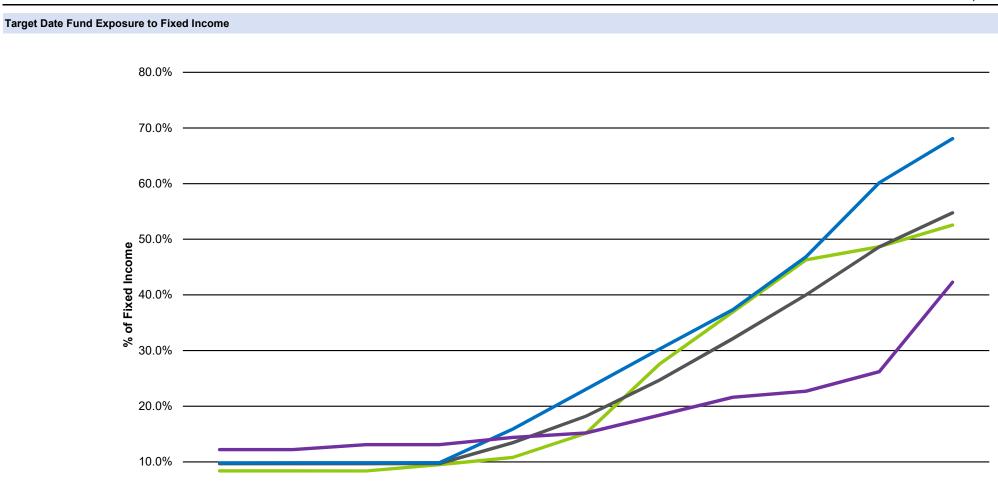
Target Date Structure										
Investments Selected for Review	Fund of Funds	# of Underlying Holdings	Inception Date	Average Expense Ratio	Average Manager Tenure (Years)	Total Assets Under Management	To vs. Through	Active and/or Passive		
American Funds Target Date Retirement R6	Yes	22	2/2007	0.38%	8.6	\$134,957,822,061	Through	Active		
T. Rowe Price Retirement I	Yes	22	9/2002	0.53%	3.8	\$38,136,052,056	Through	Active		
Vanguard Target Retirement Inv.	Yes	5	10/2003	0.14%	6.4	\$271,149,397,493	Through	Passive		
WCAB Retirement	Yes	18	8/2007	0.25%	N/A	\$11,700,000	То	Hybrid		
AndCo Industry Average		20		0.73%	5.1					



20.0%											
20.070	2060	2055	2050	2045	2040	2035	2030	2025	2020	2015	2010
American Funds	84.4%	84.4%	84.4%	83.2%	82.0%	77.7%	64.6%	54.9%	45.2%	42.9%	38.7%
T. Rowe Price	87.4%	87.4%	87.4%	87.4%	83.6%	78.8%	72.1%	64.4%	56.1%	47.0%	40.5%
Vanguard	87.9%	87.9%	87.9%	87.9%	81.9%	74.7%	67.6%	60.5%	51.0%	37.6%	29.6%
WCAB	85.1%	85.3%	84.3%	83.3%	79.4%	74.7%	67.9%	60.1%	52.4%	44.5%	34.0%



