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July 2018

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Target Date Strategies

ACTIVE TARGET DATE MANAGEMENT: IS IT WORTH IT?

Summary

- T. Rowe Price conducted a study to evaluate whether our active approach to target date management has outperformed passive strategies offered by our competitors. We examined the performance of 11 of our Retirement Funds (RFs), those for which we could identify competing passive strategies.
- We measured the performance of each T. Rowe Price RF in the study against a custom composite index based on the performance of passively managed funds with comparable target dates, as identified by Morningstar. This passive peer group index included the oldest share class offered by each passive target date fund during the relevant performance period. The results were equally weighted by fund.
- The RFs in the study outperformed their passive competitor indexes over most rolling 1-, 3-, 5-, and 10-year periods (rolled monthly) from their inception through December 31, 2017, net of fees.
- Excess returns relative to the passive competitor indexes also were positive, on average, across 1-, 3-, 5-, and 10-year rolling time periods for all funds that had full 10-year track records as of December 31, 2017.

When selecting a target date fund, defined contribution (DC) plan sponsors and individual investors can choose from both passively managed strategies—those that invest in an underlying basket of index funds—and actively managed strategies, which seek to enhance returns through security selection and/or tactical asset allocation moves to exploit potential short-term market opportunities.

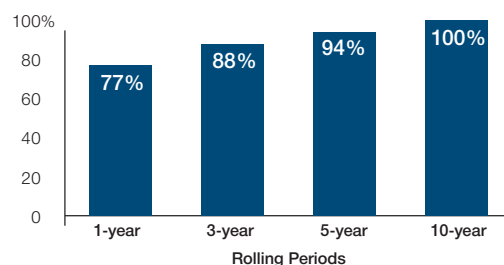
When considering active target date funds, investors may wonder if an active management approach justifies the higher management fees that such funds typically charge relative to their passive competitors.

Figure 1

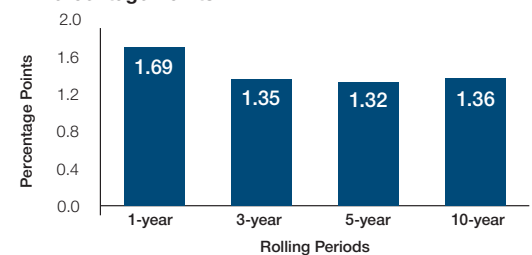
Relative to Passive Competitor Indexes, Fund Inceptions Through December 31, 2017

Value Added by T. Rowe Price's Target Date Process

Average Active Success Rates



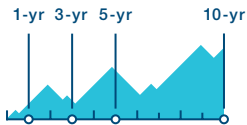
Time-Weighted Average Excess Returns¹ in Percentage Points



Sources: T. Rowe Price and Morningstar; all data analysis by T. Rowe Price.

Past performance is no guarantee of future results.

¹Averages were time-weighted based on the percentage of total rolling performance periods in each time frame provided by each RF.



Rolling Periods

We measured performance over a variety of periods covering the full track record of each RF, instead of just looking at the most recent 1-, 3-, 5-, and 10-year periods. Every calendar month marked the start of a new rolling period—so an RF that launched on September 30, 2002, for example, had 124 rolling five-year periods included in the study.



Active Success Rate

The active success rate records the percentage of times a fund beat its designated benchmark, net of fees and trading costs, over a specified time period (e.g., 10 years). Think of this as a measure of how often a client might look at his or her monthly statement and find that a fund has outperformed for that time period.

Excess Returns

A measure of fund performance relative to a comparison benchmark, such as the passive competitor indexes used in this paper. Excess return can be either positive or negative and typically is annualized over different time periods. The annualized return is what the investor could have earned if the rate of return during the period being measured had been maintained for one full year.

To demonstrate that T. Rowe Price's strategic investing process has created value for our clients, we recently examined the relative performance of 11 of our RFs. These 11 RFs held virtually all (98.83%) of the Retirement Fund assets managed by the firm as of December 31, 2017. The focus of our study was on performance relative to the passive target date strategies offered by our competitors.²

Study Results

Relative to the passive competitor indexes, the value added by T. Rowe Price's active RFs was both strongly positive and relatively stable across different time frames (Figure 1, page 1). Performance for individual RFs also was strongly positive, especially over the longer term (Figures 2 and 3, below):

- All nine of the RFs with 10-year track records included in the study outperformed their passive competitor indexes in 100% of rolling 10-year periods since inception.
- Eight of the 10 funds with five-year track records outperformed their passive competitor index in 90% or more of all rolling five-year periods since inception.
- All 11 RFs outperformed their passive competitor index in 79% or more of all three-year rolling periods since inception.
- Annualized excess returns relative to the passive competitor indexes were consistently positive, on average, across all time frames for all RFs.

