Target-Date Series Research Paper
2013 Survey

Contents

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Executive Summary

As the target-date industry continues to mature, it is displaying both predictable and surprising attributes. Predictably, its organic growth rate is slowing as target-date series have become established fixtures in defined-contribution plans. Fees in the series continue to fall as assets flow in, and post-2008 returns have been strong, reflecting broad market trends.

Surprisingly, some of the industry's debate over how to best manage target-date series' asset allocation may be overdone. A Morningstar analysis of the average industry glide path shows it will meet most retirees' spending needs, and funds with significantly different asset allocations have delivered similar returns in recent years.

Other factors may contribute to these investments' relative success over the long term. A new Morningstar study of data on the firms offering the target-date series suggests a tie between better stewardship practices and stronger risk-adjusted performance.

Here are some specific findings from Morningstar's annual study:

- Target-date series assets crossed the $500 billion mark in 2013's first quarter, marking strong growth in a maturing industry.

- The industry's market leaders—Vanguard, Fidelity, and T. Rowe Price—maintain their hold on the industry. The three still control about three fourths of the industry's assets, despite impressive growth from some of the industry's smaller players.

- Morningstar's analysis of target-date glide paths showed most should deliver similar results that should sufficiently support retiree spending to age 85. Results begin to notably diverge beyond that age, however, with glide paths with less exposure to stocks carrying increased risk that retirees will outlive their savings.

- Glide paths that shift their asset allocation to retirement and those that continue to shift after retirement are likely to produce similar outcomes for investors up to age 85, Morningstar found. Beyond that age, however, results diverge.

- Rising markets in 2012 and early 2013 helped target-date series turn in strong absolute returns, with equity-heavy series faring particularly well overall. But glide paths that emphasize equities tend to produce more-volatile returns.

- Over longer-term periods, including the five-year range that includes 2008's market crash, there's less of a direct tie between equity exposure, volatility, and returns, with low-equity funds such as Wells Fargo DJ Target 2015 delivering returns that match those of equity-rich T. Rowe Price Retirement 2015.

- Morningstar's attribution methodology for target-date series shows few managers have improved performance with the selections they've made beyond the funds' asset allocation and expenses.

- Fees continue to fall at target-date series. The asset-weighted average expense ratio was 0.91% in 2012, down from 0.99% in 2011 and 1.04% in 2008.

- Target-date assets are shifting to passive. Not only have organic growth rates of index-based target-date series been outpacing actively managed series for the past several years, but 2012 marked the first calendar year in which dollar flows into passive series surpassed those going into active target-date funds.

- Target-date funds have taken an increasingly international bent since 2005. Over that period, international stocks have risen from 24% of the average 2040 fund's equity sleeve to 36%. Since 2008, the number of distinct foreign bond funds used within target-date series has also risen significantly.

- The average tenure of target-date managers trails the broader mutual fund industry average, and manager investment in target-date shares remains relatively rare.

- A Morningstar analysis of the firms offering target-date series found that firms with strong stewardship attributes have delivered better risk-adjusted returns than firms with weaker stewardship attributes.

Target-Date Asset Flows

Target-date funds continued to collect retirement investors' assets at an impressive clip in 2012, whether viewed on an absolute or relative basis. Target-date mutual funds took in $54.8 billion in net new flows last year, reaching a total of $484.8 billion. The first quarter of 2013 saw an additional $23 billion in new assets, and target-date assets as of March 31, 2013, stood at $508 billion.

On an organic growth basis, flows remained healthy, but as has been the case over the past several years, the growth rate for target-date funds is leveling off. As shown in Exhibit 1, growth rates have been declining steadily since 2007, immediately following the passing of the Pension Protection Act of 2006, though 2012's 15% organic growth rate nearly matched 2011's 16% rate. This slowing growth rate is in some ways inevitable, as a large percentage of retirement plans already have begun defaulting investors into target-date investments; much of the new growth comes from younger investors with lower balances and salaries. In addition, some portion of the slowing growth may reflect companies switching to CIT or custom target-date structures, and while those assets are still technically within target-date designs, they are not captured in Morningstar's mutual fund database. (Morningstar had more than $229 billion in CIT target-date assets voluntarily reported to its database in May 2013.)

Still, as noted in Exhibit 2, the industry's growth rate remains more than competitive with other broad mutual fund asset classes. Indeed, over the past three years, target-date funds have grown faster than other core asset classes, surpassed only by commodities and alternatives, which

Exhibit 1

Net Assets and Organic Growth Rates, U.S. Target-Date Mutual Funds, 2005–2012

Data through 12/31/2012.
Source: Morningstar, Inc.

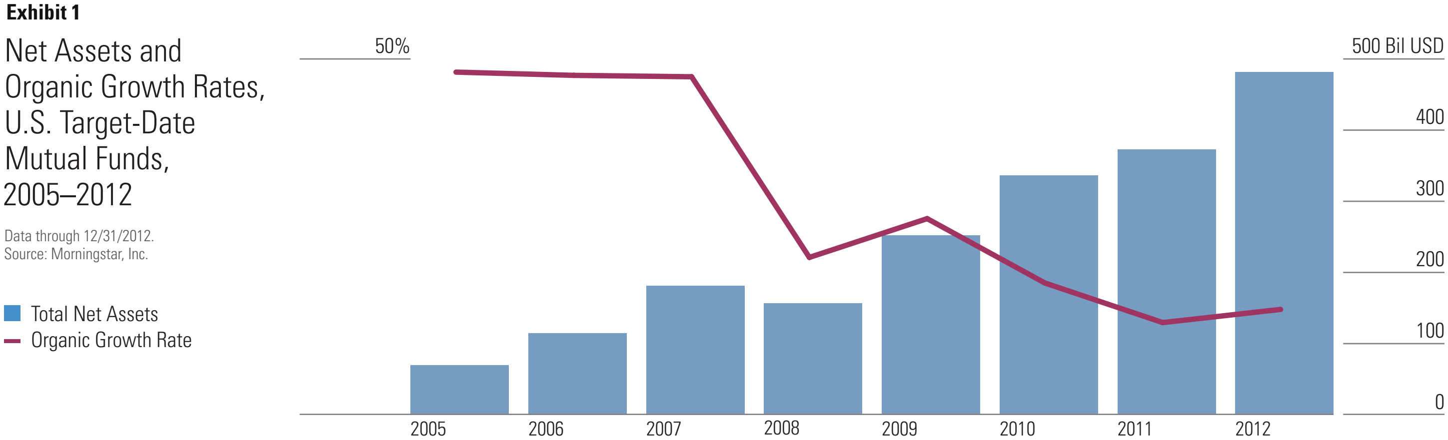


Exhibit 2

Organic Growth Rate by Broad Asset Class, 2010–2012

Data as of 12/31/2012.
Source: Morningstar, Inc.

	2010	2011	2012
Alternative	34.82	24.64	18.31
Balanced	1.98	1.59	2.58
Commodities	58.65	20.87	2.31
International Stock	4.14	0.11	1.00
Municipal Bond	2.5	–2.6	9.98
Sector Stock	3.46	1.87	0.91
Taxable Bond	13.81	7.05	12.67
U.S. Stock	–2.23	–2.63	–3.73
Target-Date	18.36	12.74	14.61

are more-specialized asset classes subject to short-term trends in investor preferences. For example, flows into commodities funds trailed off steeply in 2012 as performance declined.

Viewing target-date funds by category on a net flows basis, the categories that took in the most assets in 2012 were the 2021–2025 ($8.9 billion), 2026–2030 ($8.7 billion), and 2016–2020 ($8.0 billion) categories, intended for investors 10 to 20 years from retirement (see Exhibit 3). Longer-dated funds aimed at younger contributors saw significantly lower inflows, while the 2000–2010 category was the only one to show a (relatively small) net outflow. Those trends make intuitive sense: Middle-aged investors tend to have higher salaries (and thus higher contribution rates) and also have the opportunity to make catch-up contributions.

That picture inverts, however, when it comes to organic growth rates. The 2046–2050 funds posted a higher growth rate, averaging 34% in 2012, while 2016–2020 and 2011–2015 funds averaged about 10% growth. Those longer-dated funds are building off a smaller asset base and have a higher inflow of new, younger workers to fund their retirement accounts. It's those new investors who will propel the continued growth of target-date industry assets, so the higher growth rates in these categories are a positive sign.

Passive Series Keep Gaining Ground

As noted in last year's Industry Survey, the growth rate of inflows to passively managed target-date funds has exceeded that of actively managed series for several years now. In 2012, that trend reached a milestone when, for the first time, the dollar amount of inflows to passively run series exceeded that of active series. Active funds still hold a comfortable majority of total assets under management, at 68%, but that size advantage has declined steeply since 2006, when the industry was 85% active (see Exhibit 4). As an estimate, if the average asset growth rates over the past three years were to continue (11% asset growth for actively managed series as a whole and 26% asset growth for passively managed series), then total assets in passively managed series would surpass that of actively managed series by the end of 2019. Clearly, Vanguard's success has influenced fees, construction, and performance industrywide, and many rivals have sought to

Exhibit 3

2012 Net Assets, Net Flows, and Organic Growth Rate by Morningstar Target-Date Category

Data as of 12/31/2012.
Source: Morningstar, Inc.

Morningstar Category	2012 Total Net Assets USD	2012 Estimated Net Flow USD	2012 Organic Growth Rate %
Retirement Income	24,847,237,254	2,674,664,583	14.68
Target Date 2000–2010	35,346,008,892	–685,634,249	–1.96
Target Date 2011–2015	52,235,297,865	3,959,837,432	9.14
Target Date 2016–2020	89,451,214,898	7,973,631,946	11.04
Target Date 2021–2025	67,189,577,466	8,952,210,440	17.54
Target Date 2026–2030	75,012,061,265	8,684,330,053	15.03
Target Date 2031–2035	47,331,466,524	7,179,146,425	20.76
Target Date 2036–2040	50,110,592,382	6,613,394,816	17.66
Target Date 2041–2045	24,885,436,663	4,812,991,675	28.03
Target Date 2046–2050	16,529,405,278	3,726,928,138	34.06
Target Date 2051+	1,858,021,583	946,290,297	127.20

blunt Vanguard's dominance by introducing passive investments in one form or another into their own target-date offerings. (See the Portfolio section of this paper for more-detailed examples of how these kinds of moves have been implemented.)

Some Series Gliding Along, Others Hitting Turbulence

The target-date industry as a whole has boomed over the past half-decade, but it remains an intensely competitive business. In 2012, some of the industry leaders thrived while four mutual fund companies shut down their target-date products.

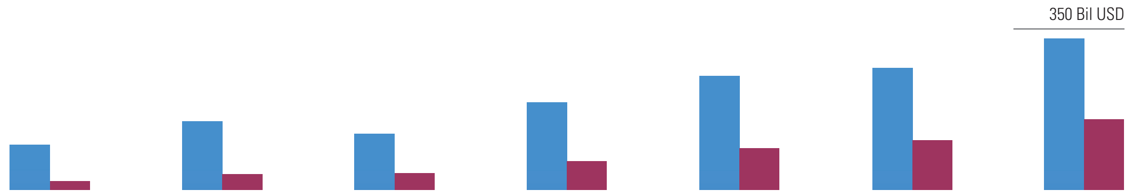
The triumvirate of Fidelity, Vanguard, and T. Rowe Price continue to maintain their dominance atop the industry, built on their early-entry status into the target-date industry, record-keeping strength, strong brand names, and reasonable expenses. At year-end 2012, the three firms combined held $361.8 billion in assets, accounting for 74.6% of the industry's market share (see Exhibit 5). That figure is down from the 83% market share held by the three firms at year-end 2006, with much of the loss coming from Fidelity's piece of the pie. Fidelity held 47.8% of market share in 2006 and has since declined to 32.4%. Some of that decline is likely related to assets simply shifting to collective trust structures, but it's difficult to say how much. Another factor is a move toward open-architecture platforms in the retirement industry, and the desire of many plan sponsors to not automatically tie their retirement offerings to their incumbent record-keeper's offerings.

While the top players still dominate, other target-date providers have had opportunities to make some inroads and increase their scale, even if they're not acquiring much in the way of market share. While the five largest target-date families averaged growth below the industry mean (only Vanguard exceeded it), other firms experienced notably higher growth rates. Among firms with more than $1 billion in target-date assets, the fastest growers in 2012 were Great-West (72%), JPMorgan (51%), John Hancock (42%), American Century (33%), and TIAA-CREF (29%). There's no single factor that unifies these series, although all are prominent players in the retirement industry.

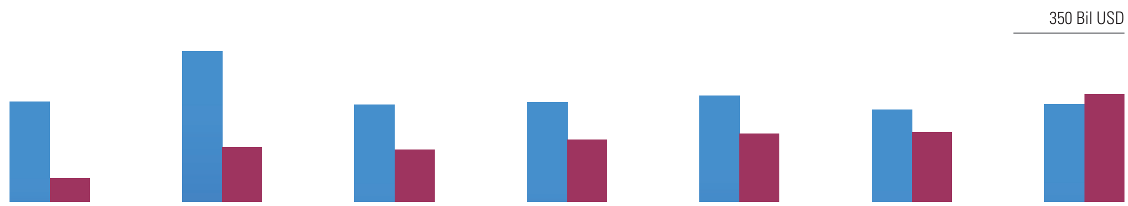
Exhibit 4

Net Assets, Flows, and Organic Growth Rates of Active and Passive Target-Date Series

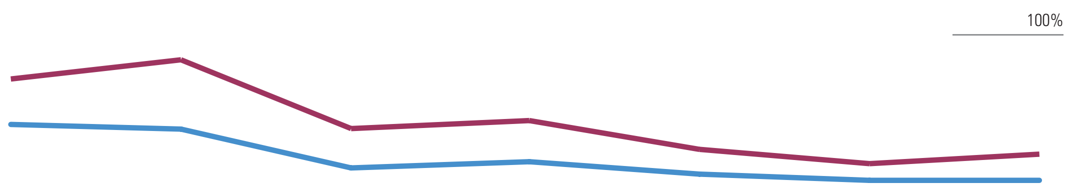
Data as of 12/31/2012. Source: Morningstar, Inc.



Total Net Assets USD	2006	2007	2008	2009	2010	2011	2012
Actively Managed	97,938,624,408	148,856,559,983	122,076,981,713	191,225,671,546	248,509,418,336	267,083,298,464	330,855,433,075
Passively Managed, Long-term	16,708,294,364	32,768,363,466	34,841,640,007	61,945,980,009	90,115,910,859	108,145,959,042	154,038,714,215
Active % of total AUM	85%	82%	78%	76%	73%	71%	68%



Estimated Net Flow	2006	2007	2008	2009	2010	2011	2012
Actively Managed	26,697,137,466	40,071,736,565	25,911,221,702	26,480,959,348	28,312,162,652	24,501,838,511	26,064,067,516
Passively Managed, Long-term	6,466,756,229	14,579,142,916	14,043,497,595	16,683,051,869	18,163,697,592	18,627,828,000	28,760,065,700



Organic Growth Rate %	2006	2007	2008	2009	2010	2011	2012
Actively Managed	47.31	44.21	19.05	22.64	14.96	9.94	9.99
Passively Managed, Long-term	74.07	87.26	42.86	47.88	29.32	20.67	26.59

JPMorgan, American Century, and TIAA-CREF are proprietary offerings, while Great-West and John Hancock offer third-party open-architecture offerings. Hancock's newer companion series to its original flagship offering—with a very conservative "to" glide path and an index-oriented management style—has been quite successful, and JPMorgan Smart Retirement and American Century Target Retirement are also conservatively shaded series that have exhibited superior risk-adjusted returns.

Among sub-$1 billion target-date firms, the firms that saw the highest growth were Allianz (149%), PIMCO (122%), Invesco (57%), and MFS (45%), the largest of this group with $831 million in assets at year-end. The series that more than doubled their assets in 2012 have small asset bases, but it is nevertheless notable that Allianz, PIMCO, and Invesco all have strategies that emphasize real return, downside defensiveness, or otherwise unconventional approaches to glide-path construction. Those unconventional series have been growing even though their parent firms lack extensive record-keeping operations and corresponding distribution heft, making their recent successes even more notable.

An Anatomy of Failure: Are There Red Flags to Signal Who's Next?

Six series experienced net outflows in 2012. Some experienced small losses: Harbor, negative 2.4%; ING, negative 0.8%; and Putnam, negative 4.2%. Others posted more-significant declines: DWS, negative 10.37%; and Russell, negative 14.91%. Those at Mainstay (negative 25.2%) and Alliance-Bernstein (negative 34.8%) are especially concerning. Such numbers raise the question of whether there are identifiable characteristics that consistently precede a target-date series' liquidation.

Of course, it's nearly impossible to know what factors and business considerations ultimately lead a given fund company to shutter a fund or series of funds, but it's reasonable to assume that consistently poor investment results and asset flows—particularly if the funds have not reached efficient scale—will be negative factors. Of course, there may be some strategic imperatives that prompt a firm to keep an underperforming series with outflows.

Comparing various metrics for the four shuttered series—American Independence, Columbia, Oppenheimer, and Goldman Sachs—at year-end 2011 reveals many negative circumstances. Performance for all four series was subpar to awful. Columbia, Oppenheimer, and Goldman Sachs all had aggressive glide paths that were hurt badly in 2008, compounded in several cases by poor underlying fund performance. Although Oppenheimer made significant changes at the glide path and fund levels, it could not erase the black mark of 2008, as its trailing five-year returns at year-end 2011 show. American Independence, on the other hand, held up quite well in 2008 but could not take advantage of the market's rebound, and its five-year results also looked weak. Morningstar series-wide performance attribution for the trailing three years showed Columbia, Goldman Sachs, and American Independence with three worst (negative) total attribution scores.

Fees also did not help most of these series' competitive positions. Oppenheimer featured the industry's most expensive series, on an asset-weighted basis, at the end of 2011, with a 1.55% average expense ratio. Goldman Sachs' 1.21% average also was well above the industry norm. American Independence's average asset-weighted expense ratio of 0.82% was below average on an industrywide basis, but as a passively managed series, where the bar for fees is set extremely high by Vanguard's tiny 0.18% expense ratio, its fees were comparatively quite high. Only Columbia of the four was reasonably competitive with a 0.81% asset-weighted expense ratio for active management.

Whether as a direct or indirect effect of performance woes, flows and assets for the four series were troubled, though the data show a few surprises. Columbia was in a precarious position, for example. Despite a small positive uptick in flows in 2011, it had been in net outflows the previous years, with a steep 54% outflow in 2010. At year-end 2011, assets stood at $177 million, down from a peak of $304 million. Goldman Sachs never gained scale, peaking at $98 million, and after some decent growth in 2009 saw outflows in 2010 and 2011. American Independence also stayed small, though it did manage to sustain modest positive growth each year.

Oppenheimer was the most successful asset-gatherer of the four discontinued series. Its target-date series saw healthy organic growth rates continue from 2008 through 2011, despite awful, highly publicized performance in 2008, when its 2010 fund lost 42%. Of the four series it was also by far the largest, at $563 million at year-end 2011. Interestingly, the Oppenheimer series, having launched in 2006, had relatively few investors when the financial crisis hit (only $45 million in AUM at year-end 2007), and thus not enough of an established base to prompt a massive outflow. At the same time, it appears that Oppenheimer's salesforce was able to add new retirement plans and investors for the target-date funds despite the performance headwinds, a testament to the firm's sales prowess and perhaps indicative of the effectiveness of advisors marketing directly to small plan sponsors.

It's also notable that while all four target-date series are offered by firms with broker-sold distribution models, none operate a retirement-plan record-keeper, and none have particularly strong inroads in the retirement market. As such, it was difficult for the firms to expand their target-date platform. To be sure, Columbia and Oppenheimer have long offered legacy target-risk funds, which have traditionally been a bailiwick of financial advisors, as they allow advisors to evaluate their clients' risk tolerance and the suitability of a given investment. In fact, both Columbia and Oppenheimer merged the assets of their target-date funds into existing target-risk funds, perhaps making the decision to liquidate the target-date funds a bit easier.

This recent closure history may provide a template for identifying which target-date providers may withdraw their products from the marketplace. The four firms with target-date trends that most-closely mirror those of the shuttered series are Putnam, DWS, Mainstay, and AllianceBernstein. Putnam's RetirementReady series has been in net outflows for the past five calendar years, has failed to reach significant scale, and is largely an advisor-sold product. What's more, Putnam has a significant target-risk product line. Morningstar dropped the series from coverage in mid-2012 and previously did not recommend it. Putnam has said, however, that the retirement business is a strategic objective for the firm, so that countervailing imperative may give the target-date funds a lifeline.

DWS' target-date funds also have been in net outflows for the past five years, and its risk-adjusted performance has been among the worst in Morningstar's target-date universe. The series still has reasonable scale, however, at $562 million in assets as of year-end 2012. Like the Putnam series, Morningstar dropped the DWS series from coverage last year and did not rate it favorably. Management has made some changes to the series' design, which, if they can help turn around performance, might still revive the series' fortunes.

Mainstay falls under the umbrella of expensive and small broker-sold target-date series, and it has a suite of target-risk funds in its lineup. Its performance has been decent, however, and it was growing assets at a nice clip until 2012, when it lost a fourth of its assets, or about $100 million in net outflows. Whether those net departures represent a temporary bump or a more permanent decline in the series' growth will say much about its future.

AllianceBernstein Retirement has run into deep problems in recent years. Its asset base has declined from a peak $2 billion in 2009 to $1.3 billion at the end of 2012, a 35% decline, with outflows increasing over the past three years. It has struggled to recover from significant underperformance in 2008, and its Morningstar Analyst Rating is Negative. Despite these setbacks, AllianceBernstein maintains a significant retirement business and still has meaningful assets in its target-date series (along with additional assets in its collective trust and custom target-date businesses), so it is hard to envision the firm abandoning a vehicle that is so central to defined-contribution plans. Tough decisions lie ahead for the firm.

Morningstar is not suggesting that the AllianceBernstein, DWS, Putnam, or MainStay funds are soon to be liquidated or merged away. Rather, we have examined recent history to identify characteristics and trends that may be present in other target-date series. Industry-watchers, gatekeepers, plan sponsors, and investors may want to keep such factors in mind when evaluating whether to add or keep a given target-date series as part of a retirement or investment plan.

Exhibit 5

Net Assets, Organic Growth, and Market Share of Largest Target-Date Firms

Data as of 12/31/2012. Source: Morningstar, Inc.

	Total Net Assets USD			**Organic Growth Rate** %	**Market Share** %
Fund Family	2010	2011	2012	2012	2012
Fidelity Investments	124,861,094,357	130,101,462,105	157,189,545,090	8.2	32.42
Vanguard	79,534,612,338	92,149,823,515	124,359,813,721	21.25	25.65
T. Rowe Price	55,725,536,745	62,861,056,974	80,234,687,672	11.63	16.55
Principal Funds	17,173,810,254	17,221,201,833	21,025,958,178	8.05	4.34
Wells Fargo Advantage	9,175,392,803	10,801,173,164	13,819,325,436	17.2	2.85
American Funds	8,915,738,921	10,218,504,741	13,268,889,133	15.19	2.74
TIAA-CREF Mutual Funds	6,784,400,853	8,741,303,242	12,692,934,184	28.75	2.62
John Hancock	4,829,398,570	6,225,817,793	9,794,158,343	42.07	2.02
JPMorgan	3,251,003,529	5,538,681,707	9,363,576,945	51.05	1.93
American Century Investments	3,440,556,572	4,476,039,971	6,569,258,606	33.33	1.35
ING Retirement Funds	4,870,308,447	4,778,016,187	5,371,784,439	–0.79	1.11
BlackRock	4,050,044,315	3,790,143,882	4,802,718,407	13.91	0.99
State Farm	3,305,066,664	3,625,790,483	4,483,105,319	11.63	0.92
Great-West Funds	1,168,170,797	1,958,952,009	3,694,002,620	71.47	0.76
USAA	1,780,146,207	2,404,035,587	3,049,771,709	13.32	0.63
Vantagepoint Funds	1,880,479,019	2,027,587,752	2,526,624,573	12.65	0.52
Schwab Funds	1,274,968,657	1,467,777,091	1,825,302,181	10.63	0.38
AllianceBernstein	2,217,206,753	1,729,617,824	1,307,476,516	–34.8	0.27
MassMutual	1,105,897,121	1,068,871,378	1,252,596,391	3.28	0.26
Nationwide	730,400,870	894,890,049	1,141,465,476	14.03	0.24
GuideStone Funds	722,095,409	837,771,373	1,137,905,806	21.1	0.23
MFS	421,203,064	512,726,962	830,665,329	48.81	0.17
Russell	911,879,412	833,128,615	806,955,252	–14.91	0.17
Hartford Mutual Funds	358,480,158	505,041,063	697,766,477	22.41	0.14
DWS Investments	616,738,824	556,086,913	557,788,767	–10.37	0.11
PIMCO	58,088,237	223,398,641	530,065,904	121.47	0.11
Manning & Napier	340,356,393	376,749,845	494,994,385	17.37	0.1
MainStay	289,958,574	410,514,354	360,331,663	–25.23	0.07
Invesco	187,112,720	199,681,572	335,042,807	56.79	0.07
Putnam	323,587,765	214,372,972	229,133,559	–4.21	0.05
Franklin Templeton Investment Funds	130,130,723	160,252,346	205,574,322	17.91	0.04
Allianz Funds	37,120,338	64,124,858	167,020,920	149.19	0.03

Process

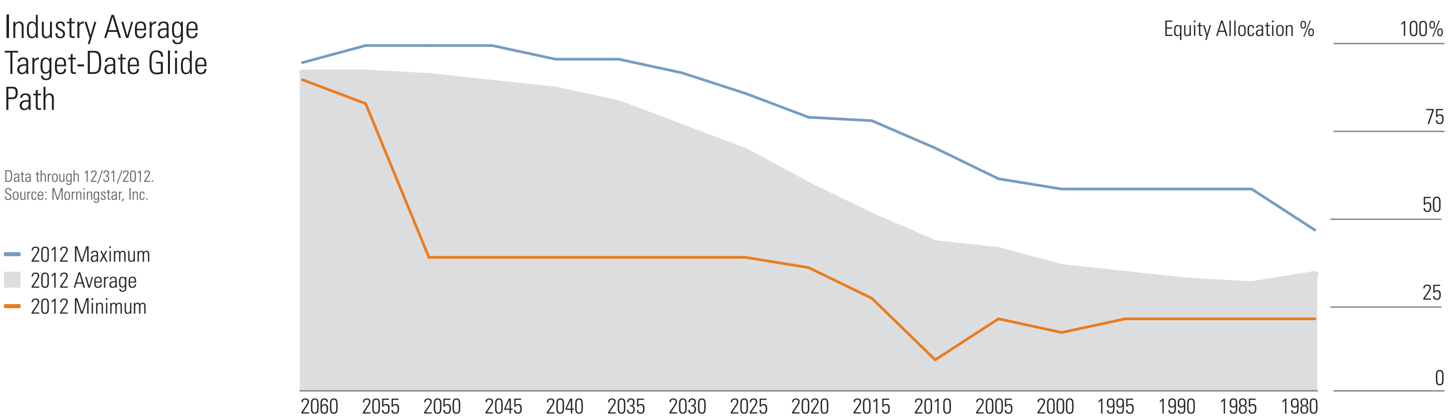
Asset-allocation glide paths form the figurative backbone for target-date funds, and they map out a target-date series' long-term changes in asset classes over time. Despite their key role in determining investment success, there are few ways to evaluate glide paths and compare one series' asset-allocation plan with another's. Exhibit 6 shows the industry average glide path, an average of the strategic equity allocations disclosed in funds' prospectuses as of Dec. 31, 2012, as well as the industry maximum and minimum equity exposures for each year along the funds' glide path. The data illustrate a wide range of target-date glide paths, demonstrating that target-date funds can be far from interchangeable with one another. For instance, longer-dated 2055 funds, intended for younger investors with many years to go before retirement, have almost a 20-percentage-point difference between the most and least aggressive options.[1]

Evaluating a glide path isn't a straightforward exercise, though, especially considering the 60-plus-year investing horizon that some funds on the marketplace imply. Vanguard and Principal, for example, have already launched funds intended for those planning to retire in the year 2060; for workers thinking about retiring at 65 in 2060, that corresponds to today's 18-year-old investor, who has 67 years to go before reaching age 85. Meanwhile, the industry's oldest series, BlackRock LifePath (formerly Barclays LifePath), is less than 20 years old. There are also fewer than 90 years of

Exhibit 6

Industry Average Target-Date Glide Path

Data through 12/31/2012.
Source: Morningstar, Inc.