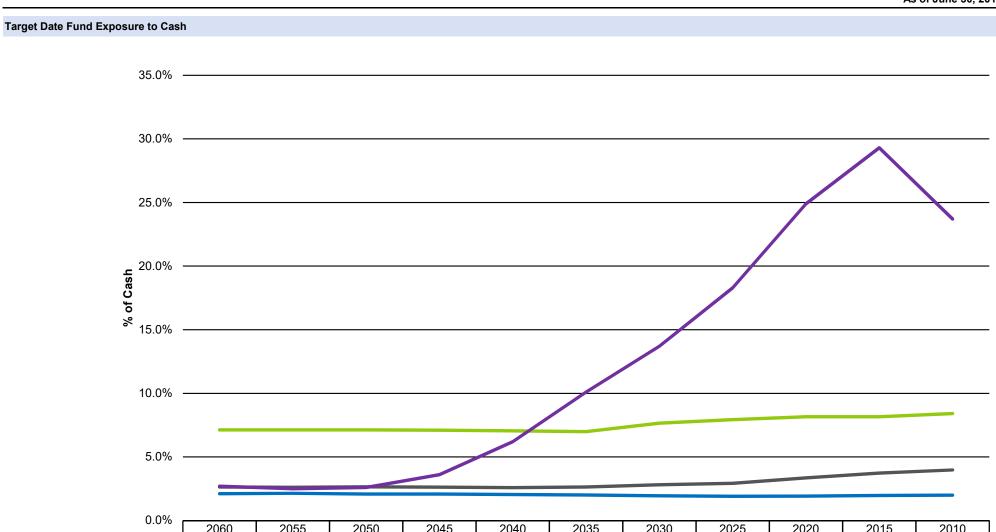
Source: Morningstar Direct



0.0%											
0.070	2060	2055	2050	2045	2040	2035	2030	2025	2020	2015	2010
American Funds	8.4%	8.4%	8.4%	9.5%	10.8%	15.1%	27.5%	36.9%	46.3%	48.7%	52.5%
T. Rowe Price	9.7%	9.7%	9.7%	9.7%	13.5%	18.2%	24.7%	32.1%	40.0%	48.6%	54.8%
Vanguard	9.8%	9.8%	9.8%	9.8%	15.9%	23.1%	30.3%	37.3%	46.8%	60.2%	68.1%
WCAB	12.2%	12.2%	13.1%	13.1%	14.4%	15.2%	18.4%	21.6%	22.7%	26.2%	42.3%



Source: Morningstar Direct



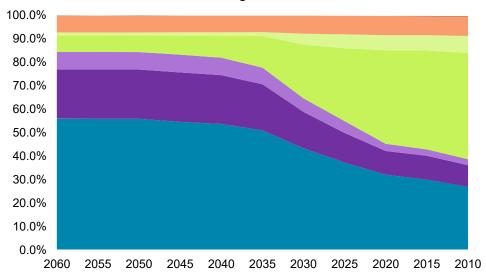
0.078	2060	2055	2050	2045	2040	2035	2030	2025	2020	2015	2010
American Funds	7.1%	7.1%	7.1%	7.1%	7.1%	7.0%	7.7%	7.9%	8.2%	8.2%	8.4%
T. Rowe Price	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.8%	2.9%	3.4%	3.7%	4.0%
Vanguard	2.1%	2.1%	2.1%	2.1%	2.0%	2.0%	1.9%	1.9%	1.9%	2.0%	2.0%
WCAB	2.7%	2.5%	2.6%	3.6%	6.2%	10.1%	13.7%	18.3%	24.9%	29.3%	23.7%



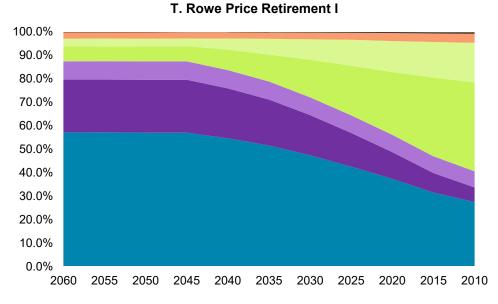
Source: Morningstar Direct

#### Target Date Fund Allocation by Sub Asset Class

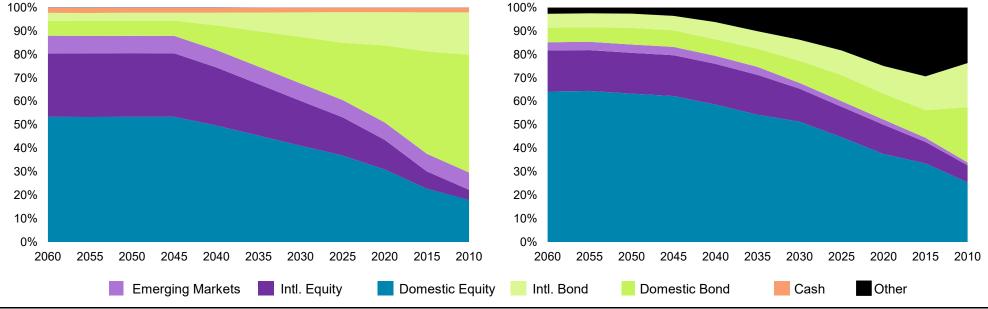
**American Funds Target Date Retirement R6** 



Vanguard Target Retirement Inv.