Figure 2

Fund Inceptions Through December 31, 2017

Active Success Rates vs. Equally Weighted Passive Competitor Indexes

	Rolling Periods			
	1-Year	3-Year	5-Year	10-Year
Retirement 2010 Fund	79%	82%	81%	100%
Retirement 2015 Fund	74	79	87	100
Retirement 2020 Fund	78	82	91	100
Retirement 2025 Fund	74	79	93	100
Retirement 2030 Fund	80	90	99	100
Retirement 2035 Fund	72	89	99	100
Retirement 2040 Fund	84	99	100	100
Retirement 2045 Fund	74	88	100	100
Retirement 2050 Fund	73	98	100	100
Retirement 2055 Fund	83	100	100	N/A
Retirement 2060 Fund	71	100	N/A	N/A

Sources: T. Rowe Price and Morningstar; all data analysis by T. Rowe Price.

Figure 3

Percentage Points, Fund Inceptions Through December 31, 2017

Excess Returns vs. Equally Weighted Passive Competitor Indexes

	Rolling Periods			
	1-Year	3-Year	5-Year	10-Year
Retirement 2010 Fund	2.41	1.67	1.47	2.11
Retirement 2015 Fund	1.47	1.08	1.13	0.56
Retirement 2020 Fund	2.29	1.72	1.55	1.85
Retirement 2025 Fund	1.74	1.24	1.22	0.70
Retirement 2030 Fund	2.16	1.73	1.58	1.86
Retirement 2035 Fund	1.43	1.07	1.07	0.70
Retirement 2040 Fund	1.63	1.47	1.46	1.70
Retirement 2045 Fund	1.12	0.89	0.99	0.56
Retirement 2050 Fund	1.13	1.18	1.20	0.63
Retirement 2055 Fund	1.20	1.11	1.19	N/A
Retirement 2060 Fund	0.61	0.64	N/A	N/A

Sources: T. Rowe Price and Morningstar; all data analysis by T. Rowe Price.

²The performance of active target date funds reflects both the glide-path mix and the value added or subtracted through security selection and/or tactical allocation. For more information on the T. Rowe Price funds used in this study, please visit troweprice.com.

“ We believe the value added by our target date implementation can meaningfully enhance retirement outcomes for investors.

Study Methodology

To represent the passive alternatives to T. Rowe Price’s actively managed target date strategies, we used a series of composite performance indexes consisting of passively managed target date funds identified by Morningstar, a leading mutual fund data provider, in its annual Target-Date Fund Landscape Report. These indexes included passive funds offered by major target date providers, such as the Vanguard Group, Fidelity Investments, BlackRock, Inc., and Wells Fargo & Company.³

The comparison index for each T. Rowe Price RF included the passive funds in the Morningstar universe with the same target date as the RF. The returns on these indexes were based on an equally weighted average of the oldest share class offered by each competing passive fund. The asset weights for all these funds as of December 31, 2017, can be found in Figure A3 in the appendix on page 6.

While in the same category, there may be material differences among target date funds, including fees, expenses, and the portfolio mix of stocks, bonds, and other assets. Target date funds typically change their asset class allocations over time according to a predetermined glide path. Security selection within the underlying investments that make up those allocations can vary greatly between fund families and may have a material impact on fund performance.

Retirement Fund relative performance was measured across rolling 1-, 3-, 5-, and 10-year periods (rolled monthly) from each fund’s inception date through December 31, 2017. Thus, the older the RF, the more rolling performance periods it had in each time frame studied.

Two performance measures were calculated for each RF:

- **Active success rate:** The percentage of total rolling periods in which the RF outperformed its passive competitor index. Active success was defined as achieving a positive active success rate in more than 50% of the total rolling performance periods in a given time frame.
- **Excess return:** The return for each RF relative to its passive competitor index, averaged across all rolling performance periods in a given time frame.

To provide a high-level summary of the relative effectiveness of T. Rowe Price’s target date process, we also calculated performance averages covering the 11 RFs in the study (Figure 1, page 1). These averages were time-weighted based on the percentage of the total rolling performance periods in each time frame provided by each RF.

Retirement Funds Excluded From the Study

One T. Rowe Price RF—the Retirement 2005 Fund—was excluded from the study entirely because it had only one passive competing fund in the Morningstar universe over the one-, three-, and five-year rolling periods since its inception and none over 10-year rolling periods. Ten-year performance for the Retirement 2055 Fund was excluded from the study because we could not identify a comparable passive competitor in the Morningstar universe.