1 Invesco Balanced-Risk target-date series' low equity allocation is an outlier within the industry, skewing the longer-dated end of Exhibit 6's minimum boundary downward from year 2050 and on. Omitting the series, for example, would result in a minimum allocation for year 2050 that's more similar to year 2055. Invesco's target-date process amplifies the risk exposure for its fixed-income investments, serving as a reminder that equity exposure isn't a comprehensive proxy for risk. Indeed, the SEC has also called for series to disclose their risks in ways other than equity exposure.

Exhibit 7

2012 Return, Risk, and Correlation Assumptions by Asset Class

Data as of 12/31/2012.
Source: Morningstar, Inc.

Asset Class	Return %	Standard Deviation %	Asset Class Correlations: U.S. Equities	International Equities	Fixed Income
U.S. Equities	8.0	19.1	1.00	0.76	0.17
International Equities	8.0	21.0	0.76	1.00	0.13
Fixed Income	3.5	6.5	0.17	0.13	1.00

market data by which to analyze these asset-allocation plans; even using annually rolling 60-year periods, that results in fewer than 30 observations.

Monte Carlo analysis provides one means of testing the likelihood that investors will be able to successfully retire using a particular glide path. Although markets and existing target-date series lack the history necessary to judge a glide path's outcome, Monte Carlo analysis can simulate thousands of possible allocations that a glide path could take to calculate the probability of success (and failure) for investors. It is not a new technique, and it is one that many target-date providers already use. However, these models require many assumptions and inputs, so it is nearly impossible to compare one provider's output with another's (assuming that they even release the results, which is rare). Using Morningstar's repository of glide-path and target-date series portfolio data, though, we conducted Monte Carlo simulations for some of the industry's largest target-date providers, as well as the industry average glide path, using a uniform set of assumptions and inputs.

Generally, we found that target-date investors in different series have very similar probabilities of having sufficient savings through age 85, the life expectancy of a typical 65-year-old female. Beyond that age, though, the outcomes start to diverge, and series with more equities generally come with a higher likelihood of success through age 95. The results serve as a reminder that investors or plan sponsors choosing more-conservative target-date funds don't just simply lower their market-risk exposure: They take on longevity risk—the possibility of outliving savings—in return.

Morningstar's results are by no means a final decree on any glide path's merits. Investors have other ways (saving more, spending less) to help improve outcomes. The results do, however, provide indications of which glide paths may be the most appropriate for certain investors. Workers who have been diligent about saving may be well served by a more conservative investment option, while those who have been less so may not be able to afford the comforts that come with a more risk-averse strategy.

Setting the Stage

Basic glide-path testing requires two main inputs: risk and return assumptions for the asset classes underlying the glide paths, as well as a saving and spending profile for a typical target-date fund investor. For the former, we used Morningstar subsidiary Ibbotson's 2012 capital market assumptions, as shown in Exhibit 7. Ibbotson provides its asset-class return assumptions to pensions, foundations, endowments, and other institutional investors as an input for their investment policy decisions, so the forecasts are a reasonable starting point for this analysis.

Next, we proportionately assigned the forecasted returns to the series' strategic asset allocations to calculate annual expected returns for each series. We followed a similar process for the series' annual expected standard deviation, though the formula is somewhat more complicated in order to take into account each asset class' correlation with one another. Morningstar gleans target-date series' intended asset allocations for points along their glide paths from the funds' prospectus, and for this analysis, we made the simplified assumption that 30% of each series' equity stake was allocated to international stocks (a figure that's in line with the industry average allocation to international stocks).

We then established a profile for an average investor in a target-date fund: a 23-year-old worker who starts with $45,000[2] in annual wages, receives yearly raises to keep up with a 2% annual inflation rate, saves 7% of income each year, and expects to retire at 65. Standard industry studies[3] suggest that this worker needs a retirement income that's 83% of his salary at retirement to maintain a post-retirement lifestyle that's similar to the pre-retirement one. (The retirement industry refers to that post-retirement salary percentage as a "replacement ratio.") As such, our hypothetical worker would need income of about $37,350 (in today's dollars) in the year following retirement. Social Security is expected to replace about 52% of the worker's pre-retirement income ($23,400 in the first year of retirement), leaving 31% (about $13,950 in the first year) to be funded through savings.

Defining Success

There are a few ways to measure success using this approach. Some, for example, measure the probability of the worker having enough money at age 65 to buy an annuity that would meet the required income needs. Others, largely under the assumption that workers have other sources of savings outside of target-date funds, pick a certain withdrawal rate—say, 4% of initial savings at 65—and try to determine how long the workers would be able to draw that level of income in retirement.

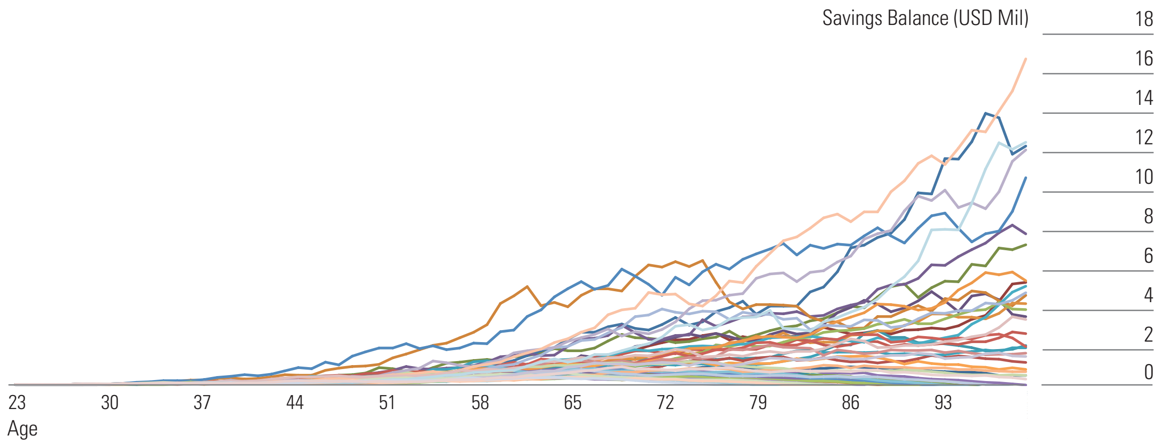
2 The National Association of Colleges and Employers January 2013 Salary Survey lists the average starting salary of Class of 2012 graduates as $44,455.

3 Aon Consulting's 2008 Replacement Ratio Study is a typically used reference point for retirement replacement ratios, and it's also the one used here.

Exhibit 8

Industry Average Glide-Path Outcomes

Data as of 12/31/2012.
Source: Morningstar, Inc.



Given the low uptake rate of annuities—some estimates put the percentage of U.S. workers buying them in the low single digits—and because target-date funds may represent a worker's total retirement savings beyond Social Security, we take the other industry-standard tack of testing a series' entire glide path. To test each glide path, we assumed that investors stay in the target-date series for essentially their entire working and retirement life, saving regularly from age 23 to 65, and then draw down an inflation-adjusted income from age 66 on. The approach directly addresses longevity risk by measuring the probability that workers will maintain a positive savings balance as they age.

Within each of the thousands of save-and-spend simulations, we counted as successful those that didn't run out of money at any given age. Exhibit 8 graphically depicts some of the simulations for the industry average target-date fund. Each line represents one possible path that an investor's savings balance could take, given the glide path's risk and return expectation each year. For example, the chart's uppermost line represents a best-case scenario of what a worker's target-date investment might be with multiple years of strong bull markets. That's a low-probability outcome, and most savings balances are likely to stay in the $2 million and under range, where most of the lines cluster. The lines that reach zero on the x-axis illustrate scenarios where investors in the average industry glide path have exhausted all of their savings. Our forecast suggests some investors will have no savings by their mid-70s.

A Look at Industry Averages

We first compared outcomes for the average of all glide paths in the industry with the average of industry "to" glide paths and the average of industry "through" glide paths. Target-date series with "to" glide paths are structured to take investors to a fund's given target date and stop changing the series' asset allocation at retirement. "Through" target-date series are built to take investors through the post-retirement stage and continue their dynamic asset allocation past the target date. "To" series generally have allocations at the retirement date that feature lower weightings in stocks than their "through" counterparts. Exhibit 9 presents the three industry average glide paths.

Exhibit 9

Industry Average Glide Paths— All, To, and Through

Data through 12/31/2012.
Source: Morningstar, Inc.

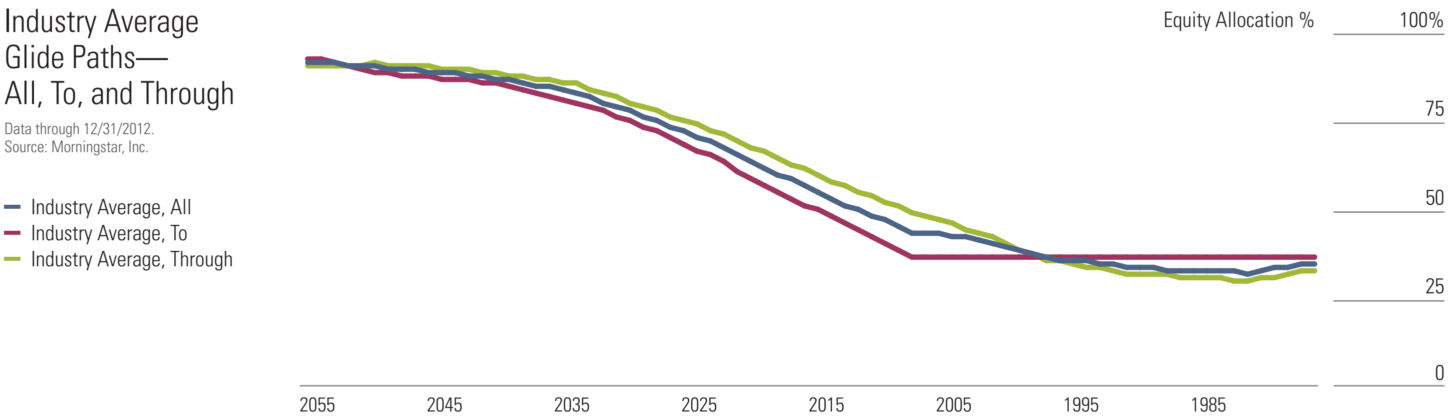


Exhibit 10

Probability of $0 Balance: Industry Average Glide Paths

Data as of 12/31/2012.
Source: Morningstar, Inc.

	Average Equity Allocation			**Probability of $0 Balance at Age**		
Glide Path	Total Glide Path %	Pre-Retirement %	Post-Retirement %	75 %	85 %	95 %
Average, All	59.7	76.6	35.2	3.3	23.9	42.0
Average, Through	61.3	79.1	35.2	3.7	22.9	39.8
Average, To	57.9	73.7	35.0	3.2	25.6	44.7

Exhibit 10 presents the results of the simulations, and a few notable patterns emerge. Overall, a greater allocation to equities makes it more likely that investors' savings will last more years. For the more conservative "to" glide path, for example, workers will run out of money by age 85 25.6% of the time. For investors in the industry average "through" glide path, that figure is only 22.9%. The almost 3-percentage-point differential is small, and given the nature of Monte Carlo testing, it can narrow or widen depending on the simulation. However, the general relationship is stable, with "through" glide paths delivering consistently more successful outcomes.

The success differential grows over time because of the compounding effect of returns on wealth. By age 95, 44.7% of investors in "to" glide paths will have no savings. Only 39.8% of investors in the "through" glide path have depleted their savings by age 95, resulting in an almost 5-percentage-point differential. While any particular run of the Monte Carlo model may produce different numbers, the general relationships remain stable: In later years, the differential in success between "through" versus "to" glide paths widens, with the former delivering a higher chance of maintaining a positive savings balance.

Exhibit 11

Selected Target-Date Series Glide Paths

Data through 12/31/2012.
Source: Morningstar, Inc.

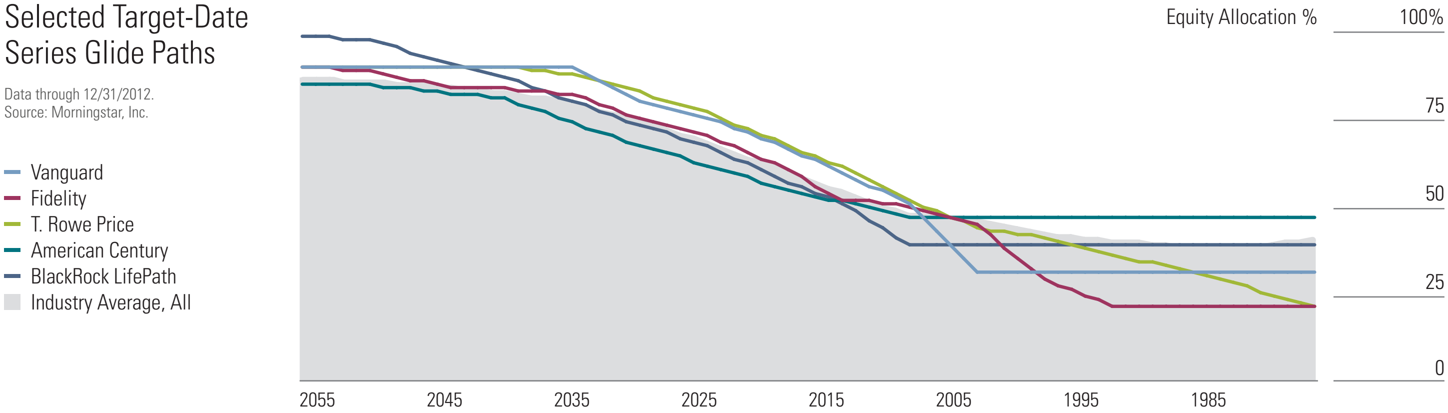


Exhibit 12

Probability of $0 Balance: Industry Average and Selected Target-Date Series Glide Paths

Data as of 12/31/2012.
Source: Morningstar, Inc.

	Average Equity Allocation			Probability of $0 Balance at Age		
Glide Path	Total Glide Path %	Pre-Retirement %	Post-Retirement %	75 %	85 %	95 %
All						
Industry Average	59.7	76.6	35.2	3.3	23.9	42.0
Through						
Vanguard	61.4	80.8	33.5	4.0	23.4	40.1
Fidelity	57.0	75.6	30.2	3.0	24.2	43.0
T. Rowe Price	63.3	81.2	37.6	3.8	22.7	38.2
To						
American Century	60.5	70.5	46.2	3.4	24.3	41.9
BlackRock LifePath	61.1	77.1	38.2	3.5	24.3	43.2

How Specific Series Fare

The look at the industry averages is helpful, but we also extended it to some of the largest individual series to anticipate how successful retirement savers will be in these investments. We looked at the glide paths for series offered by Vanguard, Fidelity, T. Rowe Price, American Century, and BlackRock. The Vanguard, Fidelity and T. Rowe Price series have market shares that represent the vast majority of the industry's target-date mutual fund assets; they also happen to be "through" glide paths. American Century and BlackRock, in contrast, represent some of the industry's largest target-date series with "to" glide paths. Exhibit 11 graphically depicts each of these series' glide paths, along with the industry average of all glide paths for comparison.

The results in Exhibit 12 largely mirror the industry glide-path results: More equities generally correspond with a lower probability of outliving savings, particularly in the more advanced years. T. Rowe Price, for instance, has a notably higher allocation to equities compared with Fidelity. At age 85, investors in the former have a 22.7% chance of depleting their savings, while investors in the latter have a 24.2% chance of doing so. The difference is small, but it is stable. Similar to results for the industry glide paths, the relationship widens over time. At age 95, 38.2% of T. Rowe Price target-date investors have used all of their savings, while 43.0% of Fidelity investors have done the same—an almost 5-percentage-point difference.

When that higher equity allocation occurs seems to matter, too. For example, American Century and BlackRock have similar overall equity allocations throughout the entire glide path, with both having roughly 60% average allocations to equities across their entire glide paths. However, American Century has markedly less in stocks than BlackRock in the pre-retirement year (70.5% versus 77.1%), and that relationship switches in the post-retirement years (46.2% versus 38.2%). Both target-date series have similar outcomes when investors reach age 85, with a little less than a fourth of investors reaching a $0 balance. The higher equity allocation in retirement appears to give retirees a small but stable edge in maintaining a positive savings balance as they age; in this case, 41.9% of American Century investors have exhausted their savings by age 95, while 43.2% of BlackRock investors have done so.

The table and the results also serve as a reminder that the “to” versus “through” distinction is somewhat arbitrary. While the former generally has a lower allocation to equities than the latter in the year of retirement, that relationship often flips in the retirement years, as some “through” target-date series glide paths quickly roll down their asset allocation, leading to a lower equity exposure than “to” glide paths in the retirement years. Fidelity, for example, continues its rolldown many years past the retirement stage, but because its ultimate landing point (where allocations cease to roll down and become indefinitely static) is relatively low, its results share many of the same characteristics as a typical “to” glide path.

Trading Longevity Risk for Market Risk

Despite the apparent advantage displayed by higher-equity glide paths, more equities aren’t always the optimal choice. A lower allocation to equities corresponds to less market risk and uncertainty—

Exhibit 13

Worst-Case Return by Age

Data as of 12/31/2012.
Source: Morningstar, Inc.

	Average Equity Allocation			Worst-Case Return at Age				
	Total Glide Path %	Pre-Retirement %	Post-Retirement %	55 %	65 %	75 %	85 %	95 %
Industry Glide Paths								
All	59.7	76.6	35.2	–12.1	–9.5	–8.3	–7.5	–7.5
Through	61.3	79.1	35.2	–12.7	–10.2	–8.4	–7.3	–7.3
To	57.9	73.7	35.0	–11.4	–8.6	–7.9	–7.9	–7.9
Through Glide Paths								
Vanguard	0.614	0.808	0.335	–13.2	–10.6	–7.3	–7.3	–7.3
Fidelity	0.57	0.756	0.302	–12.3	–9.9	–8.2	–6.5	–6.5
T. Rowe Price	0.633	0.812	0.376	–13.4	–10.8	–8.7	–7.7	–7.7
To Glide Paths								
American Century	0.605	0.705	0.462	–11.2	–9.7	–9.3	–9.3	–9.3
BlackRock	0.611	0.771	0.382	–11.9	–9.2	–8.2	–8.2	–8.2

those are nontrivial factors when considering that wary investors may be prone to selling at market troughs, thus locking in losses. Exhibit 13 shows the expected worst-case returns for the industry and specific glide paths at various ages, given each glide path's allocations at those points as well as the Ibbotson capital market assumptions. In this case, "worst case" means that investors should have less than a 2.5% chance of experiencing a worse annual return than the figure at each given age.

Using this viewpoint, the "to" glide paths measure up particularly well in the years leading up to retirement, as they were largely designed. American Century and BlackRock's worst-case losses of 11.2% and 11.9% at age 55, respectively, are all less severe than the worst-case scenarios for any of the examined "through" glide paths. Meanwhile, Fidelity's market-risk profile shines strongly in the in-retirement years, with a worst-case expected loss of 6.5% at age 95 that's clearly lower than those of the rest of the group.

An alternate view of risk could also examine the range of outcomes for each target-date glide path. Exhibit 14 shows the expected range of savings balances for 65-year-old workers invested in the industry average glide paths. The "to" glide path, which here corresponds to fewer equities, has a narrower range of results; its 95th percentile outcome also produces a higher ending balance than the equity-heavy counterparts. In other words, the worse-case scenario for investors in "to" series looks better than investors in "through" series. Those characteristics may appeal to more risk-averse investors. A more conservative glide path also makes sense for plan sponsors mindful of getting more of their workers across a minimum savings threshold rather than maximizing their workers' retirement nest eggs.

Comfort Isn't Free

Note that much of the divergence in results between "to" and "through" glide paths—and consequently glide paths with more versus fewer equities—comes on the upside: Investors in "through" series have more potential for gains than those in "to" target-date series. The more optimistic scenario may leave workers with the happy prospect of legacy planning. What's more, a greater allocation to equities gives workers who have been less diligent about saving a higher probability of having enough retirement savings.

The implications for the results essentially come down to a trade-off between taking more longevity risk or more market risk; one doesn't happen without the other. While the difference in outcomes between the various glide paths may seem small, the relationships are stable and significant. Investors and plan sponsors choosing more-conservative target-date strategies may gain peace of mind that their savings balance will fluctuate less on a year-to-year basis than if they were invested in a more aggressive alternative. In exchange, they give up the potential for higher expected returns that can be as important in the years following retirement as they are in the years before, resulting in an increased risk that they'll outlive their savings. As intuition would suggest, investors with high savings balances have more ability to take on more longevity risk. And while mortality considerations may prove uncomfortable for some, they also shed additional light on others who may be more able to take on increased longevity risk; they include investors and workers with certain family health histories (for example, heart disease), personal health issues (smoking), or occupations (football).

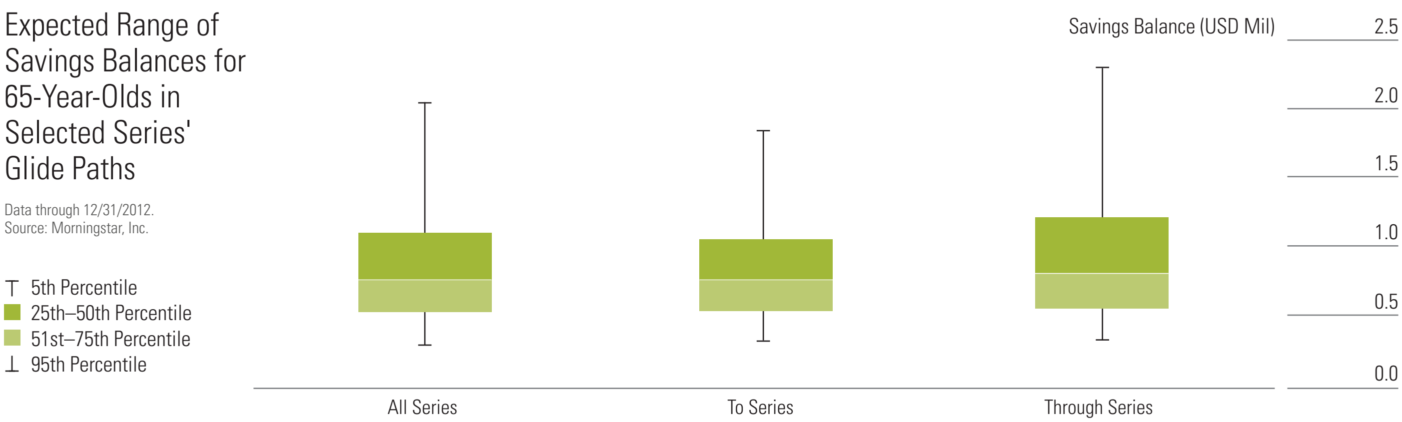
The corollary take-away is that for workers with less savings or longer life expectancies, a more conservative glide path could reinforce or worsen an already tenuous retirement position. The shorter-term comfort provided by taking less market risk comes with the longer-term risk of outliving savings. Meanwhile, continuing improvements in health care, while probably welcome as a whole, will likely continue to exacerbate the situation by leading to longer life spans. With a more aggressive asset allocation, though, those workers could have a better shot at making up the savings gap through market gains.