WCAB Retirement



Source: Morningstar Direct

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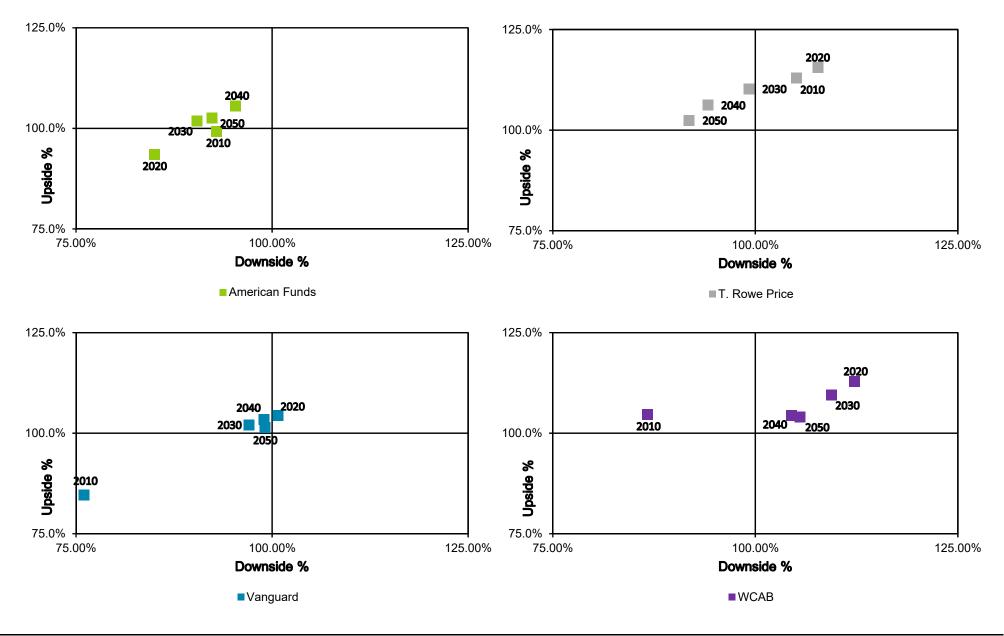
**Up Capture** refers to the amount of returns a target date investment is able to capture during months in which the relevant Standard & Poor's target date index had positive results. An upside capture ratio of greater than 100% indicates that the manager was able to capture more returns in months in which its benchmark was positive. In up capture, a higher number is preferred.

**Down Capture** refers to the amount of negative returns a target date investment captured during months in which Standard & Poor's target date index benchmark had negative results. A downside capture ratio of greater than 100% would indicate that the manager experienced more negative returns in months in which its benchmark was negative. In down capture, a lower number is preferred.

Up Capture	2050	2040	2030	2020	2010
American Funds	102.6%	105.6%	101.9%	93.6%	99.3%
T. Rowe Price	102.4%	106.2%	110.3%	115.5%	113.0%
Vanguard	101.5%	103.5%	102.1%	104.5%	84.7%
WCAB	104.1%	104.5%	109.5%	112.9%	104.7%

Down Capture	2050	2040	2030	2020	2010
American Funds	92.3%	95.3%	90.5%	85.0%	92.9%
T. Rowe Price	91.8%	94.1%	99.2%	107.8%	105.1%
Vanguard	99.1%	99.0%	97.1%	100.7%	76.0%
WCAB	105.5%	104.5%	109.4%	112.3%	86.7%