The Retirement 2060 Fund, which began operations in June 2014, was included in the study but had no 5- or 10-year performance periods as of December 31, 2017.

Our Approach to Strategic Investing

T. Rowe Price’s target date process seeks to improve outcomes for our target date clients at multiple levels—via glide-path design, long-term diversification, tactical asset allocation, and our strategic investing approach. We believe the value added by our target date implementation can meaningfully enhance retirement outcomes for investors.

Bottom-up fundamental research is at the core of how we manage the underlying strategies in our target date funds. That means that over 350 of our investment professionals go beyond the numbers by visiting senior corporate executives in their offices, touring their companies, and checking reality on the ground with suppliers and customers.⁴ This enables them to ask the right questions to get a deeper understanding of where a company stands and where they think it could go in the future.

Our target date managers, backed by our committee of asset allocation experts from across multi-asset, equity, and fixed income, seek to get ahead of change by identifying attractive near-term asset valuations and using prudent tactical allocation adjustments to take advantage of those potential opportunities.

Experience has been a critical component of our success as well. Our skilled portfolio managers have deep experience—an average of 21 years in the industry and 16 years with T. Rowe Price.⁵ Significantly, many of our analysts go on to become portfolio managers, which we believe creates a strong foundation on behalf of our clients.

³More details on the study methodology can be found in the appendix on page 5. For a list of the funds included in the study and their inception dates, please see Figure A1 in the appendix. The number of rolling performance periods in each time frame for each fund are shown in Figure A2 in the appendix.

⁴Investment staff as of December 31, 2017. Includes 104 portfolio managers, 24 associate portfolio managers, 148 investment analysts, 47 associate analysts, 10 multi-asset specialists, 3 specialty analysts, 2 strategists, and 17 senior managers.

⁵As of December 31, 2017.

Important Information

STANDARDIZED PERFORMANCE

Annualized Total Returns for Periods Ended June 30, 2018

Fund (Inception Date)	Gross Expense Ratio*	Ticker	1-Year	3-Year	5-Year	10-Year
Retirement 2010 Fund (NAV) (9/30/2002)	0.57%	TRRAX	4.94%	6.20%	6.20%	7.46%
Retirement 2010 Combined Index Portfolio**			5.39	5.16	6.18	5.55
Retirement 2015 Fund (NAV) (2/27/2004)	0.59	TRRGX	5.88	5.88	7.10	6.47
Retirement 2015 Combined Index Portfolio**			6.33	5.83	7.04	6.11
Retirement 2020 Fund (NAV) (9/30/2002)	0.63	TRRBX	7.02	6.64	8.06	6.98
Retirement 2020 Combined Index Portfolio**			7.55	6.66	7.94	6.60
Retirement 2025 Fund (NAV) (2/27/2004)	0.67	TRRHX	8.04	7.27	8.89	7.38
Retirement 2025 Combined Index Portfolio**			8.56	7.32	8.70	7.02
Retirement 2030 Fund (NAV) (9/30/2002)	0.69	TRRCX	8.99	7.88	9.61	7.76
Retirement 2030 Combined Index Portfolio**			9.56	7.95	9.38	7.38
Retirement 2035 Fund (NAV) (2/27/2004)	0.72	TRRJX	9.75	8.29	10.14	8.02
Retirement 2035 Combined Index Portfolio**			10.36	8.43	9.88	7.66
Retirement 2040 Fund (NAV) (9/30/2002)	0.74	TRRDY	10.37	8.62	10.52	8.26
Retirement 2040 Combined Index Portfolio**			11.02	8.82	10.27	7.89
Retirement 2045 Fund (NAV) (5/31/2005)	0.74	TRRKX	10.67	8.81	10.64	8.32
Retirement 2045 Combined Index Portfolio**			11.35	9.02	10.39	7.95
Retirement 2050 Fund (NAV) (12/29/2006)	0.74	TRRMX	10.64	8.82	10.63	8.31
Retirement 2050 Combined Index Portfolio**			11.35	9.02	10.39	7.95
Retirement 2055 Fund (NAV) (12/29/2006)	0.74	TRRNK	10.62	8.79	10.63	8.30
Retirement 2055 Combined Index Portfolio**			11.35	9.02	10.39	7.95
Retirement 2060 Fund (NAV) (6/23/2014)†	0.74	TRRLX	10.70	8.81	N/A	N/A
Retirement 2060 Combined Index Portfolio**			11.35	9.02	N/A	N/A

†Annualized return since inception: 7.59%.