The obvious implication for plan sponsors is that they should keep their workforces' demographics and overall pattern and level of savings in mind when choosing target-date funds. Companies with more-generous retirement-contribution plans, for instance, have greater leeway to choose more-conservative options. As the results demonstrate, though, workers in other firms may need the long-term boost provided by more-aggressive options. That leads to a less apparent implication: Plan sponsors might consider increasing investor education around the trade-off between market risk and longevity risk. Particularly following the market volatility seen in 2008, market risk jumped to the forefront of investors' minds, while longevity risk has since received relatively scant attention. As results here suggest, though, the two are inextricably linked, and lessening exposure to one means taking more of the other. Ultimately, plan sponsors—and their participants—weigh these risks as they choose and implement a target-date investment.

Exhibit 14

Expected Range of Savings Balances for 65-Year-Olds in Selected Series' Glide Paths

Data through 12/31/2012.
Source: Morningstar, Inc.



Performance

When Diversification Paid Off

The year 2012 turned out to be a banner one for most target-date funds in terms of performance, driven in large part by the healthy returns of extended asset classes, which most benefited funds with highly diversified portfolios and more-aggressive glide paths. Investors in most cases did well in target-date funds in 2012 whether they were just starting out in their working years or getting close to the retirement end-line. Exhibit 15 shows that the target-date categories for investors at least 20 years from retirement (that is, dated 2035 or later) produced average calendar-year returns of 14.6% and higher. That's a solid absolute return by any measure, and within spitting distance of the S&P 500 Index's 16% total return for 2012. The ranges of returns in these long-dated categories were not terribly extreme, either; while the top fund in the 2045 category, JPMorgan SmartRetirement 2045, returned a sparkling 18.1%, the bottom performer, Franklin Templeton 2045, still earned a solid absolute return of 10.6%.

Perhaps more surprising are the strong results from shorter-dated funds, intended for investors planning to retire within a few years: The average return of funds in the Target Date 2011–2015 category was 10.7%. Those funds have an average strategic allocation to stocks of 52%, which certainly helped, but the Barclays U.S. Aggregate Bond Index brought in only a 4.2% gain last year. Most target-date managers aren't just sticking to the index, however. Their diversification into areas such as high-yield bonds, Treasury Inflation-Protected Securities, and, in some cases, emerging-markets debt pushed returns ahead. With high-yield bonds last year producing returns on par with those of the stock market, many target-date funds got some extra juice from that portion of their fixed-income sleeve.

And although the more aggressive tendencies of some shorter-dated funds produced unexpectedly severe losses in 2008, results since then have worked in favor of investors who were patient. From the pre-crisis peak in 2007 through the end of 2012, all but one of the currently extant 2015 funds have recouped their losses, and most have produced double-digit positive gains.

Top Performers Held More Stocks, More Varied Asset Classes

A deeper look into the leaders and laggards within particular target-date categories reveals the trends that drove relative success in 2012. In the longer-dated categories, the variance in stock allocations is relatively small, so there's not a lot to be gained by holding more than the average peer in equities. Even so, it's not surprising to find one of the industry's historically strongest proponents of high equity weightings across the glide path, T. Rowe Price, near the top spot among 2040 and 2045 funds. Among the laggards in the category are those with defensive-oriented strategies,

Exhibit 15

2012, 3-Year, and 5-Year Returns for Morningstar Target-Date Categories and Benchmarks

Data as of 12/31/2012.
Source: Morningstar, Inc.

Category	2012 Return %	Total Return 3-Yr Annualized %	Total Return 5-Year Annualized %
Target Date 2000–2010	9.61	7.03	2.54
Target Date 2011–2015	10.65	7.22	2.04
Target Date 2016–2020	11.68	7.85	1.89
Target Date 2021–2025	13.03	7.94	1.37
Target Date 2026–2030	13.59	8.13	1.00
Target Date 2031–2035	14.64	8.14	0.75
Target Date 2036–2040	14.64	8.23	0.57
Target Date 2041–2045	15.31	8.19	0.56
Target Date 2046-2050	15.07	8.10	0.47
Target Date 2051+	15.52	7.58	–0.75
Benchmarks			
US OE Moderate Allocation	11.72	7.62	2.32
S&P 500 TR	16.00	10.87	1.66
Barclays US Agg Bond TR USD	4.21	11.86	5.95
MSCI World	13.18	4.63	–3.37
MSCI EM	18.22	4.66	–0.92

including Invesco, PIMCO, Allianz, and John Hancock's Retirement Choices series. PIMCO RealRetirement, for example, is focused on inflation protection and generation of real income and thus has in its funds for early savers a heavy allocation to commodities—one of the few major asset classes to do poorly last year.

Perhaps the more defining feature of the leaders of the pack from 2012 was their willingness to venture abroad or into asset classes like REITS and to implement tactical overweightings in outperforming areas. The MSCI EAFE, MSCI EME, and REIT indexes all topped U.S. stocks in 2012, and most of the top-performing funds in the 2045 category had 30% or more of portfolio assets in foreign stocks. Many of the leaders, including JPMorgan, T. Rowe Price, TIAA-CREF Lifecycle, Putnam, and American Funds Target Date, also employ tactical allocation programs or allow their managers the flexibility to tilt their portfolios opportunistically.

Similar themes drove return patterns among shorter-dated funds, such as those intended for workers planning to retire in 2015. In this category, the asset-allocation approaches vary much more widely. Firms that believe retirees will need to generate capital growth well into their retirement years allocate higher amounts to stocks—in some cases 60% or more of the portfolio—and those stock-heavy target-date series tended to populate the top of the chart for the 2015 category. The five top performers in the category average a 59% strategic allocation to stocks, while the bottom-five performers averaged 34% (see Exhibits 16 and 17).

Laggards Not Necessarily Cause for Concern

With the markets' rising tide lifting most target-date pontoons last year, there's probably little reason for concern over a lagging fund, even if it finished in the bottom tiers of its category. That's especially the case if the manager was simply standing by the fund's philosophy; more-conservative strategies implemented in series from Wells Fargo and PIMCO should be expected to trail in bull markets but to prove their defensive mettle during downturns. Wells Fargo held up extremely well in 2008, for example, and its five-year returns through year-end 2012 still rank in the 2015 category's top decile.

There's greater reason for concern—or at least reason to ask further questions—if a target-date fund's performance was out of sync with its professed asset-allocation philosophy. AllianceBernstein's target-date funds, for instance, have long maintained one of the industry's most stock-heavy approaches, yet in 2012 its 2045 fund finished in its category's bottom quartile and the 2015 fund finished just at the category median. In cases like this, blame for poor performance may lie with weak-performing underlying strategies or tactical approaches that cause the series to deviate from its strategic asset allocation. AllianceBernstein added a volatility management program in 2010 intended to rein in stock weightings during turbulent markets, but it may also have left the funds light in stocks relative to their neutral glide path in 2012.

Later in this section, we look at longer-term risk-adjusted performance metrics that provide a more meaningful context for determining which target-date series' results truly merit concern.

2013 Update: Back to Basics

The first four months of 2013 have marked something of a retreat from the adventurousness of the previous calendar year. To be sure, there have been healthy gains in the financial markets and among target-date funds in 2013, but those gains have come largely on the backs of U.S. equity markets, rather than foreign markets or other diversifiers. The U.S. large-cap and small-cap indexes have outperformed foreign benchmarks, while bonds barely moved in the first quarter and commodities continued to lag. As a result, target-date series with equity-heavy glide paths continued to hold an advantage, but in some cases that edge was dulled by a heavier foreign or emerging-markets component.

Series with a strong emphasis on large-cap, dividend-paying U.S. stocks did particularly well in early 2013. Thus, the Vantagepoint Milestone funds, not typically outliers, found themselves at the top of both the 2015 and 2040 categories for the first quarter. Meanwhile, some series that benefited from their wide-ranging set of asset classes last year, such as JPMorgan SmartRetirement, trailed the category median through the first quarter. Highly risk-averse or commodity-heavy strategies, such as PIMCO RealRetirement 2015 and Wells Fargo Advantage DJ Target 2015, again found themselves near the bottom of their categories.

The Long View: Risk-Adjusted Performance

Although total returns are ultimately what reach investors' pockets, Morningstar analysts prefer to focus on risk-adjusted returns in the belief that returns should be understood in the context of how much risk a manager is taking. One relevant measure is Morningstar Risk-Adjusted Return, which penalizes a fund's returns for downside volatility. MRAR forms the basis of the Performance score pillar in Morningstar's ratings for target-date series, which compares each series' funds relative with category peers.

Exhibit 18 sorts all target-date series with three-year track records by a weighted MRAR, meaning that the MRAR for each fund in the series is averaged on an asset-weighted basis. Results are for the three-year period from 2010 through 2012. The MRAR numbers on their own are somewhat difficult to interpret, but the chart shows the range of historical risk-adjusted returns, and the disparity between series at the top and bottom of the group is notable. There is a significant cluster of results around the mean. The three-year period does not include 2008; the five-year period, featured in some later charts in this section, often rewards risk-averse designs, improving these series' relative standing.

Exhibit 18 also aggregates risk-adjusted returns across a series and thus provides a sense of the results across the glide path. At the same time, however, those figures mask the granularity of results at the fund level. To capture how well funds of specific vintages performed, Exhibits 19 shows MRAR for 2015 and 2040 funds relative to the category average, contextualizing MRAR relative to peers. Investors can see how much of an advantage or disadvantage a specific target-date fund has provided in risk-adjusted terms. Note that MRAR in these charts combines time periods according to Morningstar's methodology for calculating MRAR. For funds with a five-year record, 60% of the figure comes from the five-year record and 40% from the three-year period. If a fund has less than a five-year history, the MRAR will be based only on the three-year period. This can significantly influence the risk/return profile of funds that did not go through the gauntlet of 2008, versus funds that did.

Another lens by which Morningstar seeks to assess whether a target-date series' designers have added value is through attribution analysis. Morningstar's attribution analysis breaks down performance into three components: Allocation (the effect of the glide path), Cost (impact of fund expenses), and Selection (effects of security, sector, and style decisions as well as any other elements beyond Allocation and Cost).

Morningstar's attribution analysis compares all the target-date series' returns with those of a single, peer-generated allocation benchmark. That is not as precise as the attribution analysis one might perform on a specific series, relative to its custom benchmark, but it is useful for comparing series broadly against one another.

The three-year attribution data through December 2012 are shown in Exhibit 20. Note the Selection column: It is the area in which a series' managers can add (or detract) value in the most active way. The other columns contain insights as well, sometimes to confirm an assumption and sometimes because they surprise.

The Selection data, much of which is negative, suggests that most target-date managers have not added much value relative to the benchmark with their decisions that extend beyond strategic allocation and cost. Those few series with positive Selection scores definitely warrant attention from investors. (One caveat, however, applies to an outlier in the list, Invesco Balanced-Risk Retirement Series, with its 3.01 Selection score. Invesco uses only a single underlying fund in its series, a risk-parity strategy that has performed very well over the past few years, so the selection effect is essentially equivalent to that single fund.)

Series with significantly negative Selection scores also bear scrutiny, as the figures suggest that the underlying funds in the series have underperformed relative to the norm. Investors should be cautious when interpreting this data as well, however, especially because Morningstar's attribution analysis only covers a three-year period. Manning & Napier Target Series has a poor three-year Selection score, for example, following a few rough years of performance for its underlying Pro-Blend funds, but the series' new five-year record looks far more impressive.

Strategic asset allocation should be the biggest driver of long-term performance for most target-date funds. The Allocation effect column shows the broad trends one might expect; series with heavier equity weightings, such as MassMutual RetireSMART and John Hancock Retirement Living, exhibit positive Allocation scores over the past three years, where stocks have outperformed. Allocation has not added value for series with very conservative glide paths, such as Wells Fargo, PIMCO, and American Century. The negative Allocation score for Fidelity's target-date series is somewhat surprising, given that the firm's glide path is generally close to the industry average, but it may reflect the fact that the series' equity weighting drops significantly below peers' in the post-retirement years.

Like other performance metrics, performance attribution data is best used in concert with other metrics as well as the broader context of a target-date fund's design and history.

Visualizing Performance in Two Dimensions

The 2012 Target-Date Industry Survey featured several scatterplot graphs that displayed performance along two axes: one for risk versus equity allocation and one for risk versus return. The charts showed only 2015 funds' performance over the past three years. The 2013 paper expands those graphs to include 2040 funds as well as both groups' trailing five-year returns (see Exhibits 21–28). (Note that for both the 2015 and 2040 groupings, if a given series did not offer a fund in that category, as is sometimes the case, we included the series' 2020 or 2045 offering to provide a more comprehensive perspective.)

These graphs point to a couple of broad themes. First, the equity/risk trade-off has produced an expected pattern, wherein greater equity exposure corresponds with higher volatility levels. But higher equity and volatility have not always led to higher returns. Series with lower risk levels in many cases have outperformed higher-risk funds. Moreover, that trend is more pronounced over the five-year period, compared with three-year results. That five-year period includes 2008, and the risk/return scatterplots over the five-year periods are at times unrecognizable as standard risk/return graphs, plotting almost inversely to the theoretically typical direction.

The three-year equity versus risk graph for 2015 funds plots a pleasing upward sloping movement, reflective of a period in the markets in which stocks have meaningfully outperformed bonds (although high-yield bonds have approached equitylike returns). Funds with equity-heavy glide paths, such as AllianceBernstein, T. Rowe Price, and John Hancock, appear in the northeast quadrant of the graph (higher equity and higher volatility), while series that emphasize capital protection near retirement, such as Putnam, Wells Fargo, and Allianz, fall in the southwest region (lower equity and lower volatility). The 2015 funds' risk/return graph shows considerable clustering toward the mean but also more anomalies. AllianceBernstein 2015 has the highest standard deviation of the group at 11.9%, for example, but its 6.9% return trails many peers with significantly lower volatility levels. There is also a wide range of realized risk among these funds, ranging from the 11.9% maximum to Putnam's 5.5% level (with commensurately lower returns), resulting from the industry's divergent approaches to asset allocation around an investor's retirement date.

Results for 2040 funds over the three-year period are relatively unexceptional. The equity allocations among 2040 funds are within a relatively narrow range (with the exception of outliers like PIMCO and Invesco), so the funds are more tightly clustered while still displaying a northeasterly drift. Returns are also tightly bunched, with a few series, such as American Century, outperforming relative to their volatility levels and others, such as DWS and AllianceBernstein, underperforming. The five-year graphs for both 2015 and 2040 funds, which include 2008's market crash, show far more-dramatic results. The pattern of returns is extremely disparate, despite reasonably narrow ranges of volatility, especially with the 2040 funds. The trend line for these graphs is more vertical, with a northwesterly movement (higher return with lower volatility). Despite the past few years' bull market, series with more-conservative glide paths, which suffered less-severe losses in 2008, still tend to populate the top end (high returns) of these graphs. There are some notable exceptions, such as T. Rowe Price Retirement 2015, whose five-year return matches that of Wells Fargo Advantage DJ Target 2015, which holds much less in equities and has meaningfully lower volatility. Equity-heavy series with poorly performing underlying funds, including DWS and Alliance Bernstein, tend to fall near the bottom portion of the risk/return graphs, but not always. Putnam RetirementReady 2015, which was managed differently in 2008 and experienced problems in its fixed-income sleeve, has low relative returns despite low volatility over the period. Fidelity Freedom and Advisor Freedom 2040 exhibit below-average returns despite average volatility.

These graphs reinforce that broad glide-path allocations do have a strong connection to return and volatility patterns over time. Still, outliers exist, on both the upside and downside, so investors should pay heed to what's driving outperformance and underperformance. Moreover, in the shorter term, other factors that can play a role in performance—such as underlying-fund and asset-class selection—may lead to far more-variegated and less allocation-dependent results.

Exhibit 16

2045 Target-Date Fund Performance

Data as of 12/31/2012. Source: Morningstar, Inc.

Name	2012 Total Return %	2012 Category Rank %	3-Yr Total Return Annualized %	3-Yr Category Rank %	5-Yr Total Return Annualized %	5-Yr Category Rank %
JPMorgan SmartRetirement 2045 A	18.13	2	9.26	10	2.94	3
T. Rowe Price Retirement 2045	17.62	4	9.75	1	2.38	6
TIAA-CREF Lifecycle 2045 Instl	17.56	5	9.34	8	0.58	49
Harbor Target Retirement 2045 Instl	17.25	7	8.22	51	—	—
Principal LifeTime 2045 Instl	17.07	10	9.34	9	—	—
Great-West Lifetime 2045 III T	16.77	12	8.74	27	—	—
GuideStone Funds MyDestination 2045 GS4	16.60	15	9.49	4	0.48	53
Great-West Lifetime 2045 II T	16.40	18	8.69	29	—	—
American Funds Trgt Date Ret 2045 A	16.36	19	8.45	43	1.57	23
ING Index Solution 2045 Port I	16.19	24	8.46	42	—	—
MassMutual RetireSMART 2045 A	16.02	27	—	—	—	—
Putnam RetirementReady 2045 A	15.96	29	8.18	55	0.4	57
Legg Mason Target Retirement 2045 A	15.84	33	8.48	38	—	—
ING Solution 2045 Port I	15.81	35	8.31	50	–0.06	72.
Great-West Lifetime 2045 I T	15.70	37	8.60	31	—	—
TIAA-CREF Lifecycle Index 2045 Inst	15.67	38	9.07	15	—	—
Great-West SecureFoundation LT 2045 G	15.59	42	7.34	90	—	—
Vanguard Target Retirement 2045 Inv	15.58	43	9.08	14	1.71	22
Vantagepoint Milestone 2045	15.49	47	8.76	25	—	—
Hartford Target Retirement 2045 R3	15.29	56	8.61	30	—	—
BlackRock Lifepath Index 2045 Investor A	15.27	57	—	—	—	—
Russell LifePoints 2045 Strategy R1	15.23	58	7.97	65	—	—
Nationwide Destination 2045 A	15.21	59	8.37	48	0.43	55
JHancock2 Retire Living through 2045 A	15.13	60	7.91	67	0.33	60
BlackRock LifePath 2045 Investor A	15.03	64	—	—	—	—
Wells Fargo Advantage DJ Target 2045 I	15.03	66	8.91	21	2.11	11
Fidelity Freedom K 2045	14.97	69	7.90	70	—	—
Fidelity Freedom 2045	14.79	71	7.74	77	0.1	69
American Century LIVESTRONG 2045 A	14.71	73	9.37	6	1.77	18
BlackRock LifePath Active 2045 Inv A	14.50	80	8.03	63	0.84	37
Fidelity Advisor Freedom 2045 A	14.46	81	8.10	59	–0.28	77
JHancock2 Retirement Choices at 2045 1	14.32	83	—	—	—	—
AllianceBern 2045 Retirement Strat A	14.28	84	5.68	96	–1.95	94
Fidelity Freedom Index 2045 W	13.20	93	8.08	61	—	—
Allianz Glbl Inv Solutions 2045 A	12.98	94	—	—	—	—
Franklin Templeton 2045 Retire Trgt A	10.61	97	7.61	84	1.25	31

Exhibit 17

2015 Target-Date Fund Performance

Data as of 12/31/2012. Source: Morningstar, Inc.

Name	2012 Total Return %	2012 Category Rank %	3-Yr Total Return Annualized %	3-Yr Category Rank %	5-Yr Total Return Annualized %	5-Yr Category Rank %
T. Rowe Price Retirement 2015	13.81	1	8.88	1	3.42	11
TIAA-CREF Lifecycle 2015 Retire	13.31	5	8.55	9	2.54	39
Principal LifeTime 2015 Instl	13.07	7	8.98	1	—	—
Great-West Lifetime 2015 III T	13.00	8	8.45	12	—	—
JHancock2 Retire Living through 2015 A	12.98	8	7.89	35	2.15	49
BlackRock LifePath Active 2015 Inv A	12.47	17	8.33	18	3.4	12
JPMorgan SmartRetirement 2015 A	12.47	18	8.46	11	3.64	5
MassMutual RetireSMART 2015 A	12.46	19	—	—	—	—
Harbor Target Retirement 2015 Instl	12.31	23	8.06	27	—	—
Great-West Lifetime 2015 II T	11.91	27	8.22	20	—	—
Hartford Target Retirement 2015 R3	11.82	29	8.21	22	—	—
ING Solution 2015 Port I	11.70	30	7.42	50	2.20	48
GuideStone Funds MyDestination 2015 GS4	11.46	33	8.83	2	2.84	30
DWS LifeCompass 2015 S	11.42	34	7.00	59	1.04	77
Vanguard Target Retirement 2015 Inv	11.37	34	8.41	13	3.25	17
American Funds Trgt Date Ret 2015 A	11.31	35	7.59	46	1.93	58
TIAA-CREF Lifecycle Index 2015 Inst	11.31	36	8.32	20	—	—
Great-West SecureFoundation® LT 2015 G	11.19	38	7.16	57	—	—
Schwab Target 2015	10.97	45	8.02	33	—	—
Russell LifePoints 2015 Strategy R1	10.90	48	8.14	23	—	—
Fidelity Freedom K 2015	10.81	49	7.32	51	—	—
Great-West Lifetime 2015 I T	10.76	51	7.82	39	—	—
AllianceBern 2015 Retirement Strat A	10.68	51	6.58	74	0.35	89
Fidelity Freedom 2015	10.68	53	7.22	54	2.44	42
ING Index Solution 2015 Port I	10.50	56	6.79	70	—	—
Nationwide Destination 2015 A	10.39	59	6.54	77	1.59	65
American Century LIVESTRONG 2015 A	10.32	62	7.87	37	3.37	15
Fidelity Advisor Freedom 2015 A	10.28	65	7.24	53	2.21	46
Vantagepoint Milestone 2015	10.25	66	6.95	61	2.65	35
Allianz Glbl Inv Solutions 2015 A	10.05	69	7.71	43	—	—
Franklin Templeton 2015 Retire Trgt A	9.20	82	6.89	65	3.16	18
Fidelity Freedom Index 2015 W	9.14	83	6.92	62	—	—
PIMCO RealRetirement 2015 A	9.10	84	—	—	—	—
Putnam RetirementReady 2015 A	8.40	88	5.03	94	0.79	82
Legg Mason Target Retirement 2015 A	7.98	92	5.37	91	—	—
Wells Fargo Advantage DJ Target 2015 I	7.29	96	6.86	68	3.43	10
JHancock2 Retirement Choices at 2015 1	6.42	99	—	—	—	—
DWS Target 2014 A	1.80	100	4.19	100	2.82	32

Exhibit 18

Three-Year Morningstar Risk-Adjusted Return by Target-Date Series

Data as of 12/31/2012. Source: Morningstar, Inc.

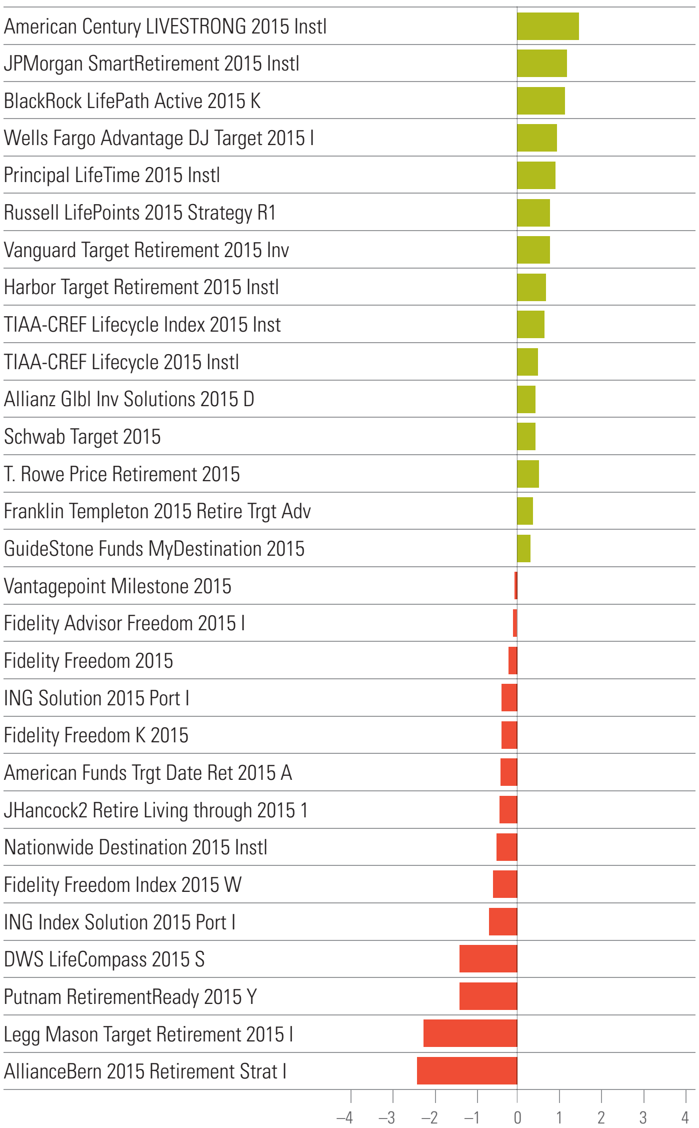
Name	3-Year MRAR %
Invesco Balanced-Risk Retirement Series	10.55
American Century LIVESTRONG Series	7.76
MFS Lifetime Series	7.39
Guidestone Funds MyDestination Series	7.27
JPMorgan SmartRetirement Series	7.25
Principal LifeTime Series	7.22
Schwab Target Series	7.17
TIAA-CREF Lifecycle Series	7.12
PIMCO RealRetirement Series	7.12
T. Rowe Price Retirement Series	7.10
Hartford Target Retirement Series	7.09
Vanguard Target Retirement Series	7.04
TIAA-CREF Lifecycle Index Series	6.94
USAA TARGET RETIREMENT FUNDS Series	6.84
Allianz Global Investors Solutions Serie	6.76
Harbor Target Retirement Series	6.74
BlackRock LifePath® Active Series	6.67
American Funds Trgt Date Rtrmt Series	6.62
Legg Mason Target Retirement Series	6.57
Wells Fargo Advantage DJ Target Date Ser	6.55
Russell LifePoints Target Date Series	6.47
MassMutual RetireSMART Series	6.34
Nationwide Target Destination Series	6.32
MainStay Retirement Series	6.27
BlackRock LifePath Series	6.24
Fidelity Advisor Freedom Series	6.21
Fidelity Freedom Index Series	6.13
John Hancock Retirement Living through S	6.09
State Farm Lifepath Series	6.05
ING Index Solution Series	5.99
Fidelity Freedom K Series	5.95
Vantagepoint Milestone Series	5.92
Putnam RetirementReady Series	5.90
ING Solution Series	5.90
Manning & Napier Target Series	5.88
Fidelity Freedom Series	5.86
Franklin Templeton Retirement Series	5.81
DWS LifeCompass Series	5.50
AllianceBernstein Retirement Str Series	3.94

Exhibit 19

Morningstar Risk-Adjusted Return Deviation From Fund Category

Data as of 12/31/2012. Source: Morningstar, Inc.