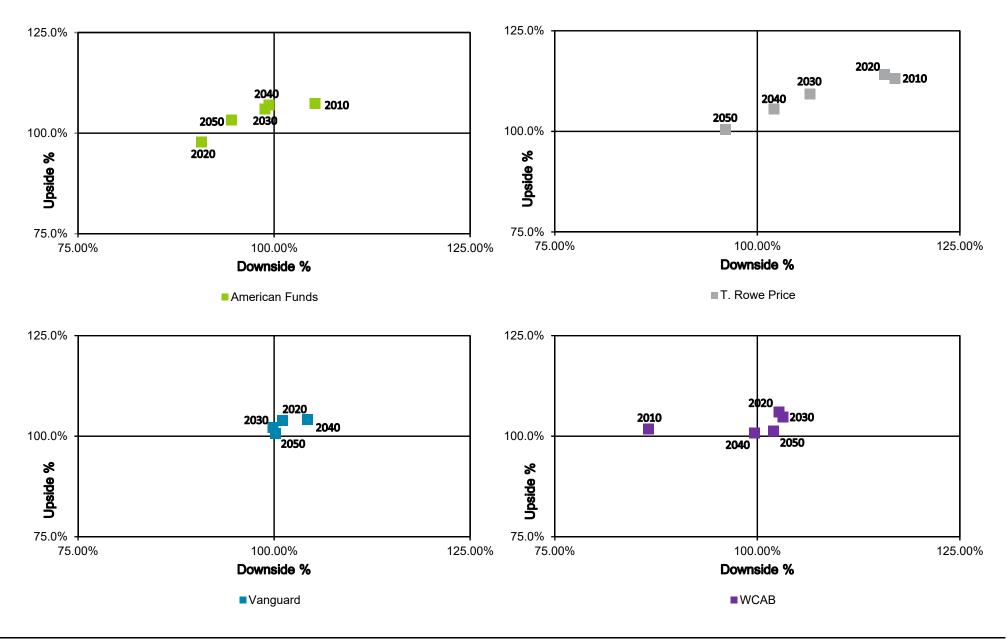
**Up Capture** refers to the amount of returns a target date investment is able to capture during months in which the relevant Standard & Poor's target date index had positive results. An upside capture ratio of greater than 100% indicates that the manager was able to capture more returns in months in which its benchmark was positive. In up capture, a higher number is preferred.

**Down Capture** refers to the amount of negative returns a target date investment captured during months in which Standard & Poor's target date index benchmark had negative results. A downside capture ratio of greater than 100% would indicate that the manager experienced more negative returns in months in which its benchmark was negative. In down capture, a lower number is preferred.

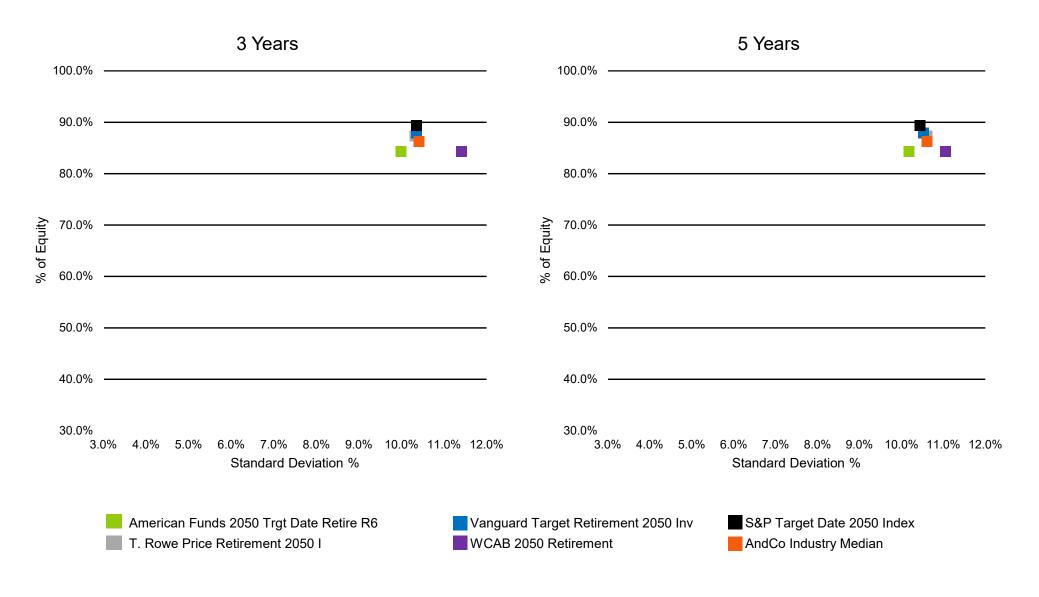
Up Capture	2050	2040	2030	2020	2010
American Funds	103.2%	106.9%	106.0%	97.8%	107.4%
T. Rowe Price	100.6%	105.6%	109.3%	114.3%	113.2%
Vanguard	100.8%	104.2%	102.2%	103.9%	84.6%
WCAB	101.4%	100.8%	104.8%	106.1%	101.8%