*End of most recent fiscal year as of 6/30/18.

**The Combined Index Portfolio, which is the broad-weighted benchmark for each fund, is an unmanaged portfolio composed of the Russell 3000 Index, MSCI All Country World Index ex USA, Bloomberg Barclays U.S. Aggregate Bond Index, and Bloomberg Barclays U.S. 1-5 Year Treasury TIPS Index.

Source: T. Rowe Price.

Current performance may be higher or lower than the quoted past performance, which cannot guarantee future results. Share price, principal value, and return will vary, and you may have a gain or loss when you sell your shares. The performance information shown does not reflect the deduction of any redemption fee; if it did, the performance would be lower. To obtain the most recent month-end performance, please visit our website or contact a T. Rowe Price representative at 1-800-225-5132. The average annual total return figures include changes in principal value, reinvested dividends, and capital gain distributions.

Appendix

The relative performances of 11 T. Rowe Price Retirement Funds (Figure A1) were examined across 1-, 3-, 5-, and 10-year rolling periods (rolled monthly) since RF inception through December 31, 2017. Because inception dates—and, thus, fund longevities—differed, the number of rolling performance periods also varied for each RF. The total rolling periods in each time frame for each RF are shown in Figure A2.

Returns for each T. Rowe Price RF were compared with the returns on an equally weighted index of competing passive target date funds. This average was calculated based on the net asset value (NAV) performance of the oldest share class offered by each competing passive fund.

How the Passive Competitor Indexes Were Constructed

The target date funds included in the competitor indexes were those defined as passive by Morningstar as part of its most recent annual Target-Date Fund Landscape report.⁶ Only funds that were open and available to investors as of December 31, 2017, were included in the passive competitor indexes. To the extent this created survivorship bias in the index returns, it is highly likely it worked in favor of passive performance.

For each RF, an index was constructed of competing passive funds sharing the same target date. This index incorporated the oldest share classes offered by the competing funds, and the returns were equally weighted at the beginning of each performance period. The competing funds and their weights in the passive competitor indexes are shown in Figure A3.

Returns for the RFs and the passive competitors were based on daily net asset values and thus reflected the subtraction of management fees and other investment costs from both sets of funds.

As of December 31, 2017, the Morningstar passive competitor universe consisted of 14 fund families offering a total of 145 passive funds.⁷ However, the competitor indexes included only those funds with the same target dates as the RFs in the study. Relatively few competing funds existed over some performance periods, particularly for older RFs.

Figure A1

Retirement Funds Included in This Performance Study

Fund	Inception Date	Fund	Inception Date
Retirement 2010 Fund	9/30/02	Retirement 2045 Fund	5/31/05
Retirement 2015 Fund	2/27/04	Retirement 2050 Fund	12/29/06
Retirement 2020 Fund	9/30/02	Retirement 2055 Fund	12/29/06
Retirement 2025 Fund	2/27/04	Retirement 2060 Fund	6/23/14
Retirement 2030 Fund	9/30/02		
Retirement 2035 Fund	2/27/04		
Retirement 2040 Fund	9/30/02		

Source: T. Rowe Price.

Figure A2

Rolling Performance Periods in Each Time Frame

Fund Inceptions
Through December 31, 2017

	Time Frames			
	1-Year	3-Year	5-Year	10-Year
Retirement 2010 Fund	172	148	124	64
Retirement 2015 Fund	155	131	107	47
Retirement 2020 Fund	172	148	124	64
Retirement 2025 Fund	155	131	107	47
Retirement 2030 Fund	172	148	124	64
Retirement 2035 Fund	155	131	107	47
Retirement 2040 Fund	172	148	124	64
Retirement 2045 Fund	140	116	92	32
Retirement 2050 Fund	121	97	73	13
Retirement 2055 Fund	86	62	38	0
Retirement 2060 Fund	31	7	0	0

Source: T. Rowe Price.

⁶Morningstar Inc., *2017 Target-Date Fund Landscape: Answers to Frequently Asked Questions*, April 20, 2017.

⁷One fund family, John Hancock Multi-Index 2030 Portfolios, offers target date funds following two different glide paths—the Lifetime and Income Preservation glide paths.