2015 Funds



2040 Funds

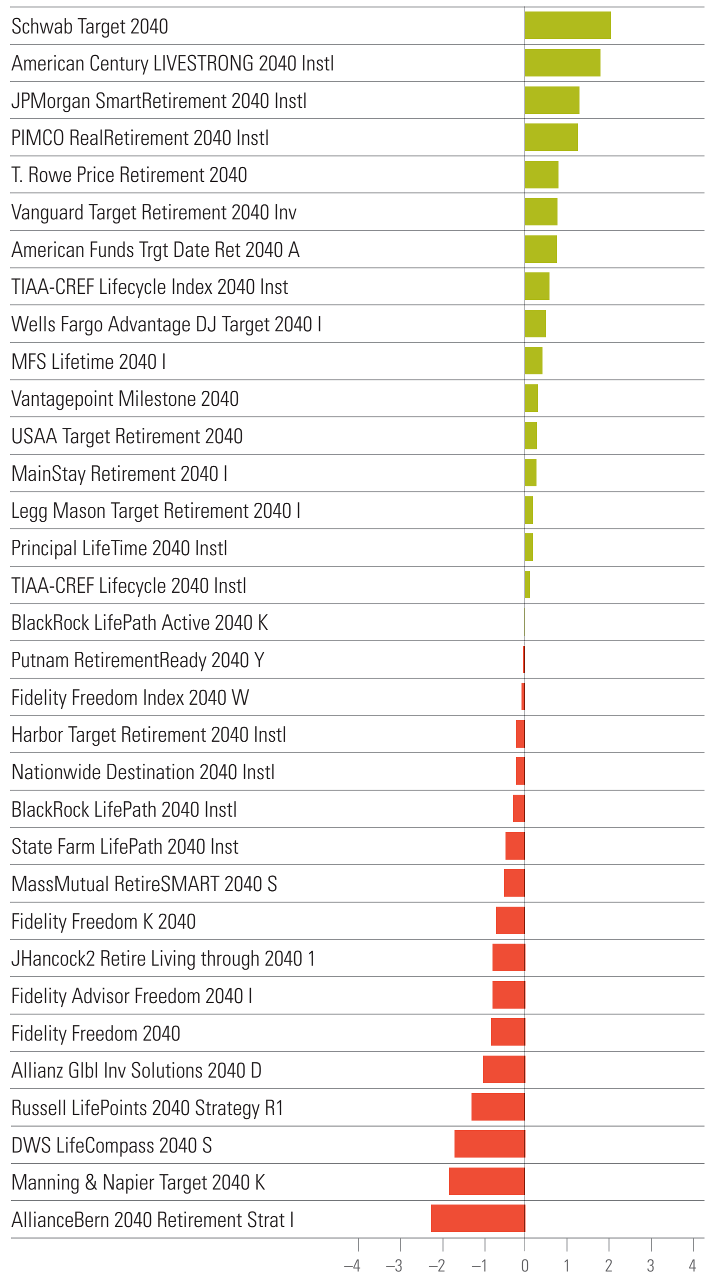


Exhibit 20

Three-Year Performance Attribution, 1/1/10 through 12/31/12

Data as of 12/31/2012. Source: Morningstar, Inc.

Name	Selection	Cost	Allocation	Total Attribution
Invesco Balanced-Risk Retirement Series	3.01	–0.23	–1.00	1.74
USAA TARGET RETIREMENT FUNDS Series	0.53	0.17	–0.75	–0.05
T. Rowe Price Retirement Series	0.29	0.12	0.20	0.62
MFS Lifetime Series	0.27	–0.25	0.04	0.07
Principal LifeTime Series	0.22	0.03	0.10	0.36
Schwab Target Series	0.10	0.15	–0.07	0.18
American Century LIVESTRONG Series	0.10	–0.05	–0.17	–0.13
JPMorgan SmartRetirement Series	0.08	0.04	0.04	0.17
Harbor Target Retirement Series	–0.02	0.21	–0.48	–0.29
Guidestone Funds MyDestination Series	–0.06	–0.24	0.29	–0.01
TIAA-CREF Lifecycle Series	–0.11	0.31	0.23	0.43
Vanguard Target Retirement Series	–0.16	0.73	0.13	0.71
TIAA-CREF Lifecycle Index Series	–0.31	0.68	0.24	0.61
Hartford Target Retirement Series	–0.48	–0.13	0.31	–0.31
Wells Fargo Advantage DJ Target Date Ser	–0.57	0.27	–0.35	–0.65
Legg Mason Target Retirement Series	–0.68	–0.55	0.30	–0.93
Fidelity Freedom K Series	–0.76	0.34	–0.32	–0.74
American Funds Trgt Date Rtrmt Series	–0.77	–0.06	0.25	–0.58
BlackRock LifePath® Active Series	–0.87	–0.26	0.08	–1.05
Fidelity Advisor Freedom Series	–0.88	–0.05	–0.08	–1.01
Fidelity Freedom Series	–0.89	0.24	–0.30	–0.94
MainStay Retirement Series	–0.89	–0.24	0.27	–0.86
MassMutual RetireSMART Series	–0.93	–0.13	0.34	–0.72
Nationwide Target Destination Series	–0.93	–0.02	–0.16	–1.11
PIMCO RealRetirement Series	–0.93	–0.10	–0.29	–1.32
Fidelity Freedom Index Series	–0.98	0.72	–0.29	–0.55
ING Solution Series	–0.99	–0.28	0.28	–0.98
BlackRock LifePath Series	–1.00	–0.03	–0.01	–1.04
John Hancock Retirement Living through S	–1.04	–0.01	0.24	–0.82
ING Index Solution Series	–1.08	0.00	0.21	–0.88
Russell LifePoints Target Date Series	–1.14	–0.02	0.11	–1.04
Vantagepoint Milestone Series	–1.22	0.02	0.31	–0.89
Franklin Templeton Retirement Series	–1.27	–0.46	–0.36	–2.09
State Farm Lifepath Series	–1.43	–0.37	0.08	–1.72
Putnam RetirementReady Series	–1.51	–0.2	–0.08	–1.78
DWS LifeCompass Series	–1.71	–0.12	0.27	–1.55
Manning & Napier Target Series	–1.76	–0.20	–0.15	–2.11
AllianceBernstein Retirement Str Series	–2.51	–0.11	0.19	–2.43

Exhibit 21

2015 Funds' 3-Year Equity vs. Risk

Data as of 12/31/2012. Source: Morningstar, Inc.

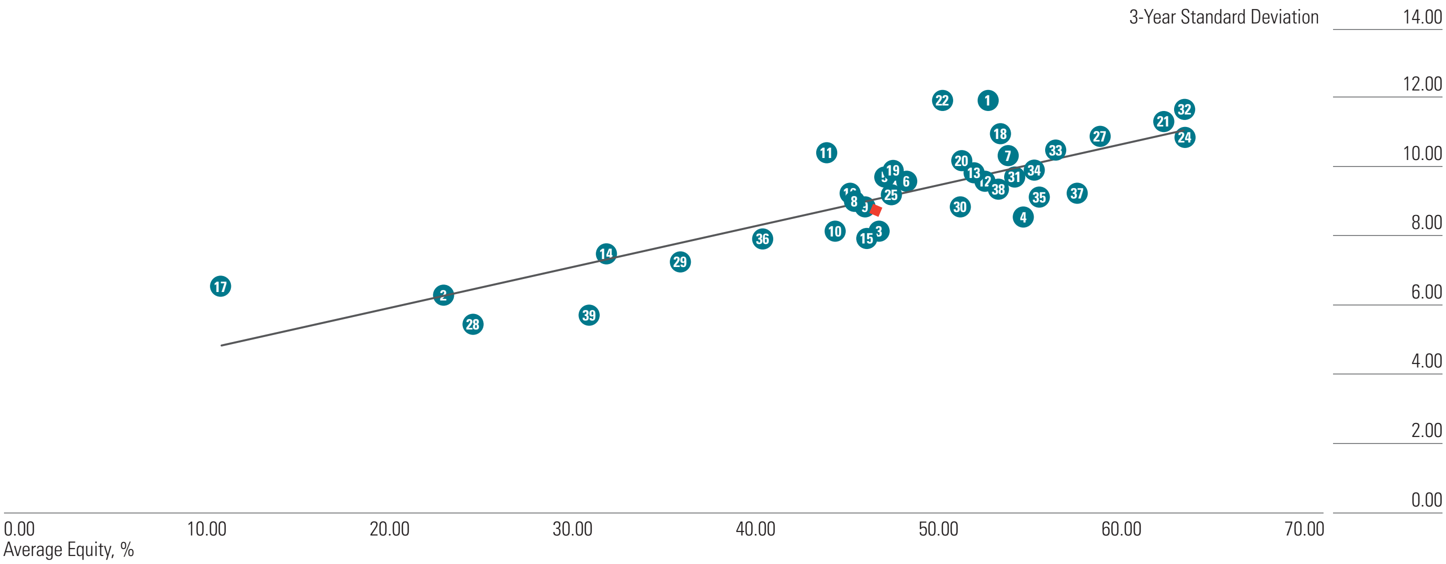
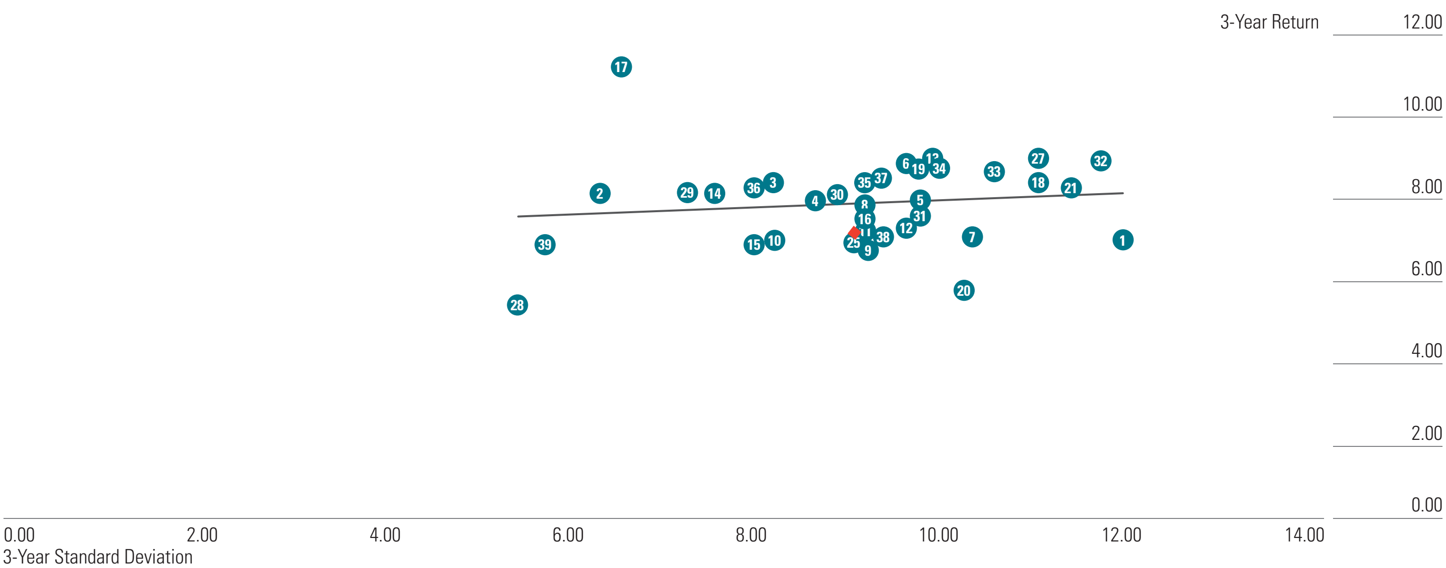


Exhibit 22

2015 Funds' 3-Year Risk vs. Return

Data as of 12/31/2012. Source: Morningstar, Inc.



1. AllianceBern 2015 Retirement Strat I
2. AllianzGI Retirement 2015 R6
3. American Century LIVESTRONG 2015 Instl
4. American Funds Trgt Date Ret 2015 R5
5. BlackRock LifePath 2020 Instl
6. BlackRock LifePath Active 2015 K
7. DWS LifeCompass 2015 S
8. Fidelity Advisor Freedom 2015 I
9. Fidelity Freedom 2015
10. Fidelity Freedom Index 2015 W
11. Fidelity Freedom K 2015
12. Franklin Templeton 2015 Retire Trgt Adv
13. GuideStone Funds MyDestination 2015 GS4
14. Harbor Target Retirement 2015 Instl
15. ING Index Solution 2015 Port I
16. ING Solution 2015 Port I
17. Invesco Balanced-Risk Retire 2020 R5
18. JHancock2 Retire Living through 2015 1
19. JPMorgan SmartRetirement® 2015 Instl
20. Legg Mason Target Retirement 2015 I
21. MainStay Retirement 2020 I
22. Manning & Napier Target 2015 I
23. MassMutual RetireSMART 2015 S
24. MFS Lifetime 2015 R4
25. Nationwide Destination 2015 Instl
26. PIMCO RealRetirement 2015 Institutional
27. Principal LifeTime 2015 Instl
28. Putnam RetirementReady 2015 Y
29. Russell LifePoints 2015 Strategy R1
30. Schwab Target 2015
31. State Farm LifePath 2020 Inst
32. T. Rowe Price Retirement 2015
33. The Hartford Target Retirement 2015 R5
34. TIAA-CREF Lifecycle 2015 Instl
35. TIAA-CREF Lifecycle Index 2015 Inst
36. USAA Target Retirement 2020
37. Vanguard Target Retirement 2015 Inv
38. Vantagepoint Milestone 2015 Inv M
39. Wells Fargo Advantage DJ Target 2015 I

◆ Average

Exhibit 23

2015 Funds' 5-Year Equity vs. Risk

Data as of 12/31/2012. Source: Morningstar, Inc.

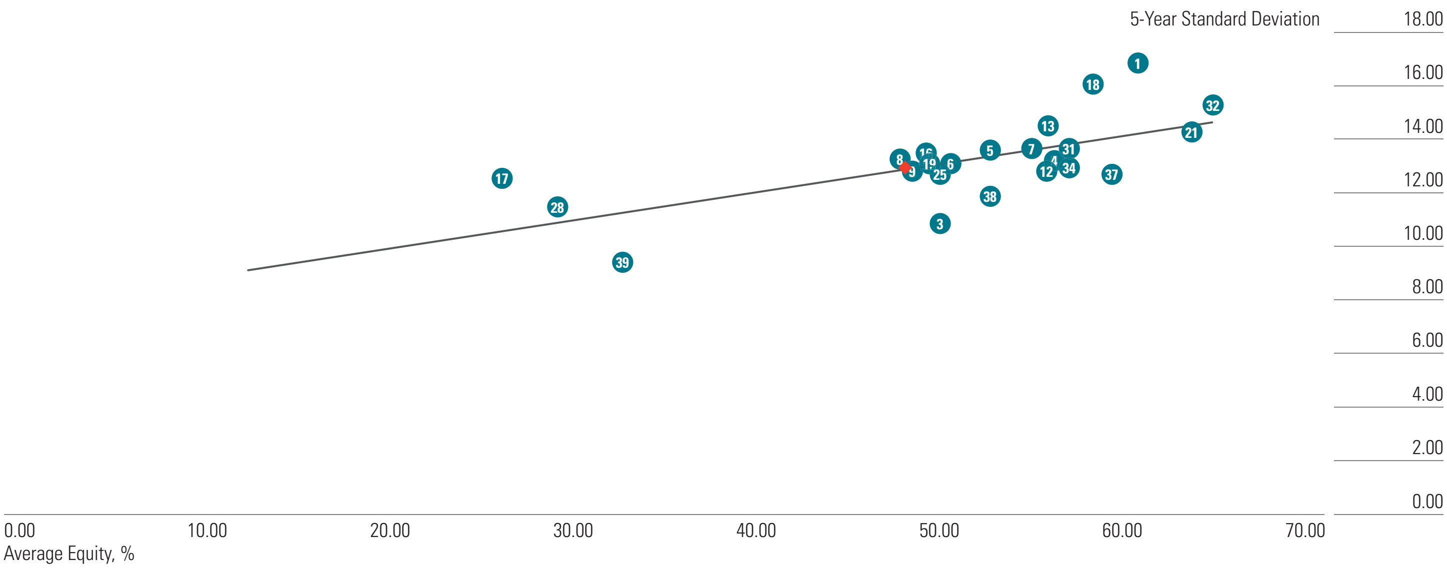
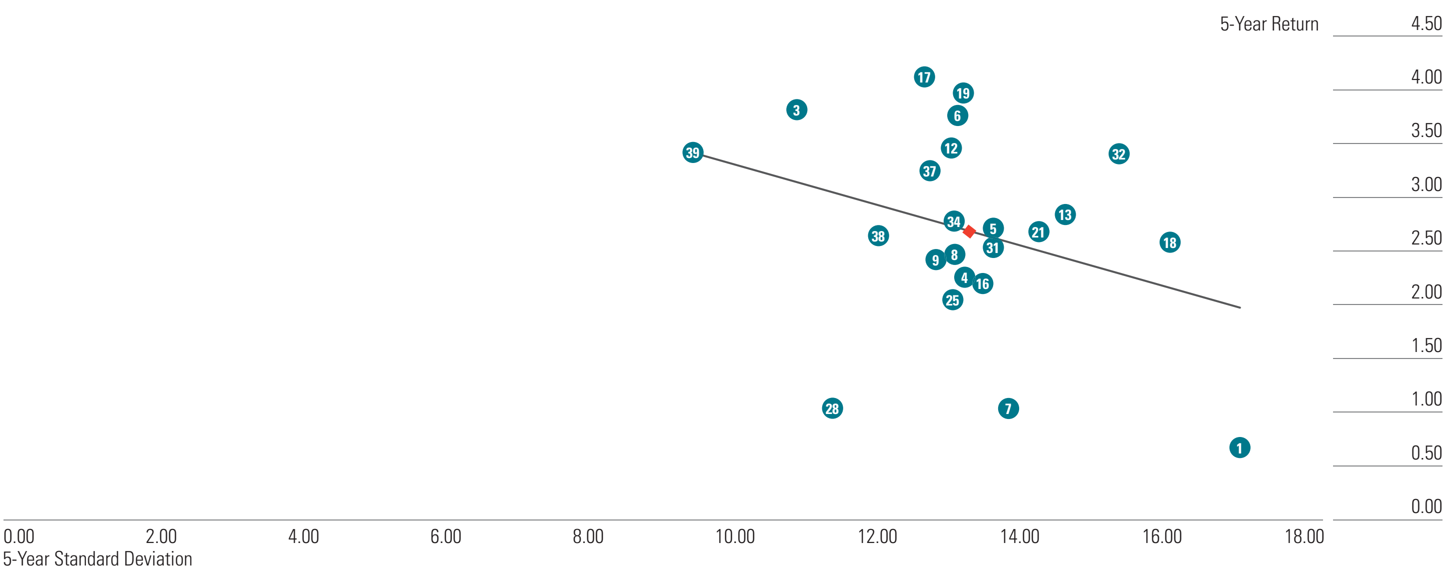


Exhibit 24

2015 Funds' 5-Year Risk vs. Return

Data as of 12/31/2012. Source: Morningstar, Inc.



1 AllianceBern 2015 Retirement Strat I
2 AllianzGI Retirement 2015 R6
3 American Century LIVESTRONG 2015 Instl
4 American Funds Trgt Date Ret 2015 R5
5 BlackRock LifePath 2020 Instl
6 BlackRock LifePath Active 2015 K
7 DWS LifeCompass 2015 S
8 Fidelity Advisor Freedom 2015 I
9 Fidelity Freedom 2015
10 Fidelity Freedom Index 2015 W
11 Fidelity Freedom K 2015
12 Franklin Templeton 2015 Retire Trgt Adv
13 GuideStone Funds MyDestination 2015 GS4
14 Harbor Target Retirement 2015 Instl
15 ING Index Solution 2015 Port I
16 ING Solution 2015 Port I
17 Invesco Balanced-Risk Retire 2020 R5
18 JHancock2 Retire Living through 2015 1
19 JPMorgan SmartRetirement® 2015 Instl
20 Legg Mason Target Retirement 2015 I
21 MainStay Retirement 2020 I
22 Manning & Napier Target 2015 I
23 MassMutual RetireSMART 2015 S
24 MFS Lifetime 2015 R4
25 Nationwide Destination 2015 Instl
26 PIMCO RealRetirement 2015 Institutional
27 Principal LifeTime 2015 Instl
28 Putnam RetirementReady 2015 Y
29 Russell LifePoints 2015 Strategy R1
30 Schwab Target 2015
31 State Farm LifePath 2020 Inst
32 T. Rowe Price Retirement 2015
33 The Hartford Target Retirement 2015 R5
34 TIAA-CREF Lifecycle 2015 Instl
35 TIAA-CREF Lifecycle Index 2015 Inst
36 USAA Target Retirement 2020
37 Vanguard Target Retirement 2015 Inv
38 Vantagepoint Milestone 2015 Inv M
39 Wells Fargo Advantage DJ Target 2015 I
◆ Average

Exhibit 25

2040 Funds' 3-Year Equity vs. Risk

Data as of 12/31/2012. Source: Morningstar, Inc.

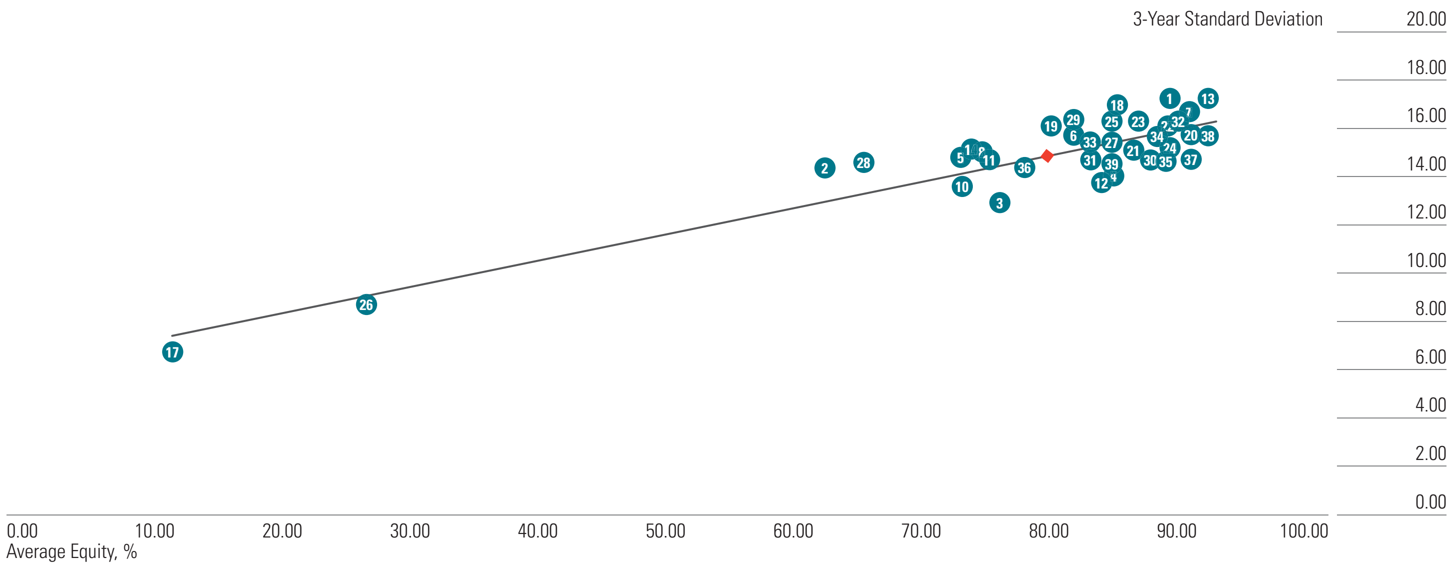
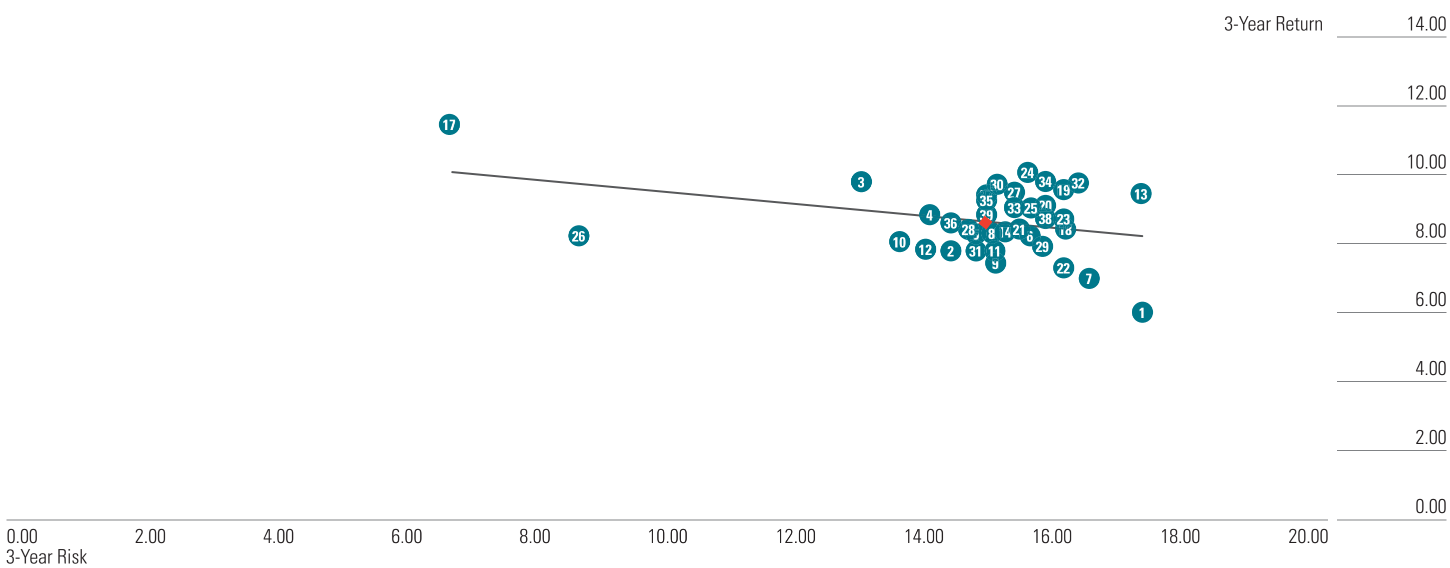


Exhibit 26

2040 Funds' 3-Year Risk vs. Return

Data as of 12/31/2012. Source: Morningstar, Inc.