Down Capture	2050	2040	2030	2020	2010
American Funds	94.6%	99.3%	98.8%	90.7%	105.3%
T. Rowe Price	96.1%	102.1%	106.5%	115.7%	117.0%
Vanguard	100.2%	104.3%	99.9%	101.1%	73.9%
WCAB	102.0%	99.6%	103.2%	102.6%	86.5%



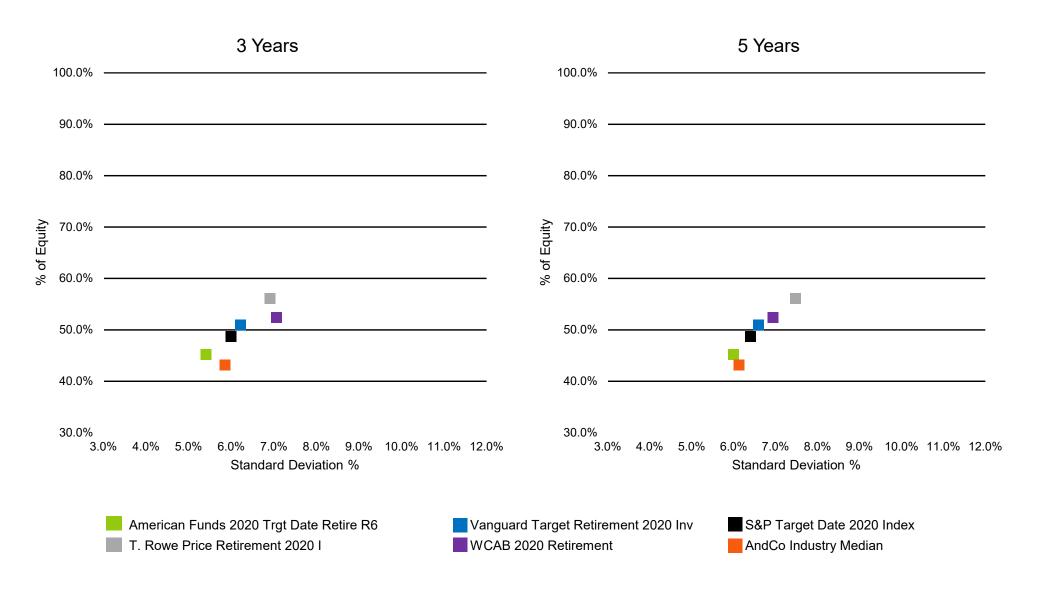








Target 2020 - Total Risk Relative to % Equity





**Target Date Performance Summary** 

Target Date 2060+	DELITY									Inception	Date
	DEUTY										
American Funds 2060 Trgt Date Retire R6	RFUTX	6.0	24	11.9	5	N/A		N/A		8.6	3/27/2015
T. Rowe Price Retirement 2060 I	TRPLX	6.3	14	12.0	2	7.3	7	N/A		11.7	9/29/2015
Vanguard Target Retirement 2060 Inv	VTTSX	5.9	36	11.0	40	6.8	34	N/A		10.0	1/19/2012
WCAB 2060 Retirement		4.0	93	N/A		N/A		N/A		11.3	10/31/2016
S&P Target Date 2060+ Index		5.1		11.0		6.9		N/A			
AndCo Industry Average		5.5		10.9		6.6		N/A			
Target Date 2055											
American Funds 2055 Trgt Date Retire R6	RFKTX	6.0	24	11.9	2	7.9	1	N/A		10.7	2/1/2010
T. Rowe Price Retirement 2055 I	TRPNX	6.2	15	12.0	1	7.3	11	12.0	1	11.8	9/29/2015
Vanguard Target Retirement 2055 Inv	VFFVX	5.9	29	11.0	32	6.8	28	N/A		10.3	8/18/2010
WCAB 2055 Retirement		4.0	86	N/A		N/A		N/A		11.3	10/31/2016
S&P Target Date 2055 Index		5.0		10.8		6.8		11.2			
AndCo Industry Average		5.3		10.6		6.4		10.6			
Target Date 2050											
American Funds 2050 Trgt Date Retire R6	RFITX	6.1	20	12.0	1	8.0	1	11.9	2	12.2	7/13/2009
T. Rowe Price Retirement 2050 I	TRPMX	6.2	16	12.0	1	7.3	9	12.0	1	11.8	9/29/2015
Vanguard Target Retirement 2050 Inv	VFIFX	5.9	30	11.0	28	6.9	26	11.2	22	7.1	6/7/2006
WCAB 2050 Retirement		3.9	87	10.9	34	6.8	32	11.4	14	6.6	7/31/2007
S&P Target Date 2050 Index		5.0		10.6		6.7		11.1			
AndCo Industry Average		5.4		10.4		6.3		10.8			