Figure A3 Fund Weights in Passive Competitor Indexes

Based on Equal Weights for the Competing Funds in Each Target Year Index as of December 31, 2017

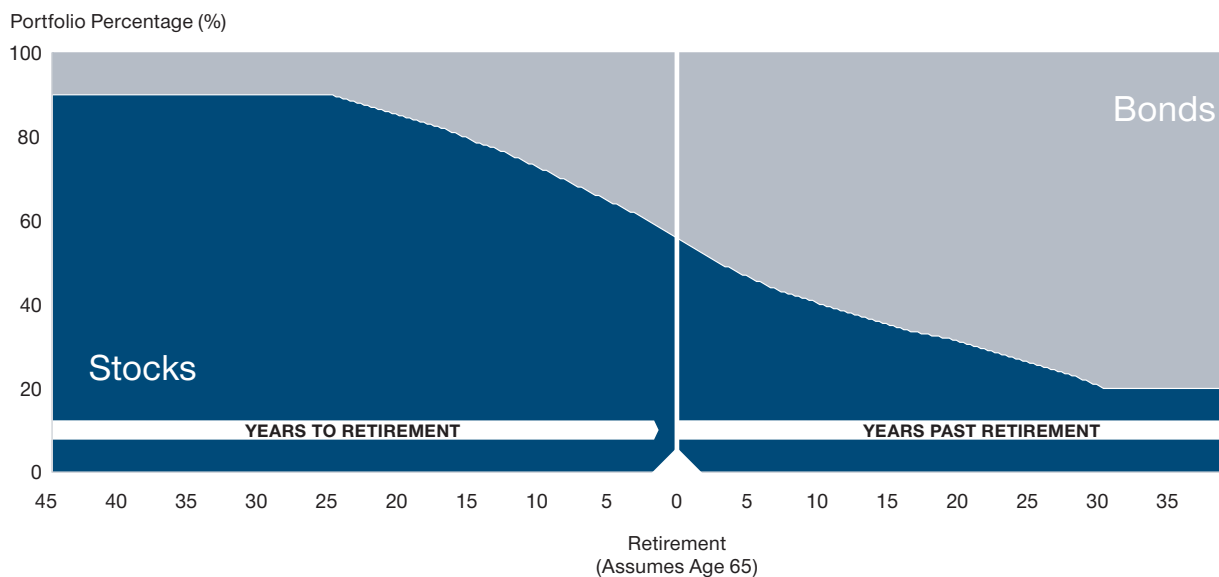
Target Date Offerings	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060
1290 Retirement	—	—	—	—	—	—	—	—	—	—	—
BlackRock LifePath® Index	—	—	7.14%	7.69%	7.14%	7.69%	7.14%	7.69%	7.14%	8.33%	9.09%
ClearTrack	—	10.00%	7.14	7.69	7.14	7.69	7.14	7.69	7.14	—	—
Fidelity Freedom® Index	16.67%	10.00	7.14	7.69	7.14	7.69	7.14	7.69	7.14	8.33	9.09
Great-West SecureFoundation®	—	10.00	7.14	7.69	7.14	7.69	7.14	7.69	7.14	8.33	—
JHancock Multi-Index Lifetime	16.67	10.00	7.14	7.69	7.14	7.69	7.14	7.69	7.14	8.33	9.09
JHancock Multi-Index Income Preservation	—	—	7.14	7.69	7.14	7.69	7.14	7.69	7.14	8.33	9.09
Nationwide Destination	16.67	10.00	7.14	7.69	7.14	7.69	7.14	7.69	7.14	8.33	9.09
Schwab Target Index	16.67	10.00	7.14	7.69	7.14	7.69	7.14	7.69	7.14	8.33	9.09
State Farm LifePath	—	—	7.14	—	7.14	—	7.14	—	7.14	—	—
State Street Target Retirement	—	10.00	7.14	7.69	7.14	7.69	7.14	7.69	7.14	8.33	9.09
TIAA-CREF Lifecycle Index	16.67	10.00	7.14	7.69	7.14	7.69	7.14	7.69	7.14	8.33	9.09
Vanguard Target Retirement	—	10.00	7.14	7.69	7.14	7.69	7.14	7.69	7.14	8.33	9.09
Voya Index Solution	—	—	7.14	7.69	7.14	7.69	7.14	7.69	7.14	8.33	9.09
Wells Fargo Target	16.67	10.00	7.14	7.69	7.14	7.69	7.14	7.69	7.14	8.33	9.09
Total*	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Number of Funds in Index	6	10	14	13	14	13	14	13	14	12	11

*Weights may not total exactly to 100% due to rounding.

Sources: Morningstar and T. Rowe Price; all data analysis by T. Rowe Price.

Figure A4 Glide Path for T. Rowe Price Retirement Funds

Change in Equity and Fixed Income Exposure Over Time



Source: T. Rowe Price.

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