1. AllianceBern 2040 Retirement Strat I
2. AllianzGI Retirement 2040 R6
3. American Century LIVESTRONG 2040 Instl
4. American Funds Trgt Date Ret 2040 R5
5. BlackRock LifePath 2040 Instl
6. BlackRock LifePath Active 2040 K
7. DWS LifeCompass 2040 S
8. Fidelity Advisor Freedom 2040 I
9. Fidelity Freedom 2040
10. Fidelity Freedom Index 2040 W
11. Fidelity Freedom K 2040
12. Franklin Templeton 2045 Retire Trgt Adv
13. GuideStone Funds MyDestination 2045 GS4
14. Harbor Target Retirement 2040 Instl
15. ING Index Solution 2040 Portfolio Init
16. ING Solution 2040 Portfolios Initial
17. Invesco Balanced-Risk Retire 2040 R5
18. JHancock2 Retire Living through 2040 1
19. JPMorgan SmartRetirement® 2040 Instl
20. Legg Mason Target Retirement 2040 I
21. MainStay Retirement 2040 I
22. Manning & Napier Target 2040 I
23. MassMutual RetireSMART 2040 S
24. MFS Lifetime 2040 R4
25. Nationwide Destination 2040 Instl
26. PIMCO RealRetirement 2040 Instl
27. Principal LifeTime 2040 Instl
28. Putnam RetirementReady 2040 Y
29. Russell LifePoints 2040 Strategy R1
30. Schwab Target 2040
31. State Farm LifePath 2040 Inst
32. T. Rowe Price Retirement 2040
33. The Hartford Target Retirement 2040 R5
34. TIAA-CREF Lifecycle 2040 Instl
35. TIAA-CREF Lifecycle Index 2040 Inst
36. USAA Target Retirement 2040
37. Vanguard Target Retirement 2040 Inv
38. Vantagepoint Milestone 2040 Inv M
39. Wells Fargo Advantage DJ Target 2040 I

◆ Average

Exhibit 27

2040 Funds' 5-Year Equity vs. Risk

Data as of 12/31/2012. Source: Morningstar, Inc.

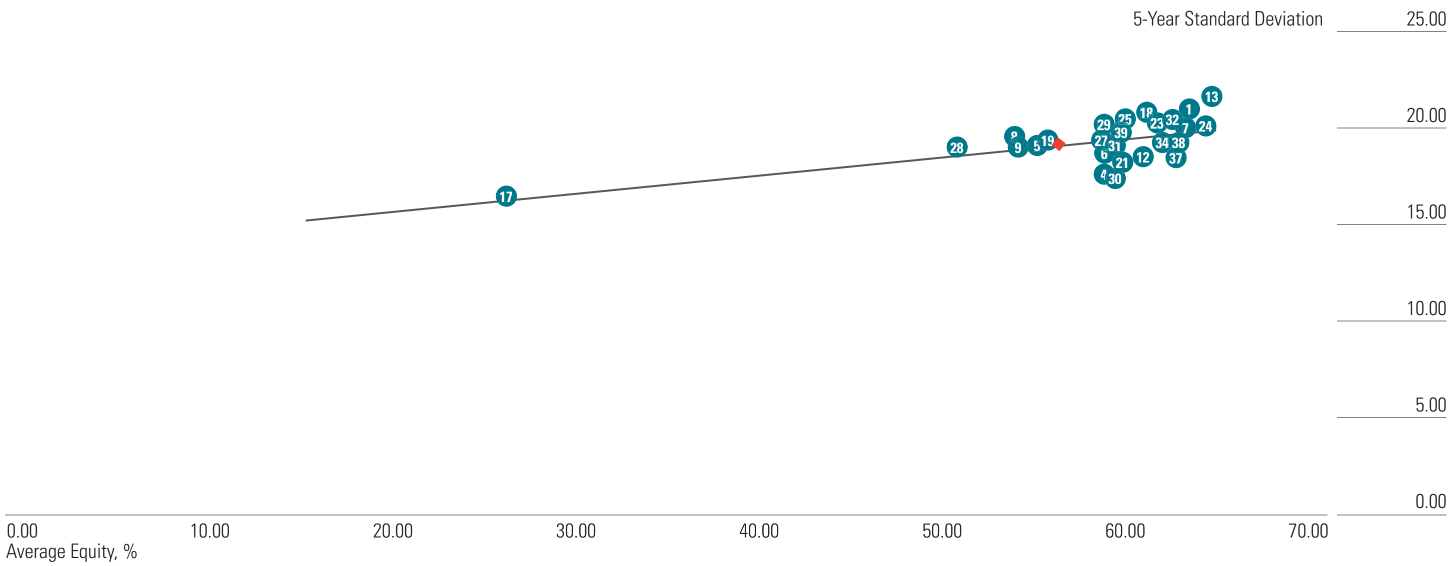
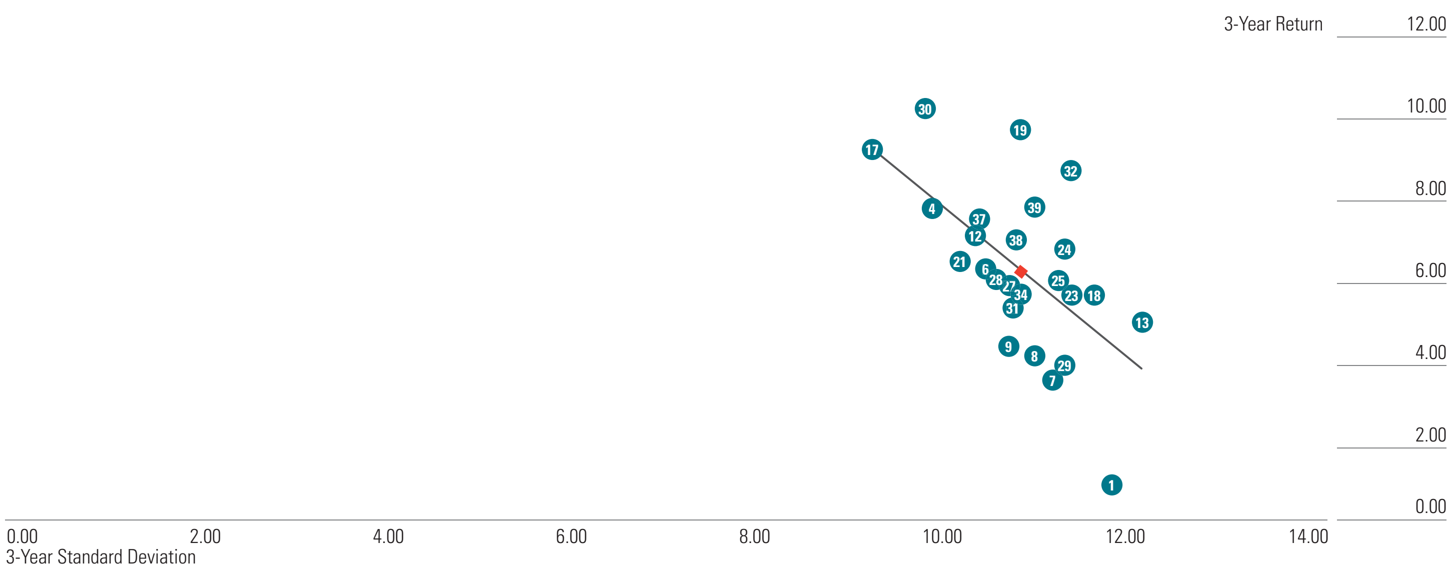


Exhibit 28

2040 Funds' 5-Year Risk vs. Return

Data as of 12/31/2012. Source: Morningstar, Inc.



1. AllianceBern 2040 Retirement Strat I
2. AllianzGI Retirement 2040 R6
3. American Century LIVESTRONG 2040 Instl
4. American Funds Trgt Date Ret 2040 R5
5. BlackRock LifePath 2040 Instl
6. BlackRock LifePath Active 2040 K
7. DWS LifeCompass 2040 S
8. Fidelity Advisor Freedom 2040 I
9. Fidelity Freedom 2040
10. Fidelity Freedom Index 2040 W
11. Fidelity Freedom K 2040
12. Franklin Templeton 2045 Retire Trgt Adv
13. GuideStone Funds MyDestination 2045 GS4
14. Harbor Target Retirement 2040 Instl
15. ING Index Solution 2040 Portfolio Init
16. ING Solution 2040 Portfolios Initial
17. Invesco Balanced-Risk Retire 2040 R5
18. JHancock2 Retire Living through 2040 1
19. JPMorgan SmartRetirement® 2040 Instl
20. Legg Mason Target Retirement 2040 I
21. MainStay Retirement 2040 I
22. Manning & Napier Target 2040 I
23. MassMutual RetireSMART 2040 S
24. MFS Lifetime 2040 R4
25. Nationwide Destination 2040 Instl
26. PIMCO RealRetirement 2040 Instl
27. Principal LifeTime 2040 Instl
28. Putnam RetirementReady 2040 Y
29. Russell LifePoints 2040 Strategy R1
30. Schwab Target 2040
31. State Farm LifePath 2040 Inst
32. T. Rowe Price Retirement 2040
33. The Hartford Target Retirement 2040 R5
34. TIAA-CREF Lifecycle 2040 Instl
35. TIAA-CREF Lifecycle Index 2040 Inst
36. USAA Target Retirement 2040
37. Vanguard Target Retirement 2040 Inv
38. Vantagepoint Milestone 2040 Inv M
39. Wells Fargo Advantage DJ Target 2040 I

◆ Average

Portfolio

When it comes to the portfolio composition of target-date funds, managers often make year-to-year adjustments. These portfolio changes can include replacing a poorly managed active fund with a better-run active fund, substituting actively run funds with passive funds to bring down costs, or adjusting sub-asset-class allocations. In this section, we highlight two major shifts in portfolio composition that have occurred over the past few years: the growing use of passively managed funds and managers' increasing willingness to include more non-U.S. securities. In the final portion of this section, we examine every target-date series' underlying fund quality from a quantitative and qualitative perspective.

The Tides Favor Passive Over Active

Passively managed investing has increasingly gained traction in the target-date industry, both as underlying holdings within a portfolio and as an overall investment approach. Some target-date series providers now include index funds within a portfolio of actively managed funds as a way to lower expenses and to gain more-consistent exposure to an asset class. A handful of other target-date providers now offer exclusively passively managed target-date series, which, in addition to offering the benefits of low fees and broad diversification, are potentially easier than actively managed series for plan sponsors and investors to understand and monitor. As of the end of 2012, there were eight target-date series that invest either entirely or almost entirely in passively managed underlying funds.

Exhibit 31 lists all target-date series according to the percentage of assets in actively managed underlying funds, excluding allocations to cash. The series at the top of the list feature only actively managed underlying holdings, while those at the bottom invest solely in index funds (enhanced index funds are deemed active). The table also shows each series' percentage-point change in its active allocation from 2011 to 2012. On average, the typical target-date series reduced its asset-weighted exposure to actively managed funds by 1 percentage point in favor of passively managed funds in 2012 (this excludes the two John Hancock series, which replaced their index funds with a tactically managed portfolio of index funds that receives an active label).

The main reasons for that shift are to provide greater diversification and to lower costs. For example, the MassMutual RetireSMART series had a 100% allocation to active funds in 2011, which the firm lowered to 91% in 2012. Bruce Picard, who leads the series' portfolio management team, has sought to improve the risk-adjusted returns of the series by combining actively managed underlying funds with passively managed funds. In 2012, Picard added three index funds--which were newly available on MassMutual's fund lineup--to the series' portfolio, covering non-U.S-developed, emerging-markets, and small-cap stocks. The ING Solution series also increased its exposure to index funds already in its series in an effort from management to decrease volatility and improve consistency. The ING series' active weighting dropped to 86% in 2012 from 92% in 2011.

In addition to altering the existing target-date series, numerous asset management firms have launched complementary target-date series that either emphasize or explicitly invest in passive underlying funds. Over the past five years, BlackRock, Fidelity, ING, John Hancock, and TIAA-CREF have each launched index-only target-date series that provide a low-cost and passive alternative to their preexisting actively managed series. In a similar respect, JPMorgan launched the SmartRetirement Blend series in 2012 to complement its longstanding, purely active series. The new series combines passively managed exchange-traded funds with actively managed funds, resulting in a fairly low 31% active weighting.

It's not only fees and investment rationale that's driving firms toward passive strategies. Target-date providers also see a business incentive. The target-date series with the largest inflows in 2012 was the passively managed Vanguard Target Retirement series, which brought in nearly $20 billion in 2012. (To be sure, the series had one actively managed underlying holding—a TIPS fund—but it will be replaced in 2013 with a short-term TIPS index fund.) While Vanguard is the largest index-based target-date series with $124 billion in assets as of Dec. 31, 2012, other newly launched index-focused series have attracted significant assets as well. The Fidelity Freedom Index series has garnered more than $6 billion in assets since its October 2009 inception, while the all-passive John Hancock Retirement Choices series has attracted nearly $4 billion since its April 2010 launch. The target-date industry as a whole remains actively tilted, with 68% of industry assets in actively managed series as of Dec. 31, 2012. But over the course of 2012, only 48% of the industry's inflows went toward actively managed series. That means for every new dollar invested in target-date funds, slightly more than half was invested in a passively managed series. In 2012, flows into passively managed series topped those of actively managed series for the first calendar year, and passively managed series may take the market-share lead from actively managed series in the years to come. As an estimate, if passively and actively managed series continue to grow at the same average rates as they have over the past three years (11% asset growth for actively managed series and 26% asset growth for passively managed series), then total assets in passively managed series would surpass that of actively managed series by the end of 2019.

Embracing International Securities

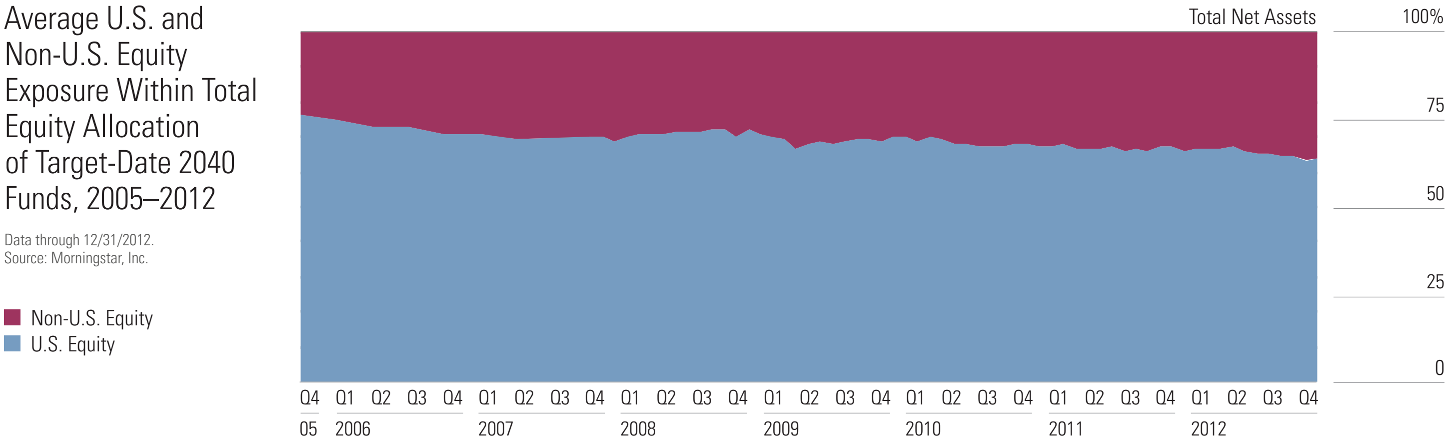
Broad diversification has always been a key characteristic of target-date funds. Over time the series' managers have added more asset classes and sub-asset classes in an effort to increase diversification with the aim of improving the long-term risk-adjusted returns. Common additions have included commodities, global REITs, and alternative strategies.

More subtly, but equally important, the managers of these target-date series have over time signifi-

Exhibit 29

Average U.S. and Non-U.S. Equity Exposure Within Total Equity Allocation of Target-Date 2040 Funds, 2005–2012

Data through 12/31/2012.
Source: Morningstar, Inc.



cantly increased the existing allocations to non-U.S. equities relative to U.S. equities. Exhibit 29 illustrates the industry average allocations to U.S. and non-U.S. stocks within the equity sleeve of the 2040 funds from late 2005 to the end of 2012 (the data is based on the monthly portfolio holdings of each series). The average allocation to foreign stocks has increased to 36% of the equity sleeve as of December 2012 from the 24% average at the end of 2005.

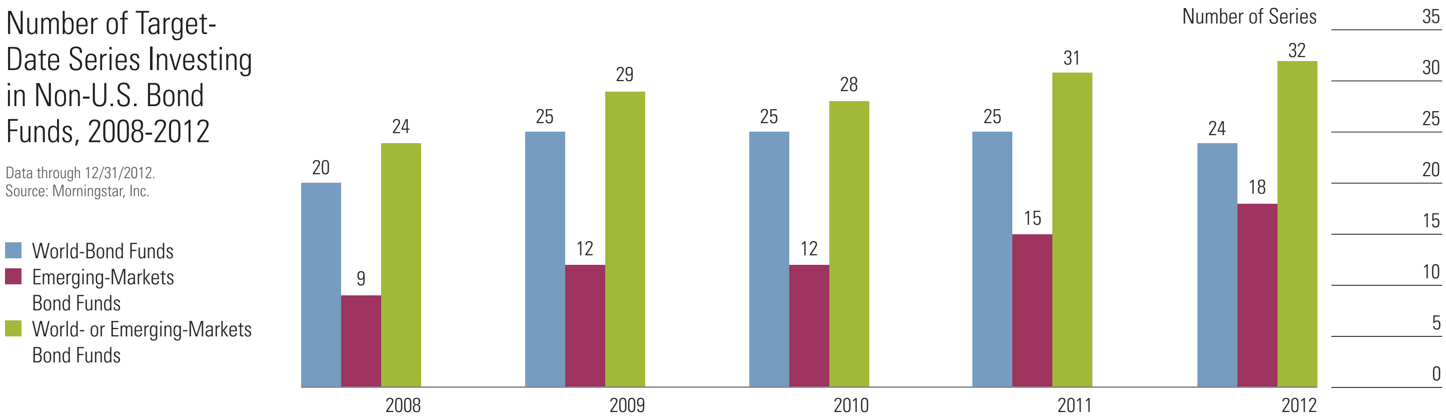
Most target-date managers who have increased their series' non-U.S.-equity allocations say they did so to reflect the growing influence of international businesses on the global market. Target-date series also have expanded internationally on the fixed-income side of the portfolios. This has occurred explicitly in the strategic allocations of the series to foreign developed-markets and emerging-markets bonds, as well as in the securities held by the underlying U.S.-focused bond funds. At the asset-class level, the managers of target-date series have sought ways to diversify their fixed-income exposure away from high-quality U.S. bonds. Some, for example, have added exposures to foreign developed-markets and emerging-markets bonds. Exhibit 30 shows the number of series that included allocations to world-bond funds and emerging-markets bond funds in each of the past five years. Emerging-markets bond exposure has been on the rise, appearing explicitly in nine series in 2008 and 18 series in 2012. For example, Fidelity decided to add an emerging-markets bond allocation to its Freedom and Advisor Freedom series in 2011. More recently, in mid-2013, Vanguard will include a 20% allocation to international bonds within the fixed-income sleeve of its Target Retirement series.

A similar shift overseas also occurred within actively managed core bond funds. Portfolio managers who have historically stuck to U.S. bonds now face meager yields for high-quality domestic debt. As a result, managers have been more willing to own higher-yielding foreign sovereign and corporate bonds to offset the low yields available in the U.S. Unfortunately, bond-fund portfolio data is notoriously difficult to interpret accurately, so the impact of this trend on target-date portfolios is unclear.

Exhibit 30

Number of Target-Date Series Investing in Non-U.S. Bond Funds, 2008-2012

Data through 12/31/2012.
Source: Morningstar, Inc.



For investors and retirement-plan sponsors, the increasing allocations to foreign stocks and bonds within target-date series create challenges related to setting expectations and benchmarking performance. The most significant hurdle may be a shift in investor expectations for how their target-date funds perform. While foreign securities can improve a portfolio's diversification, those benefits are not always immediately or consistently apparent. Investors who expect their equity stake to perform in line with U.S. stocks may be disappointed if domestic stocks rally and non-U.S. stocks drag on their short-term target-date fund returns. More-diversified fixed-income sleeves may prompt similar concerns. Plan sponsors also must adapt how they compare target-date series' returns to benchmark indexes and peers. For those series with foreign allocations that stand out from the industry norm, sponsors can expect the funds' performance to be out of line with their typical peers' as well.

Viewing Target-Date Fund Selection Through Multiple Lenses

Target-date fund portfolios are typically structured as funds of funds, and the quality of those underlying mutual fund managers is an important factor in assessing target-date series. Indeed, Morningstar explicitly incorporates measures of underlying fund quality in its Morningstar Analyst Rating for target-date series. This section of the industry survey looks at the underlying funds for every target-date series from both a qualitative and quantitative perspective. The qualitative approach considers the Morningstar Analyst Rating and the quantitative lens uses the Morningstar Rating for funds (commonly known as the "star rating").

Morningstar's fund analysts cover more than 1,400 open-end funds and ETFs, many of which are held in the portfolios of target-date series. Each open-end fund on Morningstar's coverage list receives a qualitative Morningstar Analyst Rating. Similar to the Morningstar Analyst Rating for target-date series, the analysts consider both quantitative and qualitative factors in evaluating the people, process, parent company, performance, and price of a fund to arrive at an overall rating. The rating scale is Gold, Silver, Bronze, Neutral, and Negative. If a fund earns a medal (Analyst Ratings of Gold, Silver, or Bronze), Morningstar analysts expect the fund to outperform its average peers and benchmarks on a risk-adjusted basis over a full market cycle. Analysts have higher conviction in Gold-rated funds than in the Silver- or Bronze-rated funds. The Negative-rated funds have at least one serious flaw that we expect will cause them to underperform their peers and benchmarks on a risk-adjusted basis over a market cycle. If the analysts don't have a strong conviction about a fund's prospects and it is not seriously flawed, then it receives a Neutral rating.

Exhibit 32 presents the distribution of Morningstar Analyst Ratings for the underlying holdings across all target-date series. The top half of the table lists series in which Morningstar analysts rate at least half of the underlying funds on an asset-weighted basis. The bottom half includes those series in which fewer than half the underlying funds are rated. The first column shows the percentage of assets in underlying funds that earn a medal from Morningstar. We then show the coverage ratio by percentage of assets in underlying funds that receive ratings. The last three columns show the percentage of assets under coverage by ratings group for Medalist, Neutral, and Negative categories.

The five series with the highest percentage of assets in Medalist-rated underlying funds also receive positive target-date series ratings. The T. Rowe Price and Vanguard target-date series each earn Gold ratings and invest 67% and 72%, respectively, of their assets in Medalist-rated underlying funds. The top of the list also includes the Silver-rated Manning & Napier and American Funds target-date series, which invest 100% and 84%, respectively, of their assets in underlying funds with Gold, Silver, or Bronze ratings. The strong correlation between highly rated underlying funds and highly rated series is no coincidence. Part of Morningstar's analysis of target-date series involves evaluating the quality of the underlying holdings. When Morningstar analysts have a high conviction that the underlying funds will outperform their peers, that often bodes well for the series as a whole.

A number of series have very low coverage ratios. In several cases, however, Morningstar analysts know the underlying funds well, even though they're unrated. For instance, the John Hancock target-date series has a 2% Morningstar Analyst Rating coverage ratio, but it invests in its own group of funds that are subadvised by well-known managers. While Morningstar analysts don't rate many of the John Hancock versions of the funds, the analysts do have a positive view on many of the subadvisors. In addition, some of the series own pools of securities, such as stocks and bonds, rather than investing in underlying funds. This is the case for AllianceBernstein and Wells Fargo. Both have 0% coverage ratios, but the pools of securities represent strategies that Morningstar has studied as part of its research on the series.