**Target Date Performance Summary** 

Investment Option	Ticker	1 Year	Rank	3 Years	Rank	5 Years	Rank	10 years	Rank	Since Inception	Inception Date
Target Date 2045											
American Funds 2045 Trgt Date Retire R6	RFHTX	6.1	21	11.8	2	7.9	1	11.9	2	12.1	7/13/2009
T. Rowe Price Retirement 2045 I	TRPKX	6.2	19	12.0	1	7.3	8	12.0	1	11.8	9/29/2015
Vanguard Target Retirement 2045 Inv	VTIVX	5.9	29	12.0	26	6.9	22	12.0	15	7.8	10/27/2003
WCAB 2045 Retirement	VIIVX	3.9	89	N/A	20	0.0 N/A	~~~	N/A	10	11.1	10/31/2016
S&P Target Date 2045 Index		5.2	00	10.3		6.6		10.9			10/01/2010
AndCo Industry Average		5.4		10.3		6.3		10.9			
And the industry Average		5.4		10.4		0.5		10.0			
Target Date 2040											
American Funds 2040 Trgt Date Retire R6	RFGTX	6.1	24	11.6	3	7.7	1	11.8	1	11.2	7/27/2009
T. Rowe Price Retirement 2040 I	TRPDX	6.3	20	11.8	1	7.2	7	11.9	1	11.7	9/29/2015
Vanguard Target Retirement 2040 Inv	VFORX	6.0	29	10.8	26	6.7	22	11.2	21	7.0	6/7/2006
WCAB 2040 Retirement		4.1	90	10.5	34	6.7	25	10.9	34	6.6	7/31/2007
S&P Target Date 2040 Index		5.3		10.0		6.5		10.7			
AndCo Industry Average		5.5		10.1		6.2		10.5			
Target Date 2035											
American Funds 2035 Trgt Date Retire R6	RFFTX	6.1	28	11.1	6	7.5	1	11.6	2	11.9	7/13/2009
T. Rowe Price Retirement 2035 I	TRPJX	6.4	20	11.3	3	7.0	8	11.7	1	11.3	9/29/2015
Vanguard Target Retirement 2035 Inv	VTTHX	6.2	26	10.1	33	6.5	22	10.9	20	7.4	10/27/2003
WCAB 2035 Retirement		4.2	96	N/A		N/A		N/A		10.3	10/31/2016
S&P Target Date 2035 Index		5.4		9.5		6.2		10.4			
AndCo Industry Average		5.7		9.6		5.9		10.2			



**Target Date Performance Summary** 

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Investment Option	Ticker	1 Year	Rank	3 Years	Rank	5 Years	Rank	10 years	Rank	Since Inception	Inception Date
Target Date 2030											
American Funds 2030 Trgt Date Retire R6	RFETX	6.3	28	9.9	12	6.9	1	11.2	1	11.5	7/13/2009
T. Rowe Price Retirement 2030 I	TRPCX	6.6	20	10.6	2	6.7	4	11.3	1	10.8	9/29/2015
Vanguard Target Retirement 2030 Inv	VTHRX	6.4	25	9.4	30	6.2	16	10.3	27	6.6	6/7/2006
WCAB 2030 Retirement		4.4	93	9.7	17	6.3	13	10.2	34	6.5	7/31/2007
S&P Target Date 2030 Index		5.6		8.8		5.9		9.9			
AndCo Industry Average		5.8		8.8		5.6		9.9			
Target Date 2025											
American Funds 2025 Trgt Date Retire R6	RFDTX	6.3	34	8.4	28	6.1	1	10.5	2	10.7	7/13/2009
T. Rowe Price Retirement 2025 I	TRPHX	6.7	21	9.8	2	6.3	1	10.7	1	10.1	9/29/2015
Vanguard Target Retirement 2025 Inv	VTTVX	6.6	25	8.7	19	5.9	6	9.8	25	6.8	10/27/2003
WCAB 2025 Retirement		4.7	92	N/A		N/A		N/A		9.3	10/31/2016
S&P Target Date 2025 Index		5.7		8.1		5.5		9.3			
AndCo Industry Average		6.0		7.9		5.1		9.3			
Target Date 2020											
American Funds 2020 Trgt Date Retire R6	RRCTX	6.5	28	7.3	32	5.5	7	9.5	3	9.6	7/13/2009
T. Rowe Price Retirement 2020 I	TRBRX	6.7	21	8.9	2	5.8	1	10.0	1	9.3	9/29/2015
Vanguard Target Retirement 2020 Inv	VTWNX	6.5	30	7.8	17	5.5	5	9.2	15	6.3	6/7/2006
WCAB 2020 Retirement		4.8	91	8.3	6	5.7	1	9.0	25	6.0	7/31/2007
S&P Target Date 2020 Index		5.8		7.3		5.2		8.7			
AndCo Industry Average		6.0		6.9		4.7		8.3			



## Performance Summary As of June 30, 2019

# Target Date Performance Summary

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Investment Option	Ticker	1 Year	Rank	3 Years	Rank	5 Years	Rank	10 years	Rank	Since Inception	Inception Date
Target Date 2015											
American Funds 2015 Trgt Date Retire R6	RFJTX	6.7	21	6.4	48	5.1	13	8.7	5	8.9	7/13/2009
T. Rowe Price Retirement 2015 I	TRFGX	6.8	15	7.8	5	5.2	6	9.2	1	8.4	9/29/2015
Vanguard Target Retirement 2015 Inv	VTXVX	6.5	31	6.7	38	4.9	28	8.3	36	6.2	10/27/2003
WCAB 2015 Retirement		5.0	89	N/A		N/A		N/A		7.9	10/31/2016
S&P Target Date 2015 Index		5.8		6.5		4.8		7.9			
AndCo Industry Average		5.9		6.4		4.4		8.1			
Target Date 2010											
American Funds 2010 Trgt Date Retire R6	RFTTX	6.6	29	6.0	38	4.8	7	8.2	2	8.4	7/13/2009
T. Rowe Price Retirement 2010 I	TRPAX	6.8	15	6.9	5	4.7	11	8.3	1	7.6	9/29/2015
Vanguard Target Retirement Income Inv	VTINX	6.5	30	5.2	81	4.2	50	6.4	82	5.3	10/27/2003
WCAB Income Retirement		5.7	64	6.8	8	5.1	1	7.9	24	5.7	7/31/2007
S&P Target Date 2010 Index		5.9		5.8		4.3		7.0			
AndCo Industry Average		6.1		5.9		4.2		7.5			



### Target Date Risk and Return Summary

Three Years												
	2050			2040				2030		2020		
	Return	Standard Deviation	Sharpe Ratio									
American Funds	12.0%	10.0%	1.04	11.6%	9.6%	1.03	9.9%	7.8%	1.06	7.3%	5.4%	1.05
T. Rowe Price	12.0%	10.3%	1.01	11.8%	10.0%	1.02	10.6%	8.7%	1.04	8.9%	6.9%	1.05
Vanguard	11.0%	10.4%	0.92	10.8%	9.8%	0.95	9.4%	8.1%	0.97	7.8%	6.2%	1.00
WCAB	10.9%	11.4%	0.84	10.5%	10.6%	0.85	9.7%	9.3%	0.89	8.3%	7.1%	0.95
S&P Target Date Index	10.6%	10.4%	0.89	10.0%	9.7%	0.88	8.8%	8.1%	0.90	7.3%	6.0%	0.96
AndCo Industry Average	10.4%	10.4%	0.86	10.1%	9.9%	0.88	8.8%	8.1%	0.91	6.9%	5.9%	0.92