Another way to evaluate target-date portfolios is to look at the average Morningstar Rating of the underlying funds. Exhibit 33 lists the asset-weighted average star rating for each target-date series as of the end of 2012 and 2011, as well as the coverage ratio for the 2012 ratings. Morningstar assigns a star rating to each fund with at least a three-year track record, so most target-date series' coverage ratio is more than 80% of assets. The Morningstar Rating quantitatively compares each fund's risk-adjusted returns with other funds in its Morningstar category, and it assigns stars based on a bell-curve distribution.

The star rating is a helpful tool for comparing risk-adjusted returns, but like most quantitative metrics, it has its limitations. For example, the Morningstar Rating is not intended to predict how well a fund will fare going forward. For instance, the star rating does not account for manager changes, such that if a portfolio manager produces great results at a fund and then departs, the star rating does not change. The Morningstar Analyst Rating does consider the impact of manager changes, as well as numerous other fundamental characteristics of a fund.

One take-away from the list is that the asset-weighted average star ratings of target-date series portfolios skew toward the higher ratings. The target-date industry average rating is 3.5 stars, whereas the entire fund industry average is 3.0 stars. One possible reason for the positive bias is that the portfolio managers of target-date series may have initially selected funds that proceeded to beat their category peers, which would be a positive finding for target-date series. Another possibility is that target-date managers may be reluctant to hold on to underperforming funds and have replaced lower-rated funds with 4- and 5-star funds.

A review of this data also suggests that a portfolio of funds with high star ratings does not necessarily equate to a strong-performing target-date series overall. Several of the target-date series with among the highest average asset-weighted star rating of the underlying funds exhibit only middling performance for the series as a whole. For example, the ING Solution series has an asset-weighted average star rating of 3.8 stars but has a below-average five-year return for the series as a whole (specific data can be found in the Performance section of this paper). Meanwhile, the American Century LIVESTRONG series has an average star rating of 3.3 stars on its underlying funds but has one of the better five-year records for the series as a whole. Some series' distinctive asset-allocation structure may explain why performance differs from the peer group average, rather than the underlying funds' star ratings. That is the case for American Century, in which the series' below-average equity exposure has served it well over the past five years. As for ING, the series previously owned poor-performing underlying funds, many of which have been replaced in recent years.

Exhibit 31

Target-Date Series' Active Management

Data as of 12/31/2012. Source: Morningstar, Inc.

Name	2012 Actively Managed %	2011 Actively Managed %	Change From 2011 to 2012 % point
AllianceBernstein	100.0	100.0	0.0
American Century LIVESTRONG Series	100.0	100.0	0.0
American Funds Trgt Date Rtrmt Series	100.0	100.0	0.0
BlackRock LifePath Active	100.0	—	—
Guidestone Funds MyDestination Series	100.0	100.0	0.0
Harbor Target Retirement Series	100.0	100.0	0.0
Hartford Target Retirement Series	100.0	97.1	2.9
Invesco Balanced-Risk Retirement Series	100.0	100.0	0.0
John Hancock Retirement Living through S	100.0	66.9	—
JPMorgan SmartRetirement Series	100.0	100.0	0.0
Manning & Napier Target Series	100.0	100.0	0.0
MFS Lifetime Series	100.0	100.0	0.0
Putnam RetirementReady Series	100.0	100.0	0.0
Russell LifePoints Target Date Series	100.0	100.0	0.0
TIAA-CREF Lifecycle Series	100.0	100.0	0.0
PIMCO RealRetirement Series	95.7	—	—
Allianz Global Investors Solutions Serie	94.5	87.3	7.1
USAA TARGET RETIREMENT FUNDS Series	94.0	93.6	0.4
Fidelity Advisor Freedom Series	91.2	89.7	1.5
MassMutual RetireSMART Series	90.9	100.0	–9.1
Fidelity Freedom K Series	89.3	89.5	–0.2
Fidelity Freedom Series	89.1	89.3	–0.2
T. Rowe Price Retirement Series	85.8	84.4	1.5
ING Solution Series	85.6	91.9	–6.3
Principal LifeTime Series	84.4	89.1	–4.7
Vantagepoint Milestone Series	81.3	81.2	0.1
PNC Target Series	78.5	—	—
MainStay Retirement Series	77.2	88.5	–11.4
Schwab Target Series	74.3	74.0	0.4
State Farm Lifepath Series	71.8	71.6	0.1
Legg Mason Target Retirement Series	68.5	67.3	1.2
Great-West Lifetime II Series	62.0	62.6	–0.6
Great-West Lifetime I Series	61.7	64.7	–3.0
DWS LifeCompass Series	60.4	65.4	–5.0
Great-West Lifetime III Series	59.0	60.7	–1.6
John Hancock Retirement Choices Series	45.7	0.0	45.7
JPMorgan SmartRetirement Blend Series	31.3	—	—
LVIP Protected Profile Series	29.2	—	—
Nationwide Target Destination Series	21.3	20.0	1.2
Fidelity Freedom Index Series	11.6	11.6	0.0
Vanguard Target Retirement Series	3.5	3.2	0.3
TIAA-CREF Lifecycle Index Series	1.6	1.6	0.1

Exhibit 31

Target-Date Series' Active Management (Continued)

Data as of 12/31/2012. Source: Morningstar, Inc.

Name	2012 Actively Managed %	2011 Actively Managed %	Change From 2011 to 2012 %
iShares S&P Target Date Series	0	0	0
Wells Fargo Advantage	0	0	0
BlackRock LifePath Index	0	—	—
BlackRock LifePath	—	—	—

Exhibit 32

Target-Date Series' Morningstar Analyst Rating Coverage

Data as of 12/31/2012. Source: Morningstar, Inc.

Name	Total Assets in Medalist %	Coverage %	Medalist %	Neutral %	Negative %
Series With Coverage Greater Than 50% of Assets					
Manning & Napier Target Series	100	100	100	0	0
American Funds Trgt Date Rtrmt Series	84	96	88	12	0
Vanguard Target Retirement Series	72	72	100	0	0
T. Rowe Price Retirement Series	67	93	72	28	0
PIMCO RealRetirement Series	62	73	84	16	0
Allianz Global Investors Solutions Serie	61	64	96	4	0
Harbor Target Retirement Series	58	63	92	8	0
USAA TARGET RETIREMENT FUNDS Series	49	55	90	10	0
MFS Lifetime Series	48	55	88	12	0
Franklin Templeton Retirement Series	47	64	73	27	0
Legg Mason Target Retirement Series	42	51	83	11	7
Invesco Balanced-Risk Retirement Series	0	90	0	100	0
Russell LifePoints Target Date Series	0	69	0	100	0
Series With Coverage Less Than 50% of Assets					
MainStay Retirement Series	28	28	100	0	0
Hartford Target Retirement Series	27	39	70	30	0
JPMorgan SmartRetirement Series	25	30	84	16	0
Fidelity Freedom Index Series	25	25	100	0	0
Schwab Target Series	20	34	60	40	0
BlackRock LifePath® Active Series	11	19	56	44	0
ING Solution Series	10	14	72	28	0
Fidelity Freedom Series	10	13	72	28	0
Fidelity Freedom K Series	9	13	71	29	0
Fidelity Advisor Freedom Series	7	23	31	69	0
MassMutual RetireSMART Series	7	13	53	21	26
American Century LIVESTRONG Series	6	6	100	0	0
DWS LifeCompass Series	1	3	33	36	31
Principal LifeTime Series	1	11	8	92	0
TIAA-CREF Lifecycle Series	0	23	0	100	0
JHancock Retiremnt Living through Series	0	2	0	100	0
AllianceBernstein Retirement Str Series	0	0	0	0	0
BlackRock LifePath Series	0	0	0	0	0
Guidestone Funds MyDestination Series	0	0	0	0	0
ING Index Solution Series	0	0	0	0	0
Nationwide Target Destination Series	0	0	0	0	0
Putnam RetirementReady Series	0	0	0	0	0
State Farm Lifepath Series	0	0	0	0	0
TIAA-CREF Lifecycle Index Series	0	0	0	0	0
Vantagepoint Milestone Series	0	0	0	0	0
Wells Fargo Advantage DJ Target Series	0	0	0	0	0

Exhibit 33

Target-Date Series' Average Morningstar Rating

Data as of 12/31/2012. Source: Morningstar, Inc.

Name	2012 Morningstar Rating Stars	2011 Morningstar Rating Stars	Rating Change From 2011 to 2012	2012 Coverage %	2012 Holdings with Ratings
Invesco Balanced-Risk Retirement Series	5.00	—	—	0.90	2
PIMCO RealRetirement Series	4.24	4.48	–0.24	0.75	13
American Funds Trgt Date Rtrmt Series	3.95	3.91	0.04	0.98	21
Allianz Global Investors Solutions Serie	3.94	4.15	–0.21	0.92	28
Franklin Templeton Retirement Series	3.93	4.05	–0.13	0.88	23
ING Solution Series	3.84	3.73	0.12	0.78	24
Fidelity Freedom Index Series	3.81	3.62	0.18	0.96	5
Vanguard Target Retirement Series	3.72	4.00	–0.28	1.00	7
JHancock Retiremnt Living through Series	3.72	3.23	0.49	0.53	38
JPMorgan SmartRetirement Series	3.72	3.63	0.09	0.91	19
Legg Mason Target Retirement Series	3.65	3.31	0.35	0.97	19
USAA TARGET RETIREMENT FUNDS Series	3.62	3.65	–0.03	0.97	13
Vantagepoint Milestone Series	3.60	3.38	0.22	1.00	9
TIAA-CREF Lifecycle Index Series	3.58	3.81	–0.22	0.95	4
MassMutual RetireSMART Series	3.56	3.36	0.20	0.84	29
MainStay Retirement Series	3.54	3.57	–0.02	0.97	18
TIAA-CREF Lifecycle Series	3.53	3.36	0.17	0.92	15
BlackRock LifePath® Active Series	3.52	—	—	0.48	17
Harbor Target Retirement Series	3.52	3.93	–0.41	0.99	14
T. Rowe Price Retirement Series	3.51	3.43	0.07	0.93	16
MFS Lifetime Series	3.50	3.66	–0.16	0.91	18
Hartford Target Retirement Series	3.48	3.48	0.00	0.73	9
Schwab Target Series	3.38	3.26	0.12	0.98	20
Manning & Napier Target Series	3.34	2.84	0.50	1.00	4
American Century LIVESTRONG Series	3.32	3.38	–0.05	0.92	13
Russell LifePoints Target Date Series	3.29	3.02	0.28	0.96	11
BlackRock LifePath Series	3.26	3.33	–0.07	0.25	7
Principal LifeTime Series	3.25	3.16	0.09	0.96	25
State Farm Lifepath Series	3.25	3.34	–0.09	0.27	7
Guidestone Funds MyDestination Series	3.16	3.23	–0.08	0.84	10
Nationwide Target Destination Series	3.15	3.11	0.03	0.79	7
Fidelity Freedom K Series	3.01	2.95	0.06	0.89	17
Fidelity Freedom Series	2.88	2.94	–0.06	0.88	17
ING Index Solution Series	2.81	2.81	0.00	0.95	8
Fidelity Advisor Freedom Series	2.75	2.97	–0.22	0.89	16
DWS LifeCompass Series	2.73	2.73	–0.01	0.98	36
Putnam RetirementReady Series	2.69	2.57	0.12	0.87	7

Price

Like many investment offerings aimed at investors' retirement assets, target-date funds have felt the twin pressure of regulatory and market forces bearing down on their expense ratios. Calls for increased fee transparency from the Department of Labor have prompted plan sponsors to take a more careful look at fund expenses. Meanwhile, the ever-growing market share of passively managed strategies--they accounted for 32% of net flows in 2012 but just 14% 10 years ago--serves as a reminder of how the proliferation of these low-cost options has changed the industry's pricing landscape.

It's not too surprising, then, that expense ratios have continued to decline for the fourth year in a row since Morningstar began its annual target-date industry survey. Exhibit 34 shows the industry average of all target-date mutual funds' asset-weighted average expense ratios over that time.

In 2012, the industry saw an unprecedentedly large fee drop, to 0.91% from 0.99% the year prior. Part of that change was likely due to some investors shifting into lower-cost share classes within a given series, as asset-weighted figures give more weight to series' largest share classes. A few other factors have driven the decrease as well. For example, some of the industry's priciest target-date providers, Goldman Sachs and Oppenheimer in particular, shuttered their target-date offerings in 2012. Those series had weighted average expense ratios of 1.21% and 1.55%, respectively, at the end of 2011.

Of course, asset-weighted expense ratios are just one way to compare fees. It's a method that conveys investors' actual fee experience within the funds, though it also tends to penalize

Exhibit 34

Average of Industry's Asset-Weighted Average Expense Ratio, 2008–2012

Data through 12/31/2012.
Source: Morningstar, Inc.

Year	Industry Average %
2008	1.04
2009	1.03
2010	1.02
2011	0.99
2012	0.91

series that concentrate more on investors and retirement plans with smaller asset bases. To help account for those nuances and different channels, Morningstar enhanced its target-date series fee rating methodology at the end of 2012.

The previous methodology ranked a series by its lowest-cost share class with at least 10% of assets—an approach that eliminated from consideration cheaper share classes that were launched but only lightly sold. The updated process uses Morningstar Fee Level—Distribution, which compares each series' individual share classes with other funds in the same distribution channel. (See Morningstar Methodology Paper: Morningstar Fee Level, April 30, 2013, for breakdown of fee groups used and additional details.) Series are then ranked via an asset-weighted average of their share class' fee level ranks. Exhibit 37, at the end of this section, presents the results of the new methodology.

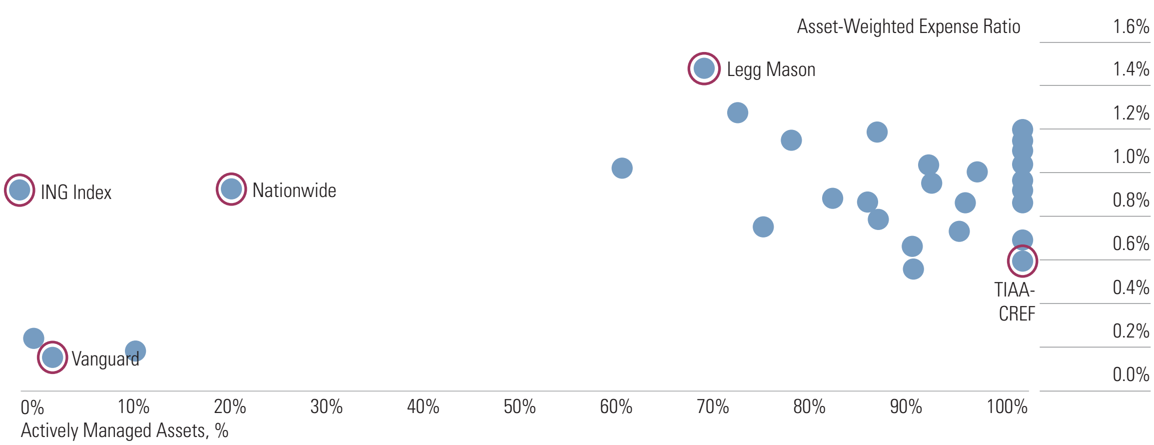
For the most part, series with lower asset-weighted expense ratios also tend to have better fee level rankings. Vanguard, for example, has both the cheapest asset-weighted expense ratio and the best asset-weighted fee level ranking. A number of funds that are primarily distributed through advisors or that are aimed at smaller retirement plans run contrary to this trend, though. American Funds' weighted average expense ratio of 0.96%, for instance, seems middling, ranking 23rd out of 39 competitors. However, its asset-weighted Fee Level ranks in the group's 14th percentile, reflecting that the series' front-load A share class holds the lion's share of the series assets and is very reasonably priced within the advisor-sold channel.

The Hartford Target Retirement Series also has a similarly large discrepancy between its asset-weighted expense ratio and its asset-weighted fee level rank. Hartford ranks behind almost three fourths of target-date series on an asset-weighted expense ratio basis, but it actually tops more than three fourths of peers when considering fee levels. Most of that series' assets are in the R3 and R4 share classes, which are both aimed at medium-size retirement plans (or, retirement

Exhibit 35

Asset-Weighted Expense Ratios by Actively Managed Assets

Data through 12/31/2012.
Source: Morningstar, Inc.



share classes with 12b-1 fees that are greater than 0.00% and less than or equal to 0.50%). The series has very reasonable fees within that market segment, which often requires expense ratios with higher built-in servicing fees to make up for a smaller number of plan participants.

No matter the sales channel, though, the drop in the industry's overall asset-weighted expense ratio suggests that target-date providers are still striving to lower their fees. Aside from outright price cuts, target-date providers have a few other levers to pull in their efforts to decrease fees. Adding more low-cost, passively managed underlying strategies is one means of doing this. As Exhibit 35 shows, there's a direct, if not always consistent, relationship between a series' use of actively managed strategies and its fees.

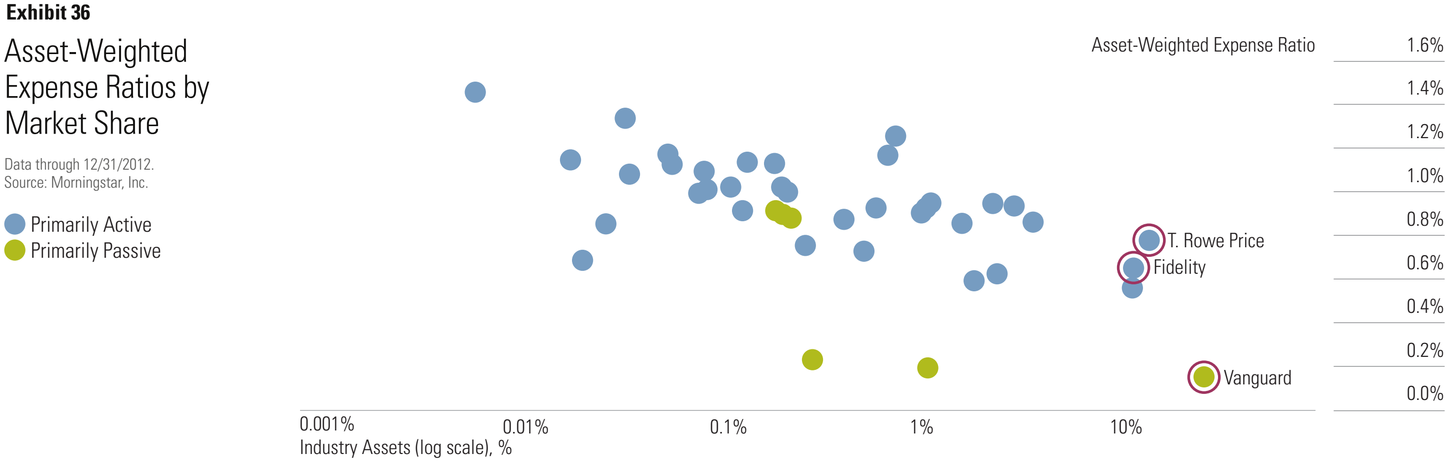
Perhaps unsurprisingly, passively managed strategies occupy the lowest rungs of the fee ladder. Vanguard, with asset-weighted fees of 0.15%, keeps its multiyear reign as the lowest-priced provider. (Its minimal allocation to TIPS counts as the series' actively managed component, though the series will become fully composed of passively managed holdings in 2013.) Passive management doesn't guarantee the lowest costs, though, as the ING Index and Nationwide Target Destination series' expenses can attest. TIAA-CREF's all-active lineup easily undercuts both on fees.

Oversight fees—the additional levy that some managers charge on top of the underlying strategies' expenses ratios—also may be ripe for cuts. For example, the industry's three largest target-date series, Vanguard Target Retirement, Fidelity Freedom, and T. Rowe Price Retirement, do not charge an oversight fee. Instead, they rely solely on the fees generated by their target-date series' underlying funds. Of course, their massive market shares of target-date assets mean that they have a larger base from which to generate fees, though that size should also help them to pass along some of the economies of scale gained when assets grow. Some series that do charge oversight fees include TIAA-CREF (0.10% on top of the fees from the series' underlying funds) and Manning & Napier (a 0.05% additional fee).

Exhibit 36

Asset-Weighted Expense Ratios by Market Share

Data through 12/31/2012.
Source: Morningstar, Inc.



For most target-date managers, increasing scale through asset growth likely remains the preferred means of lowering costs. Exhibit 36 suggests that, for the most part, the industry does pass along those savings of scale to investors; there's a distinct relationship between series' asset-weighted expense ratios and the share of the industry's target-date assets.

It's important to note that comparing target-date expenses isn't necessarily as straightforward as comparing one asset-weighted fee versus another. Using a fee level comparison helps, though fee levels also may not represent a comprehensive view. For instance, within some employer-sponsored retirement savings plans, higher-priced funds may include fees used to pay for record-keeping and other administrative services, while plans that use lower-priced funds may pay those fees out-of-pocket. There's no data available, however, to identify when one or the other is the case, leaving series' expense ratios—whether asset-weighted or via fee level comparisons—as the main means of comparing the cost of owning one fund family's target-date offering versus another's.

Exhibit 37

Target-Date Series Asset-Weighted Average Expense Ratios

Data as of 12/31/2012. Source: Morningstar, Inc.

Name	Asset-Weighted Expense Ratio %	Assets in Industry %	Actively Managed %	Weighted Fee Level Percentile Rank
Vanguard Target Retirement Series	0.15	30.0	3	1
Fidelity Freedom Index Series	0.19	1.3	12	3
TIAA-CREF Lifecycle Index Series	0.23	0.3	2	3
Fidelity Freedom K Series	0.57	13.6	89	16
TIAA-CREF Lifecycle Series	0.60	2.2	100	7
Wells Fargo Advantage DJ Target Date Ser	0.63	2.8	n/a	31
Fidelity Freedom Series	0.67	13.1	89	24
Harbor Target Retirement Series	0.70	0.0	100	31
USAA TARGET RETIREMENT FUNDS Series	0.74	0.6	94	34
Schwab Target Series	0.76	0.3	74	36
T. Rowe Price Retirement Series	0.79	16.0	86	38
Allianz Global Investors Solutions Serie	0.86	0.0	94	33
JPMorgan SmartRetirement Series	0.87	1.9	100	40
Principal LifeTime Series	0.87	4.2	85	46
Vantagepoint Milestone Series	0.88	0.5	81	60
ING Index Solution Series	0.90	0.3	0	23
John Hancock Retirement Living through S	0.92	1.2	100	60
Nationwide Target Destination Series	0.93	0.2	21	22
Russell LifePoints Target Date Series	0.93	0.2	100	49
BlackRock LifePath Series	0.94	0.7	n/a	56
Fidelity Advisor Freedom Series	0.95	3.4	91	25
American Century LIVESTRONG Series	0.96	1.3	100	51
American Funds Trgt Date Rtrmt Series	0.96	2.6	100	14
PIMCO RealRetirement Series	1.00	0.1	96	83
AllianceBernstein Retirement Str Series	1.02	0.3	n/a	26
DWS LifeCompass Series	1.02	0.1	60	60
Hartford Target Retirement Series	1.04	0.1	100	24
MassMutual RetireSMART Series	1.04	0.2	91	87
Putnam RetirementReady Series	1.10	0.0	100	56
Manning & Napier Target Series	1.11	0.1	100	48
Guidestone Funds MyDestination Series	1.14	0.2	100	100
MainStay Retirement Series	1.14	0.1	77	86
MFS Lifetime Series	1.15	0.2	100	47
BlackRock LifePath® Active Series	1.16	0.0	n/a	44
ING Solution Series	1.18	0.8	86	61
Invesco Balanced-Risk Retirement Series	1.19	0.1	100	54
State Farm Lifepath Series	1.27	0.9	72	82
Franklin Templeton Retirement Series	1.36	0.0	n/a	77
Legg Mason Target Retirement Series	1.47	0.0	69	77

People

Target-date series are supported by multiple layers of management, each with an important role and impact on an investor's experience. At the series level, a portfolio manager or team of managers is often responsible for setting the allocations among various asset classes used for each fund in the series, as well as selecting, evaluating, and monitoring the constituents—or underlying funds—used within the series. Managers of these underlying funds in turn are responsible for constructing the portfolios and driving performance of the series' building blocks.

When evaluating the merit of these various managers, tenure can be a helpful quantitative measure. It stands to reason that if a manager, whether at the series or underlying fund level, is doing a poor job, he or she will not be kept on board for long. Target-date series are still relatively new to the mutual fund industry (several recently hit their five-year anniversary), and the average tenure of target-date series managers continues to lag that of the mutual fund industry average. As of December 2012, the average manager tenure for a target-date series is 4.3 years; the mutual fund industry average is 5.4 years. Several sources of turnover also contribute to this relatively short average manager tenure. A manager replacement—which occurred at Schwab and ING Solution, for example—will result in a decrease in average tenure. In addition, the addition of new comanagers or departure of a relatively long-tenured comanager will decrease the series' average tenure, as was the case for Manning & Napier Target Series and BlackRock LifePath, respectively.

The average tenure of the target-date series manager continues to lag that of the average tenure of the underlying funds' managers. Still, at 5.0 years as of December 2012, the average tenure of the underlying funds' managers lags that of the mutual fund industry average. In some cases, this shorter-than-average tenure is due to turnover in management at the underlying funds. Three of the four fundamental equity strategies used in the BlackRock LifePath series got new managers in 2012. Also depressing the average tenure length are the new underlying funds added to series. Some of these new offerings are run by established subadvisors, so the manager tenure data won't reflect the manager's experience executing the strategy elsewhere.

To assist in evaluating the likelihood of a target-date series manager sticking around for the long term, it can be informative to look at the firm's average manager tenure. For example, American Funds has an admirable asset-weighted longest manager tenure of 21.40 years, indicating that while its target-date series is relatively young, its management team is likely to stay in place for the long haul.