**Five Years** 

	2050			2040				2030		2020		
	Return	Standard Deviation	Sharpe Ratio									
American Funds	8.0%	10.2%	0.72	7.7%	9.9%	0.71	6.9%	8.4%	0.73	5.5%	6.0%	0.77
T. Rowe Price	7.3%	10.6%	0.63	7.2%	10.4%	0.63	6.7%	9.2%	0.65	5.8%	7.5%	0.67
Vanguard	6.9%	10.5%	0.60	6.7%	10.2%	0.60	6.2%	8.4%	0.65	5.5%	6.6%	0.71
WCAB	6.8%	11.0%	0.56	6.7%	10.2%	0.60	6.3%	9.0%	0.63	5.7%	6.9%	0.70
S&P Target Date Index	6.7%	10.4%	0.59	6.5%	9.8%	0.60	5.9%	8.3%	0.62	5.2%	6.4%	0.67
AndCo Industry Average	6.3%	10.6%	0.54	6.2%	10.1%	0.55	5.6%	8.5%	0.59	4.7%	6.1%	0.63



**Alpha** - A measure of the difference between a portfolio's actual returns and its expected performance, given its level of risk as measured by beta.

**Batting Average –** A measure of a manager's ability to consistently beat the market. It is calculated by dividing the number of months in which the manager beat or matched an index by the total number of months in the period.

Best Quarter- This is the highest quarterly (3 month) return of the investment since its inception.

**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.

Down Period Percent - Number of months below 0 divided by the total number of months.

**Downmarket Capture Ratio** - The ratio of average portfolio performance over the designated benchmark during periods of negative returns. A lower value indicates better product performance.

Downside Std Dev - This measures only deviations below a specified benchmark.

Excess Return- This is a measure of an investment's return in excess of a benchmark.

**Information Ratio** - This calculates the value-added contribution of the manager and is derived by dividing the excess 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.

Longest Down-Streak Return - Return for the longest series of negative monthly returns.

Longest Down-Streak # of Periods - Longest series of negative monthly returns.

Longest Up-Streak Return - Return for the longest series of positive monthly returns.

Longest Up-Streak - Longest series of positive monthly returns.

Kurtosis - Kurtosis indicates the peakedness of a distribution. For normal distribution, Kurtosis is 3.

**Max Drawdown** - The peak to trough decline during a specific record period of an investment or fund. It is usually quoted as the percentage between the peak to the trough.

**Max Drawndown # of Periods** - This is the number of months that encompasses the max drawdown for an investment.

**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.

**Skewness** - Skewness reflects the degree of asymmetry of a distribution. If the distribution has a longer left tail, the function has negative skewness. Otherwise, it has positive skewness. A normal distribution

is symmetric with skewness 0.

**Sortino Ratio** - The Sortino Ratio is similar to Sharpe Ratio except it uses downside risk (Downside Deviation) in the denominator. It was developed in early 1980's by Frank Sortino. Since upside variability is not necessarily a bad thing, Sortino ratio is sometimes more preferable than Sharpe ratio.

**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.

**Tracking Error** - This is a measure of the standard deviation of a portfolio's excess returns versus its designated market benchmark.

**Treynor Ratio** - Similar to Sharpe Ratio, Treynor Ratio is a measurement of efficiency utilizing the relationship between annualized risk-adjusted return and risk. Unlike Sharpe Ratio, Treynor Ratio utilizes "market" risk (beta) instead of total risk (standard deviation). Good performance efficiency is measured by a high ratio.

Up period Percent - Number of months above 0 divided by the total number of months.

**Upmarket Capture Ratio** - The ratio of average portfolio performance over the designated benchmark during periods of positive returns. A higher value indicates better product performance.

**Value-Growth Score** - Morningstar assigns an Overall Value score and an Overall Growth score to each stock within a fund. Morningstar then calculates a net value-core-growth score for each stock by subtracting the stock's Overall Value score from its Overall Growth score. Once this is done, these raw scores are rescaled to range between -100 to 400 in order to fit within the Morningstar Style Box. Scores below 67 are classified as value, scores above 233 are classified as growth, and scores between 67 and 233 fit within the core boundaries.

Worst Quarter - This is the lowest quarterly (3 month) return of the investment since its inception.

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