Still, while tenure figures can provide an idea of stability at the target-date series, the real test will be whether that can translate into sustained outperformance at the target-date series. As of yet, there isn't a clear link within the target-date industry between strong relative performance and series or underlying fund manager tenure.

Investing With Shareholders

Managers with a significant amount of personal assets invested in the funds they oversee align their own financial interests with fund shareholders'. Not only does high personal investment signal that managers have conviction in their approach and the fees charged for the product, Morningstar has linked such investments with better relative, risk-adjusted performance.

Given the positioning of target-date funds as a core holding for a long-term portfolio, managers of target-date funds could appropriately invest significant wealth in these products. Disappointingly, this has not been the case, and the amount of personal wealth that target-date managers invest within the funds they manage continues to be low.

Of the 39 target-date series listed in Exhibit 40, 19 have no manager investment whatsoever. Only Hans Erickson of TIAA-CREF Lifecycle has a personal investment greater than $1 million in the series he manages, the highest bracket disclosed. (As of December 2012, Enrique Chang, then chief investment officer of American Century and listed manager of the firm's LIVESTRONG series, also reached the $1 million threshold. He resigned from American Century in April 2013.) There are reasons a manager may not be able to invest within the series, for example. Managers residing outside of the U.S.—as was the case for Toronto-based Steve Orlich, who was listed as a manager of John Hancock Retirement Living prior to May 2013—may not invest in U.S. mutual fund shares. In other cases, target-date series are only available for sale in retirement shares, which may limit a manager's investable assets to those in his or her 401(k) plan. Still, given the growing importance of target-date funds as a retirement vehicle and the lack of restrictions for the majority of target-date series managers, it would be admirable to see more managers invest substantially alongside fund shareholders.

Exhibit 38

Average Manager Tenure of Underlying Funds, Series and Firm by Target-Date Series (Years)

Data as of 12/31/2012. Source: Morningstar, Inc.

Series Name	Series Underlying Funds' Average Manager Tenure	Series' Average Manager Tenure	Series Underlying Funds' Longest Tenure	Series Longest Tenure	Firm Average Longest Manger Tenure	Firm Asset-Weighted Longest Manager Tenure
AllianceBernstein Retirement Str Series	n/a	5.76	n/a	7.33	9.00	11.10
Allianz Global Investors Solutions Serie	5.37	3.32	25.64	4.01	5.60	13.90
American Century LIVESTRONG Series	5.10	4.04	11.09	6.00	7.40	10.10
American Funds Trgt Date Rtrmt Series	11.59	4.28	28.71	5.91	11.20	21.40
BlackRock LifePath Series	2.69	3.88	13.41	5.67	4.40	12.30
BlackRock LifePath® Active Series	4.31	5.70	23.91	5.70	4.40	12.30
DWS LifeCompass Series	4.17	5.41	15.50	10.74	7.30	9.90
Fidelity Advisor Freedom Series	2.65	3.46	7.17	5.33	4.50	8.10
Fidelity Freedom Index Series	3.33	2.42	8.84	3.25	4.50	8.10
Fidelity Freedom K Series	2.68	2.54	16.00	3.50	4.50	8.10
Fidelity Freedom Series	2.68	3.46	16.00	5.33	4.50	8.10
Franklin Templeton Retirement Series	10.35	4.04	47.84	6.42	14.80	22.90
Guidestone Funds MyDestination Series	5.27	4.78	11.35	6.01	8.50	9.90
Harbor Target Retirement Series	6.24	3.99	25.01	3.99	6.40	11.30
Hartford Target Retirement Series	4.85	0.57	16.44	0.57	5.20	9.30
ING Index Solution Series	2.20	2.84	5.09	4.81	4.80	5.20
ING Solution Series	3.52	2.91	13.84	5.00	4.80	5.20
Invesco Balanced-Risk Retirement Series	4.29	3.33	6.05	3.33	6.40	9.10
JHancock Retiremnt Living through Series	4.65	4.06	15.99	6.17	6.60	6.90
JPMorgan SmartRetirement Series	6.13	5.31	21.08	6.63	7.30	10.70
Legg Mason Target Retirement Series	5.87	1.71	29.19	4.34	7.70	12.00
MainStay Retirement Series	5.52	3.75	26.00	5.51	6.60	9.00
Manning & Napier Target Series	10.07	4.00	20.00	4.76	8.00	14.70
MassMutual RetireSMART Series	5.45	5.53	18.25	6.75	6.20	7.90
MFS Lifetime Series	6.56	7.26	15.23	7.26	8.10	10.30
Nationwide Target Destination Series	1.67	5.34	6.00	5.34	4.90	4.50
PIMCO RealRetirement Series	3.61	4.46	25.64	4.46	5.20	15.60
Principal LifeTime Series	4.43	5.92	12.07	11.84	5.90	9.30
Putnam RetirementReady Series	6.47	3.67	10.59	8.16	6.90	7.00
Russell LifePoints Target Date Series	2.89	1.39	11.00	1.39	1.80	1.90
Schwab Target Series	5.54	0.84	25.64	0.84	4.30	5.10
State Farm Lifepath Series	1.88	3.86	5.00	5.67	9.40	12.60
T. Rowe Price Retirement Series	8.96	10.25	21.34	10.25	7.80	10.60
TIAA-CREF Lifecycle Index Series	4.29	3.25	8.38	3.25	5.40	7.40
TIAA-CREF Lifecycle Series	5.07	6.75	13.50	6.75	5.40	7.40
USAA TARGET RETIREMENT FUNDS Series	3.09	3.92	13.42	4.42	5.70	6.80
Vanguard Target Retirement Series	7.24	9.18	18.00	9.18	6.40	10.80
Vantagepoint Milestone Series	4.89	6.78	13.34	7.92	5.30	5.30
Wells Fargo Advantage DJ Target Series	n/a	5.01	n/a	6.52	8.00	9.50
Target-Date Industry Average	**5.02**	**4.33**	**16.80**	**5.65**	**6.44**	**9.78**

Exhibit 39

Series Average Manager Tenure, Firmwide Manager Retention Rates, and Asset-Weighted, Average Risk-Adjusted Returns

Data as of 12/31/2012. Source: Morningstar, Inc.

Fund Firm	Series Name	Series Underlying Funds' Average Manager Tenure, Years	Series Average Manager Tenure, Years	5-Year Firmwide Manager Retention Rate %	Asset-Weighted 3-Year Target-Date Series MRAR %
American Funds	American Funds Trgt Date Rtrmt Series	10.24	4.28	96.74	6.90
Manning & Napier	Manning & Napier Target Series	12.64	4.00	95.65	6.28
Legg Mason/Western	Legg Mason Target Retirement Series	5.65	1.71	95.56	6.57
T. Rowe Price	T. Rowe Price Retirement Series	8.60	10.25	95.55	7.10
Franklin Templeton Investment Fds	Franklin Templeton Retirement Series	10.67	4.04	95.40	5.81
Harbor	Harbor Target Retirement Series	6.11	3.99	93.15	6.74
Allianz Funds	Allianz Global Investors Solutions Serie	5.21	3.32	92.80	6.71
John Hancock	JHancock Retiremnt Living through Series	4.63	4.06	92.76	5.63
JPMorgan	JPMorgan SmartRetirement Series	5.81	5.31	92.76	7.25
Wells Fargo Advantage	Wells Fargo Advantage DJ Target Series	n/a	5.01	92.43	6.55
MFS	MFS Lifetime Series	5.42	7.26	92.09	7.72
PIMCO	PIMCO RealRetirement Series	4.15	4.46	91.69	7.12
Vanguard	Vanguard Target Retirement Series	7.24	9.18	91.69	7.04
Fidelity Investments	Fidelity Freedom Series	2.64	3.46	90.94	5.86
Fidelity Investments	Fidelity Advisor Freedom Series	2.58	3.46	90.94	6.21
Fidelity Investments	Fidelity Freedom Index Series	3.30	2.42	90.94	6.13
Fidelity Investments	Fidelity Freedom K Series	2.64	2.54	90.94	5.95
Hartford Mutual Funds	Hartford Target Retirement Series	4.25	0.57	90.53	6.97
American Century Investments	American Century LIVESTRONG Series	4.95	4.04	89.45	7.76
ING Retirement Funds	ING Index Solution Series	2.20	2.84	88.83	5.99
ING Retirement Funds	ING Solution Series	3.22	2.91	88.83	5.90
TIAA-CREF Mutual Funds	TIAA-CREF Lifecycle Series	5.15	6.75	88.26	7.12
TIAA-CREF Mutual Funds	TIAA-CREF Lifecycle Index Series	4.54	3.25	88.26	6.94
USAA	USAA TARGET RETIREMENT FUNDS Series	3.11	3.92	88.13	6.84
BlackRock	BlackRock LifePath Series	2.40	3.88	87.67	6.29
BlackRock	BlackRock LifePath® Active Series	4.20	5.70	87.67	6.67
MassMutual	MassMutual RetireSMART Series	5.79	5.53	87.53	6.34
State Farm	State Farm Lifepath Series	1.63	3.86	87.33	5.83
MainStay	MainStay Retirement Series	5.71	3.75	87.22	6.27
Principal Funds	Principal LifeTime Series	4.18	5.92	87.03	7.22
Vantagepoint Funds	Vantagepoint Milestone Series	4.90	6.78	86.36	5.92
GuideStone Funds	Guidestone Funds MyDestination Series	5.27	4.78	86.02	7.27
Russell	Russell LifePoints Target Date Series	2.58	1.39	85.08	6.47
AllianceBernstein	AllianceBernstein Retirement Str Series	n/a	5.76	84.91	3.97
Schwab Funds	Schwab Target Series	5.45	0.84	84.59	7.17
Nationwide	Nationwide Target Destination Series	1.72	5.34	84.02	6.32
Putnam	Putnam RetirementReady Series	5.48	3.67	82.71	5.90
DWS Investments	DWS LifeCompass Series	3.83	5.41	82.27	5.50
Invesco	Invesco Balanced-Risk Retirement Series	4.29	3.33	81.27	10.55

Exhibit 40

Target-Date Series Managers' Ownership of Series' Fund Shares

Data as of 12/31/2012. Source: Morningstar, Inc.

Strategy	Manager Name	Series Ownership Level
AllianceBernstein Retirement Str Series	Marc Mayer, Daniel Grasman, Dokyoung Lee, Patrick Rudden, Mark Hamilton, Thomas Fontaine, Christopher Nikolich, Drew Demakis, Seth Masters, Joshua Lisser	0
Allianz Global Investors Solutions Serie	Stephen Sexauer, Paul Pietricano	$100,001-$500,000
Allianz Global Investors Solutions Serie	James Macey	$50,001-$100,000
American Century LIVESTRONG Series	Enrique Chang	$1,000,001 and above
American Century LIVESTRONG Series	Richard Weiss, Scott Wilson, Scott Wittman	$100,001-$500,000
American Century LIVESTRONG Series	Gina Sanchez, Irina Torelli, Jeffrey Tyler	0
American Funds Trgt Date Rtrmt Series	Joyce Gordon, Andrew Suzman, Nicholas Grace	0
American Funds Trgt Date Rtrmt Series	Wesley Phoa, Alan Berro, John Smet, James Lovelace	$100,001-$500,000
American Funds Trgt Date Rtrmt Series	Bradley Vogt	$10,001-$50,000
BlackRock LifePath Series	Dagmar Nikles, Ken Millman, Mariana Egan, David Burkart, Leslie Gambon, Jim Chan, Alan Mason, Dale Hogan, Amy Whitelaw	0
BlackRock LifePath® Active Series	Philip Green, Linda Zhang	0
DWS LifeCompass Series	Ellen Tesler, Janet Campagna, Maureen Allyn, Philip Fortuna, Cornelia Small, Margaret Hadzima, Shahram Tajbakhsh, Benjamin Thondike	0
DWS LifeCompass Series	Robert Wang	$1-$10,000
DWS LifeCompass Series	Inna Okounkova	$10,001-$50,000
Fidelity Advisor Freedom Series	Andrew Dierdorf, Chris Sharpe, Jonathan Shelon, Ren Cheng	0
Fidelity Freedom Index Series	Jonathan Shelon, Chris Sharpe	0
Fidelity Freedom Index Series	Andrew Dierdorf	$1-$10,000
Fidelity Freedom Series	Jonathan Shelon, Scott Stewart	0
Fidelity Freedom Series	Andrew Dierdorf	$100,001-$500,000
Fidelity Freedom Series	Ren Cheng	$500,001-$1,000,000
Fidelity Freedom Series	Chris Sharpe	$1-$10,000
Fidelity Freedom K Series	Andrew Dierdorf	$100,001-$500,000
Fidelity Freedom K Series	Chris Sharpe	$1-$10,000
Fidelity Freedom K Series	Jonathan Shelon	0
Franklin Templeton Retirement Series	T. Coffey, Thomas Nelson	0
Guidestone Funds MyDestination Series	Ronald Dugan, Rodric Cummins, Matt Peden	0
Harbor Target Retirement Series	Linda Molenda, Paul Herbert	$100,001-$500,000
Harbor Target Retirement Series	David Van Hoosier, Saumen Chattopadhyay	0
Harbor Target Retirement Series	Brian Collins	$50,001-$100,000
Hartford Target Retirement Series	Paul Bukowski, Richard Wurster, Edward Caputo, Stephen Gorman, Christopher Hanlon, William Davison Jr., Hugh Whelan	0
ING Index Solution Series	Halvard Kvaale, Paul Zemsky, Heather Hackett, Michael Roland, William Evans	0
ING Solution Series	Paul Zemsky, Heather Hackett	$100,001-$500,000
ING Solution Series	Halvard Kvaale, Marc Boisvert, Stan Vyner, Shaun Matthews, Laurie Tillinghast, Jeffrey Stout, William Eevans, Michael Roland	0
Invesco Balanced-Risk Retirement Series	Scott Wolle, Chris Devine, Christian Ulrich, Mark Ahnrud, Scott Hixon, Gary Wendler	0
John Hancock Retirement Living through S	Barry Evans, Steve Orlich, Demetrius Schetakis, Mark Schmeer, Bruce Speca, Scott Warlow	0
John Hancock Retirement Living through S	Bob Boyda	$50,001-$100,000
John Hancock Retirement Living through S	Steve Medina	$100,001-$500,000
JPMorgan SmartRetirement Series	Jeffrey Geller, Daniel Oldroyd	0

Exhibit 40

Target-Date Series Managers' Ownership of Series' Fund Shares (Continued)

Data as of 12/31/2012. Source: Morningstar, Inc.

Strategy	Manager Name	Series Ownership Level
JPMorgan SmartRetirement Series	Anne Lester	$500,001-$1,000,000
JPMorgan SmartRetirement Series	Patrik Jakobson	$100,001-$500,000
JPMorgan SmartRetirement Series	Michael Schoenhaut	$10,001-$50,000
Legg Mason Target Retirement Series	Prashant Chandran, Y. Lin, Andrew Purdy, Stephen Walsh	0
Legg Mason Target Retirement Series	Steven Bleiberg, Patricia Duffy	$100,001-$500,000
MainStay Retirement Series	Jae Yoon, Thomas Swaney, Tony Elavia, Jonathan Swaney	0
Manning & Napier Target Series	Virge Trotter III, Brian Lester, Ebrahim Busheri, Christopher Petrosino, Jeffrey Coons, Jack	0
MassMutual RetireSMART Series	Michael Eldredge, Bruce Picard Jr., Christine Sanford, Frederick Schulitz, Kristin Bushard, Kristin	0
MFS Lifetime Series	Joseph Flaherty Jr.	$100,001-$500,000
Nationwide Target Destination Series	Thomas Hickey Jr.	$50,001-$100,000
PIMCO RealRetirement Series	Vineer Bhansali, Jamil Baz	0
Principal LifeTime Series	David Blake, Tim Dunbar, James Fennessey, Michael Finnegan, Dirk Laschanzky, Douglas Loef-	0
Principal LifeTime Series	Jeffrey Tyler	$1-$10,000
Principal LifeTime Series	Randy Welch	$50,001-$100,000
Putnam RetirementReady Series	James Fetch, Robert Kea, Joshua Kutin, Bruce MacDonald, Robert Schoen, Jason Vaillancourt	0
Putnam RetirementReady Series	Jeffrey Knight	$100,001-$500,000
Russell LifePoints Target Date Series	Ernest Ankrim, David Brunette, Randal Burge, Jean Carter, James Duberly, Ron Dugan, Ann	0
Schwab Target Series	Tom Brown, Kimon Daifotis, Jake Gilliam, Daniel Kern, Caroline Lee-Tsao, Thomas Miller, Jef-	0
State Farm Lifepath Series	David Burkart, Jim Chan, Mariana Egan, Leslie Gambon, Dale Hogan, Alan Mason, Ken Mill-	0
T. Rowe Price Retirement Series	Jerome Clark, Edmund Notzon III	0
TIAA-CREF Lifecycle Series	Scott Bunde, Stephen MacDonald, Pablo Mitchell	0
TIAA-CREF Lifecycle Series	John Cunniff	$100,001-$500,000
TIAA-CREF Lifecycle Series	Hans Erickson	$1,000,001 and above
TIAA-CREF Lifecycle Index Series	Hans Erickson, John Cunniff, Pablo Mitchell	0
USAA TARGET RETIREMENT FUNDS Series	John Toohey	$10,001-$50,000
USAA TARGET RETIREMENT FUNDS Series	Ronald Sweet, Wasif Latif	0
Vanguard Target Retirement Series	Duane Kelly	0
Vantagepoint Milestone Series	David Harkins, Timothy Sudol	0
Vantagepoint Milestone Series	David Braverman, Lee Trenum, Wayne Wicker	$100,001-$500,000
Wells Fargo Advantage DJ Target Date Ser	George Daniels, Jr.	0
Wells Fargo Advantage DJ Target Date Ser	James Lauder, Paul Torregrosa	$50,001-$100,000
Wells Fargo Advantage DJ Target Date Ser	Rodney Alldredge	$10,001-$50,000

Parent

An investment in a target-date series is a decades-long commitment, so investors should feel confident that their target-date series provider is a good steward of their retirement savings. Morningstar assigns Parent ratings as part of the Morningstar Analyst Rating for Target-Date Series, which assesses the stewardship practices of the series' providing company.

The Parent rating reflects a qualitative and quantitative assessment of a firm's corporate culture, governance practices, and regulatory history. In addition to studying data on a firm's investments and operations, Morningstar analysts draw on fund-company visits, fund manager interviews, and broad industry knowledge to assign a Parent rating. The analysts also use Morningstar's suite of firmwide data to compare all target-date series' parent companies on the same quantitative metrics. This section of the industry survey compares target-date series on some of the quantitative metrics that Morningstar's analysts consider when arriving at the offering firm's Parent rating. This study finds that series offered by Parents with strong firmwide quantitative metrics—which measure factors such as fund manager tenure, retention, and investment in fund shares, as well as performance and fees—offer better risk-adjusted returns to target-date investors.

We looked at two firmwide data points that indicate whether a fund family excels at retaining fund-management talent, Firm Average Manager Tenure and Firm Manager Retention Rate. Morningstar calculates Firm Average Manager Tenure for each firm by taking the arithmetic mean of each fund's longest manager tenure in years. Meanwhile, Firm Manager Retention Rate is not a direct measurement of whether a firm's funds have long-tenured managers; rather, it measures what portion of a firm's fund managers stay in place from year to year. Morningstar calculates Firm Manager Retention for a given year by finding the percentage of portfolio managers that remain at a firm for that year. This paper features Firm Manager Retention for the most recent five calendar years, which is a geometric mean of the previous five years' manager-retention rate. Firm Average Manager Tenure, Firm Manager Retention Rate, and Firm 5-Year Manager Retention Rate are all calculated monthly.

The study also considers Firm Success Ratio and Firm Risk-Adjusted Success Ratio, which shed light on whether firms launch trendy, ultimately unsuccessful funds or stick to their core competencies. These data points, also calculated monthly, take a ratio of funds launched in a given period that both survived the period and outperformed their category averages. For instance, the Firm Success Ratio for the five-year period is the percentage of a firm's funds incepted five years ago or longer that were neither merged nor liquidated and also outperformed their category average total return for the period. The Firm Risk-Adjusted Success Ratio for the five-year period finds the percentage of the firm's funds incepted five years ago or longer that were not merged or liquidated and also outperformed their category average Morningstar Risk-Adjusted Return for the period. In this paper, we look at the Firm Risk-Adjusted Success Ratio for the five-year period. It penalizes downside volatility over a five-year period to capture longer-term performance trends without excluding the substantial portion of the target-date industry without a 10-year record.

Finally, the study incorporates Firm Average Fee Level—Distribution and Firm Percentage of Assets With Manager Investment of Over $1 Million. These measure relative price-competitiveness and manager ownership levels. Morningstar arrives at a firm's Firm Average Fee Level by taking the arithmetic mean of the Morningstar Fee Level—Distribution percentile rank for all fund share classes sold by the firm. The Morningstar Fee Level—Distribution is a ranking of fund share class expense ratios relative to comparable investment strategies and distribution channels. The Firm Percentage of Assets With Manager Investment of Over $1 Million sums the total assets of a firm's funds where at least one manager invests more than $1 million in the fund, and then divides it by the firm's total fund assets. Both of these data points are calculated monthly.

(To see the full data for Firm Average Manager Tenure, see Exhibit 38 in the People section of this paper. To see the full data for Firm Manager Retention Rate, Firm Average Fee Level, and Firm Percentage of Assets With Manager Investment Over $1 Million, see Exhibit 43 at the end of this section. To see the Firm Average Overall Morningstar Rating and Firm Success Ratio, see Exhibit 44 at the end of this section.)

To measure the relationship between Parent-related data and target-date series performance, we scored each series based on the six firm-level data points above and compared the score with the series' relative risk-adjusted performance for the three-year period. We use three-year performance to include performance history of as many target-date series as possible. If a target-date series' provider scored above a certain threshold (for example, if its Firm Average Fee Level were 50 or under), it received 1 point for that factor; the scores range from a minimum of zero points to a maximum of 6 points. The thresholds are the average values for all U.S. firms that receive a Positive Parent rating from Morningstar, so they reflect industry-leading attributes. The criteria are:

- Firm 5-Year Manager Retention Rate greater than 95%
- Firm Average Manager Tenure greater than 10 years
- Firm 5-Year Risk-Adjusted Success Ratio greater than 60%
- Firm Average Fee Level—Distribution less than the 50th percentile
- Firm Percentage of Assets With Manager Investment Over $1 Million greater than 70%
- Firm Average Overall Morningstar Rating greater than 3.5

These scores are shown alongside the Series Average Weighted MRAR Deviation From Category Average for the three years ended March 31, 2013. The Series Average Weighted MRAR Deviation

From Category Average is a measure of the series' funds' relative risk-adjusted performance and one of the components of the target-date Performance rating. This measure is preferable to other peer-based performance measures, such as average category percentile rank, because it adjusts for risk. Series with positive deviations contain funds that have outperformed the category average risk-adjusted return on an asset-weighted basis, while those with negative deviations underperformed.

These criteria are stringent, and very few series met two or more thresholds. Almost half of the series received only 1 point, and only 10 series received 2 points or more. Exhibit 41 shows the data for each series as well as its score. (Note that series lacking three years of performance history, such as BlackRock LifePath Index, are not included in this analysis.)

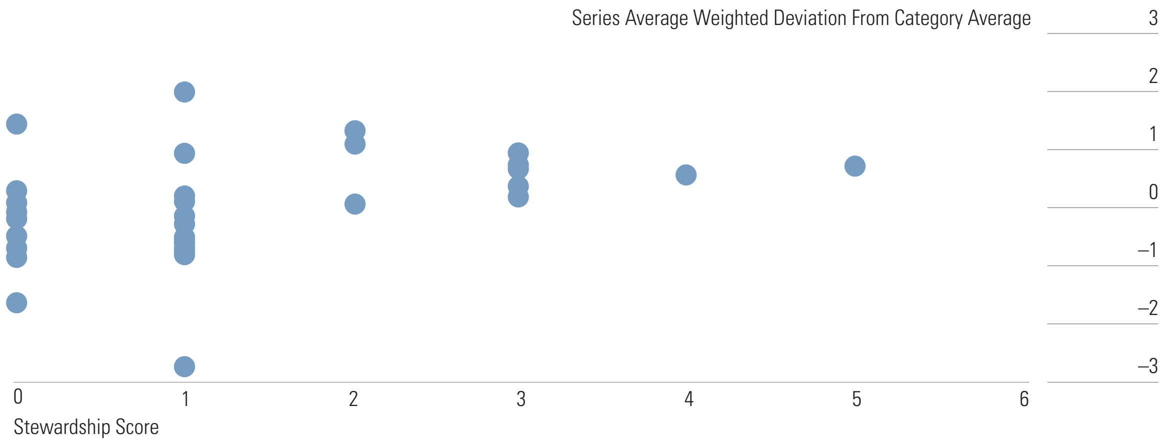
The series with stronger stewardship scores also had better performance. None of the series that received 2 points or more underperformed their category averages. The high-scoring series include MFS Lifetime Series, Manning & Napier Target Series, American Funds Target Date Retirement Series, the Vanguard Target Retirement Series, and T. Rowe Price Retirement Series, all of which receive high Analyst Ratings and have outperformed their category peers by 50 basis points or more. For example, American Funds Target Date Retirement Series earned 5 points, the highest of any series, and outperformed the industry average by a healthy 75 basis points annualized for the three years ended March 31, 2013. American Funds boasts a Five-Year Manager Retention Rate of almost 97% and Firm Average Manager Tenure of 11.2 years. In addition, the firm's average share class expense ratio is in the cheapest quintile of its peer group, its funds enjoy an average star rating of 3.37, and a whopping 97% of assets are in funds where at least one manager invests $1 million in the strategy.

On the other end of the scale, most of the series that scored 1 point or fewer underperformed their category peers. The DWS LifeCompass Series and AllianceBernstein Retirement Strategy Series both have Five-Year Manager Retention Rates under 85%, Five-Year Risk-Adjusted Success Ratios below 25%, and a negligible amount of firm assets in funds with high manager investment. Both series underperformed their peer groups by more than 150 basis points for the measurement period. To be sure, some series with weaker firm-level data have outperformed on a risk-adjusted basis. The American Century LIVESTRONG Series, Invesco Balanced-Risk Retirement Series, and Schwab Target Series all received fewer than 2 points and were among the best-performing series for the period. Even so, a correlation remains between stronger firmwide stewardship metrics and better risk-adjusted performance. The scatterplot graph following this section shows how better stewardship is correlated with more consistently good performance. The dots on the graph represent series in the table above, with the x-axis showing the total points that the series received in the firm-level data tests above. The y-axis shows the Series Average Weighted MRAR Deviation From Category Average for the three-year period ended March 31, 2013. The series above the x-axis and to the right have the strongest stewardship score and peer-beating performance; conversely, series that land in

Exhibit 41

Target-Date Series Stewardship and Performance

Data as of 12/31/2012.
Source: Morningstar, Inc.



the southwest area of the scatterplot have the worst stewardship scores and risk-adjusted performance. Note the heavy dispersion at 0 and 1 point compared with the consistently positive performance at 2 points or higher.

While the firm-level data and the Parent rating are demonstrably correlated with better performance, they are still firm-level aggregates and not meant to exclusively drive an investment decision. Still, these findings do reinforce the importance of considering firm stewardship practices when selecting a target-date investment.

Exhibit 42

Target-Date Series Stewardship and Performance Data

Data as of 3/31/2013. Source: Morningstar, Inc.

Target-Date Series Name	5-Year Manager Retention Rate Over 95%	Firm Average Manager Tenure Over 10 Years	Firm 5-Year Risk-Adjusted Success Ratio Greater Than 60	Firm Average Fee Level Less Than 50	Firm % Assets With Manager Investment Over $1 Million Greater Than 70	Firm Average Overall Morningstar Rating Greater Than 3.5	Stewardship Score	Series Average Weighted Deviation From Cat Average
Invesco Balanced-Risk Retirement Series	0	0	0	1	0	0	1	2.03
American Century LIVESTRONG Series	0	0	0	0	0	0	0	1.45
Schwab Target Series	0	0	0	1	0	1	2	1.36
MFS Lifetime Series	0	0	1	1	0	0	2	1.13
JPMorgan SmartRetirement Series	0	0	0	1	0	0	1	0.99
PIMCO RealRetirement Series	0	0	1	0	0	0	1	0.97
TIAA-CREF Lifecycle Index Series	0	0	1	1	0	1	3	0.96
Manning & Napier Target Series	1	0	1	0	0	1	3	0.76
American Funds Trgt Date Rtrmt Series	1	1	0	1	1	1	5	0.75
Vanguard Target Retirement Series	0	0	1	1	0	1	3	0.71
T. Rowe Price Retirement Series	1	0	1	1	0	1	4	0.6
TIAA-CREF Lifecycle Series	0	0	1	1	0	1	3	0.4
MainStay Retirement Series	0	0	0	0	0	0	0	0.33
Wells Fargo Advantage DJ Target Series	0	0	0	1	0	0	1	0.26
Franklin Templeton Retirement Series	1	1	0	1	0	0	3	0.24
BlackRock LifePath® Active Series	0	0	0	1	0	0	1	0.16
Harbor Target Retirement Series	0	0	0	0	1	0	1	0.15
Allianz Global Investors Solutions Serie	0	0	0	0	0	0	0	0.13
Vantagepoint Milestone Series	0	0	1	1	0	0	2	0.12
Principal LifeTime Series	0	0	0	0	0	0	0	–0.04
MassMutual RetireSMART Series	0	0	0	1	0	0	1	–0.1
Hartford Target Retirement Series	0	0	0	1	0	0	1	–0.1
Guidestone Funds MyDestination Series	0	0	0	0	0	0	0	–0.13
Legg Mason Target Retirement Series	1	0	0	0	0	0	1	–0.21
ING Index Solution Series	0	0	0	1	0	0	1	–0.23
USAA TARGET RETIREMENT FUNDS Series	0	0	1	0	0	0	1	–0.26
Putnam RetirementReady Series	0	0	0	0	0	0	0	–0.45
Nationwide Core Plus Bond InSvc	0	0	0	1	0	0	1	–0.46
Fidelity Freedom Index Series	0	0	0	1	0	0	1	–0.51
Fidelity Freedom K Series	0	0	0	1	0	0	1	–0.57
Fidelity Advisor Freedom Series	0	0	0	1	0	0	1	–0.64
Fidelity Freedom Series	0	0	0	1	0	0	1	–0.65
JHancock Retiremnt Living through Series	0	0	0	0	0	0	0	–0.66
State Farm Lifepath Series	0	0	0	1	0	0	1	–0.71
ING Solution Series	0	0	0	1	0	0	1	–0.76
Russell LifePoints Target Date Series	0	0	0	0	0	0	0	–0.79
DWS LifeCompass Series	0	0	0	0	0	0	0	–1.58
AllianceBernstein Retirement Str Series	0	0	0	1	0	0	1	–2.67

Exhibit 43

Target-Date Series Firm-Level Price, Manager Retention, and Manager Ownership

Data as of 2/28/2013. Source: Morningstar, Inc.

Series Name	**Firm Name**	**Firm Average Fee Level Percentile**	**Firm Five-Year Manager Retention Rate** %	**Firm Fund Assets With Manager Investment Over $1 Million** %
AllianceBernstein Retirement Str Series	AllianceBernstein	42	84.91	6.31
Allianz Global Investors Solutions Serie	Allianz Funds	52	92.80	57.75
American Century LIVESTRONG Series	American Century Investments	52	89.45	0.01
American Funds Trgt Date Rtrmt Series	American Funds	18	96.74	97.46
BlackRock LifePath Index Series	BlackRock	47	87.67	56.82
BlackRock LifePath Series	BlackRock	47	87.67	56.82
BlackRock LifePath® Active Series	BlackRock	47	87.67	56.82
DWS LifeCompass Series	DWS Investments	53	82.27	0
Fidelity Advisor Freedom Series	Fidelity Investments	33	90.94	47.43
Fidelity Freedom Index Series	Fidelity Investments	33	90.94	47.43
Fidelity Freedom K Series	Fidelity Investments	33	90.94	47.43
Fidelity Freedom Series	Fidelity Investments	33	90.94	47.43
Franklin Templeton Retirement Series	Franklin Templeton Investment Funds	32	95.40	54.02
Great-West Lifetime I Series	Great-West Funds	58	83.79	0
Great-West Lifetime II Series	Great-West Funds	58	83.79	0
Great-West Lifetime III Series	Great-West Funds	58	83.79	0
Great-West SecureFoundation® Lifetime Se	Great-West Funds	58	83.79	0
Guidestone Funds MyDestination Series	GuideStone Funds	55	86.02	0
Harbor Target Retirement Series	Harbor	55	93.15	81.52
Hartford Target Retirement Series	Hartford Mutual Funds	44	90.53	37.35
ING Index Solution Series	ING Retirement Funds	23	88.83	—
ING Retirement Solution Series	ING Funds	54	85.92	0
ING Solution Series	ING Retirement Funds	23	88.83	—
Invesco Balanced-Risk Retirement Series	Invesco	45	81.27	51.35
iShares S&P Target Date Series	iShares	n/a	n/a	n/a
JHancock Retiremnt Living through Series	John Hancock	50	92.76	11.14
John Hancock Retirement Choices Series	John Hancock	50	92.76	11.14
JPMorgan SmartRetirement Blend Series	JPMorgan Funds	22	—	0
JPMorgan SmartRetirement Series	JPMorgan	36	92.76	23.18
Legg Mason Target Retirement Series	Legg Mason	50	95.56	36.96
MainStay Retirement Series	MainStay	64	87.22	45.64
Manning & Napier Target Series	Manning & Napier	58	95.65	0
MassMutual RetireSMART Series	MassMutual	47	87.53	3.79
MFS Lifetime Series	MFS	46	92.09	31.48
Nationwide Target Destination Series	Nationwide	24	84.02	0
PIMCO RealRetirement Series	PIMCO	50	91.69	60.72
PNC Target Series	PNC Funds	47	85.96	11.51
Principal LifeTime Series	Principal Funds	52	87.03	0
Putnam RetirementReady Series	Putnam	52	82.71	27.56
Russell LifePoints Target Date Series	Russell	58	85.08	0
Schwab Target Series	Schwab Funds	28	84.59	0
State Farm Lifepath Series	State Farm	46	87.33	0

Exhibit 43

Target-Date Series Firm-Level Price, Manager Retention, and Manager Ownership (Continued)

Data as of 2/28/2013. Source: Morningstar, Inc.

Series Name	Firm Name	Firm Average Fee Level Percentile	Firm Five-Year Manager Retention Rate %	Firm Fund Assets With Manager Investment Over $1 Million %
Strategic Adviser Multi-Manager Series	Fidelity Investments	33	90.94	47.43
T. Rowe Price Retirement Series	T. Rowe Price	35	95.55	43.95
TIAA-CREF Lifecycle Index Series	TIAA-CREF Mutual Funds	15	88.26	5.46
TIAA-CREF Lifecycle Series	TIAA-CREF Mutual Funds	15	88.26	5.46
USAA TARGET RETIREMENT FUNDS Series	USAA	55	88.13	0
Vanguard Target Retirement Series	Vanguard	3	91.69	11.23
Vantagepoint Milestone Series	Vantagepoint Funds	5	86.36	0
Wells Fargo Advantage DJ Target Series	Wells Fargo Advantage	49	92.43	19.25

Exhibit 44

Target-Date Series Firm Level Performance

Data as of 2/28/2013. Source: Morningstar, Inc.

Series Name	Firm Name	Average Overall Morningstar Rating (Firm)	Morningstar Success Ratio % (Firm) 3-Yr	5-Yr	10-Yr	Morningstar Risk-Adj Success Ratio % (Firm) 3-Yr	5-Yr	10-Yr
AllianceBernstein Retirement Str Series	AllianceBernstein	2.22	31	24	30	28	23	22
Allianz Global Investors Solutions Series	Allianz Funds	2.83	31	19	23	33	15	19
American Century LIVESTRONG Series	American Century Investments	3.13	57	39	34	53	40	31
American Funds Trgt Date Rtrmt Series	American Funds	3.37	61	52	57	62	51	66
BlackRock LifePath Index Series	BlackRock	2.99	34	31	26	29	27	22
BlackRock LifePath Series	BlackRock	2.99	34	31	26	29	27	22
BlackRock LifePath® Active Series	BlackRock	2.99	34	31	26	29	27	22
DWS LifeCompass Series	DWS Investments	2.54	32	20	15	33	19	18
Fidelity Advisor Freedom Series	Fidelity Investments	2.74	49	37	39	40	29	30
Fidelity Freedom Index Series	Fidelity Investments	2.74	49	37	39	40	29	30
Fidelity Freedom K Series	Fidelity Investments	2.74	49	37	39	40	29	30
Fidelity Freedom Series	Fidelity Investments	2.74	49	37	39	40	29	30
Franklin Templeton Retirement Series	Franklin Templeton Investment Funds	3.26	47	56	52	44	52	52
Great-West Lifetime I Series	Great-West Funds	3.16	59	73	59	59	73	59
Great-West Lifetime II Series	Great-West Funds	3.16	59	73	59	59	73	59
Great-West Lifetime III Series	Great-West Funds	3.16	59	73	59	59	73	59
Great-West SecureFoundation® Lifetime Se	Great-West Funds	3.16	59	73	59	59	73	59
Guidestone Funds MyDestination Series	GuideStone Funds	3.34	81	56	47	84	46	41
Harbor Target Retirement Series	Harbor	3.29	47	38	53	59	38	50
Hartford Target Retirement Series	Hartford Mutual Funds	2.93	52	32	36	47	27	31
ING Index Solution Series	ING Retirement Funds	3.05	43	31	35	47	32	36
ING Retirement Solution Series	ING Funds	2.93	30	23	15	34	20	13
ING Solution Series	ING Retirement Funds	3.05	43	31	35	47	32	36
Invesco Balanced-Risk Retirement Series	Invesco	3.27	31	31	22	30	32	23
iShares S&P Target Date Series	iShares	—	—	—	—	—	—	—
JHancock Retiremnt Living through Series	John Hancock	3.03	44	36	32	44	30	30
John Hancock Retirement Choices Series	John Hancock	3.03	44	36	32	44	30	30
JPMorgan SmartRetirement Blend Series	JPMorgan Funds	—	—	—	—	—	—	—
JPMorgan SmartRetirement Series	JPMorgan	3.15	56	49	28	47	43	26
Legg Mason Target Retirement Series	Legg Mason	2.92	52	41	18	44	33	17
MainStay Retirement Series	MainStay	3.04	47	46	18	37	41	17
Manning & Napier Target Series	Manning & Napier	2.94	27	69	79	39	63	71
MassMutual RetireSMART Series	MassMutual	3.12	56	49	46	48	40	46
MFS Lifetime Series	MFS	3.45	69	61	39	66	58	38
Nationwide Target Destination Series	Nationwide	2.44	29	22	20	25	17	21
PIMCO RealRetirement Series	PIMCO	3.35	59	72	56	61	61	55
PNC Target Series	PNC Funds	2.45	39	16	6	36	15	5
Principal LifeTime Series	Principal Funds	3.03	55	30	30	51	30	26
Putnam RetirementReady Series	Putnam	2.53	35	41	31	26	32	20
Russell LifePoints Target Date Series	Russell	2.60	24	21	23	26	18	15
Schwab Target Series	Schwab Funds	3.49	61	34	39	61	31	39

Exhibit 44

Target-Date Series Firm Level Performance (Continued)

Data as of 2/28/2013. Source: Morningstar, Inc.

		Average Overall Morningstar Rating (Firm)	Morningstar Success Ratio % (Firm)			Morningstar Risk-Adj Success Ratio % (Firm)		
Series Name	**Firm Name**		**3-Yr**	**5-Yr**	**10-Yr**	**3-Yr**	**5-Yr**	**10-Yr**
State Farm Lifepath Series	State Farm	2.41	13	13	20	18	18	15
Strategic Adviser Multi-Manager Series	Fidelity Investments	2.74	49	37	39	40	29	30
T. Rowe Price Retirement Series	T. Rowe Price	3.61	72	82	81	78	80	79
TIAA-CREF Lifecycle Index Series	TIAA-CREF Mutual Funds	3.60	91	72	52	92	64	46
TIAA-CREF Lifecycle Series	TIAA-CREF Mutual Funds	3.60	91	72	52	92	64	46
USAA TARGET RETIREMENT FUNDS Series	USAA	3.51	65	73	67	67	70	67
Vanguard Target Retirement Series	Vanguard	3.66	76	81	75	81	81	75
Vantagepoint Milestone Series	Vantagepoint Funds	4.00	0	50	0	50	50	0
Wells Fargo Advantage DJ Target Series	Wells Fargo Advantage	3.05	40	37	30	35	36	28

Appendix 1

2013 Morningstar Target-Date Fund Series Overall, Performance, Portfolio, Price, People, and Parent Ratings

Data as of 5/31/2013. Source: Morningstar, Inc.

Series Name	Series Overall Rating	Process Rating	Price Rating	Performance Rating	People Rating	Parent Rating
AllianceBernstein Retirement Str Series	Negative	Negative	Positive	Negative	Negative	Negative
American Century LIVESTRONG Series	Bronze	Positive	Neutral	Positive	Neutral	Neutral
American Funds Trgt Date Rtrmt Series	Silver	Positive	Positive	Positive	Positive	Positive
Fidelity Advisor Freedom Series	Neutral	Neutral	Positive	Negative	Positive	Neutral
Fidelity Freedom Series	Neutral	Neutral	Positive	Negative	Positive	Neutral
ING Solution Series	Neutral	Neutral	Negative	Negative	Positive	Neutral
JHancock Retiremnt Living through Series	Neutral	Positive	Negative	Negative	Positive	Neutral
JPMorgan SmartRetirement Series	Silver	Positive	Positive	Positive	Positive	Neutral
Manning & Napier Target Series	Silver	Positive	Neutral	Positive	Positive	Positive
MFS Lifetime Series	Silver	Positive	Neutral	Positive	Positive	Positive
Principal LifeTime Series	Neutral	Neutral	Positive	Neutral	Neutral	Neutral
Russell LifePoints Target Date Series	Neutral	Neutral	Neutral	Negative	Neutral	Neutral
Schwab Target Series	Negative	Neutral	Positive	Positive	Negative	Negative
State Farm Lifepath Series	Negative	Neutral	Negative	Negative	Neutral	Neutral
T. Rowe Price Retirement Series	Gold	Positive	Positive	Positive	Positive	Positive
TIAA-CREF Lifecycle Series	Bronze	Positive	Positive	Neutral	Positive	Neutral
Vanguard Target Retirement Series	Gold	Positive	Positive	Positive	Positive	Positive
Vantagepoint Milestone Series	Bronze	Positive	Positive	Neutral	Positive	Positive
Wells Fargo Advantage DJ Target Series	Neutral	Negative	Positive	Neutral	Neutral	Neutral
BlackRock LifePath Series	Neutral	Neutral	Neutral	Negative	Neutral	Neutral
MassMutual RetireSMART Series	Neutral	Positive	Negative	Neutral	Positive	Neutral
PIMCO RealRetirement Series	Bronze	Positive	Negative	Positive	Positive	Positive

Appendix 2

Complete Glide Paths by Target-Date Series

Data as of 12/31/2012. Source: Morningstar, Inc.

Target-Date Series Name	2065	2060	2055	2050	2045	2040	2035	2030	2025	2020	2015	2010	2005
AllianceBernstein Retirement Str Series	—	90.00	90.00	90.00	85.00	80.00	70.50	60.00	49.00	42.00	36.00	27.70	20.50
Allianz Global Investors Solutions Serie	—	100.00	100.00	100.00	95.00	75.00	60.00	45.00	35.00	30.00	25.00	—	—
American Century LIVESTRONG Series	—	85.06	84.56	82.89	80.65	73.82	66.99	61.30	55.05	50.58	46.12	46.12	46.12
American Funds Trgt Date Rtrmt Series	—	91.00	91.00	91.00	91.00	89.00	87.00	82.00	67.00	57.00	45.00	43.00	38.00
BlackRock LifePath Series	—	100.00	98.00	95.00	89.00	83.00	77.00	70.00	61.00	50.00	38.00	—	—
BlackRock LifePath® Active Series	—	100.00	98.50	95.20	90.00	83.00	77.00	69.00	61.00	50.00	37.70	—	—
BlackRock LifePath Index Series	—	100.00	98.00	93.00	88.00	81.00	75.00	67.00	60.00	48.00	38.00	—	—
DWS LifeCompass Series	—	—	—	—	88.00	—	76.00	—	58.00	48.00	35.00	—	—
Fidelity Advisor Freedom Series	—	89.90	88.90	84.70	83.50	81.90	75.00	69.80	61.70	51.30	49.40	44.00	27.60
Fidelity Freedom Series	—	89.90	88.90	84.70	83.50	81.90	75.00	69.80	61.70	51.30	49.40	44.00	27.60
Fidelity Freedom Index Series	—	89.90	88.90	84.70	83.50	81.90	75.00	69.80	61.70	51.30	49.40	44.00	27.60
Fidelity Freedom K Series	—	89.90	88.90	84.70	83.50	81.90	75.00	69.80	61.70	51.30	49.40	44.00	27.60
Great-West Lifetime I Series	—	85.00	85.00	84.00	80.00	75.00	66.00	53.00	44.00	38.00	32.00	29.00	25.00
Great-West Lifetime II Series	—	91.00	91.00	91.00	90.00	87.00	80.00	68.00	58.00	48.00	42.00	38.00	33.00
Great-West Lifetime III Series	—	94.00	94.00	94.00	94.00	93.00	92.00	81.00	70.00	57.00	50.00	46.00	41.00
Great-West SecureFoundation® Lifetime Se	—	93.00	92.00	91.00	90.00	86.00	78.00	69.00	58.00	58.00	58.00	58.00	58.00
Harbor Target Retirement Series	93.00	93.00	93.00	93.00	86.00	72.00	53.00	48.00	43.00	38.00	32.00	20.00	20.00
ING Index Solution Series	—	95.00	95.00	95.00	95.00	88.00	80.00	72.00	62.00	50.00	35.00	35.00	35.00
ING Retirement Solution Series	—	95.00	95.00	95.00	95.00	88.00	80.00	72.00	62.00	50.00	35.00	35.00	35.00
ING Solution Series	—	95.00	95.00	95.00	95.00	88.46	80.67	72.88	63.13	52.07	35.00	35.00	35.00
Invesco Balanced-Risk Retirement Series	—	—	20.51	—	20.49	—	20.48	—	25.90	—	13.81	—	13.81
JHancock Retiremnt Living through Series	—	—	96.00	96.00	96.00	96.00	92.00	85.00	72.50	61.00	51.00	44.00	38.00
John Hancock Retirement Choices Series	—	—	82.00	82.00	82.00	79.00	75.00	64.00	46.00	27.00	8.00	—	—
JPMorgan SmartRetirement Series	—	85.00	85.00	85.00	85.00	85.00	77.50	70.00	60.00	49.00	31.00	31.00	31.00
JPMorgan SmartRetirement Blend Series	—	85.00	85.00	85.00	85.00	85.00	77.50	70.00	60.00	49.00	31.00	31.00	31.00
Legg Mason Target Retirement Series	—	93.50	93.50	93.50	93.50	87.00	76.20	66.40	61.00	55.00	50.00	45.00	39.00
MainStay Retirement Series	—	95.00	93.00	89.00	85.00	84.00	79.00	73.00	63.00	54.00	50.00	45.00	40.00
Manning & Napier Target Series	—	—	83.00	83.00	83.00	78.00	71.00	62.00	50.00	45.00	40.00	32.00	32.00
MassMutual RetireSMART Series	—	—	90.00	90.00	87.00	84.00	83.00	80.00	72.00	60.00	48.00	43.00	37.00
MFS Lifetime Series	85.00	85.00	85.00	85.00	85.00	85.00	79.00	72.00	54.00	35.00	25.00	25.00	25.00
Nationwide Target Destination Series	—	89.00	89.00	89.00	88.00	84.00	77.00	68.00	57.00	47.00	40.00	—	—
PIMCO RealRetirement Series	—	—	55.00	55.00	55.00	50.00	45.00	35.00	26.00	20.00	15.00	—	—
PNC Target Series	—	—	85.00	85.00	80.00	80.00	70.00	60.00	45.00	35.00	30.00	—	—
Presidential Protected Profile series	—	—	99.00	92.00	86.00	78.00	73.00	67.00	63.00	61.00	56.00	47.00	39.00
Principal LifeTime Series	86.00	86.00	86.00	84.00	81.00	77.00	71.00	65.00	60.00	52.00	44.00	35.00	26.00
Putnam RetirementReady Series	—	95.00	94.00	90.00	85.00	78.00	70.00	60.00	48.00	35.00	25.00	—	—
Russell LifePoints Target Date Series	—	79.00	79.00	79.00	79.00	79.00	79.00	65.00	51.00	40.00	30.00	30.00	—
Schwab Target Series	—	95.00	95.00	93.00	90.00	86.00	80.00	74.00	65.00	54.00	40.00	38.00	35.00
State Farm Lifepath Series	—	—	93.00	—	82.00	—	70.00	—	54.00	—	39.00	—	—
Strategic Adviser Multi-Manager Series	—	90.00	89.30	85.10	83.30	82.30	75.30	69.80	61.80	51.50	49.70	43.50	27.20

Appendix 2

Complete Glide Paths by Target-Date Series (Continued)

Data as of 12/31/2012. Source: Morningstar, Inc.

Target-Date Series Name	2065	2060	2055	2050	2045	2040	2035	2030	2025	2020	2015	2010	2005
T. Rowe Price Retirement Series	90.00	90.00	90.00	90.00	90.00	87.50	82.50	76.50	68.50	60.50	50.50	43.00	40.00
Hartford Target Retirement Series	—	—	95.00	93.00	89.00	84.00	79.00	73.00	67.00	61.00	55.00	—	—
TIAA-CREF Lifecycle Series	—	90.00	90.00	90.00	90.00	90.00	85.00	75.00	65.00	60.00	50.00	45.00	40.00
TIAA-CREF Lifecycle Index Series	—	90.00	90.00	90.00	90.00	90.00	82.00	75.00	65.00	58.00	50.00	45.00	40.00
USAA TARGET RETIREMENT FUNDS Series	—	—	90.00	85.00	80.00	75.00	70.00	60.00	50.00	40.00	30.00	—	—
Vanguard Target Retirement Series	90.00	90.00	90.00	90.00	90.00	90.00	83.00	76.00	68.00	59.00	50.00	30.00	30.00
Vantagepoint Milestone Series	—	—	95.00	95.00	95.00	90.00	81.00	72.00	63.00	56.00	47.00	40.00	25.00
Wells Fargo Advantage DJ Target Series	—	90.00	90.00	90.00	87.00	80.00	70.00	57.00	44.00	31.00	22.00	—	16.00

Appendix 3

Open/Closed Architecture Status by Target-Date Series

Data as of 12/31/2012. Source: Morningstar, Inc.

Closed	Open	Mixed
Schwab Target Series	Russell LifePoints Target Date Series	DWS LifeCompass Series
MainStay Retirement Series	State Farm Lifepath Series	JPMorgan SmartRetirement Blend Series
Allianz Global Investors Solutions Serie	Vantagepoint Milestone Series	Great-West SecureFoundation® Lifetime Se
ING Index Solution Series	Wells Fargo Advantage DJ Target Series	JHancock Retiremnt Living through Series
Franklin Templeton Retirement Series	Guidestone Funds MyDestination Series	USAA TARGET RETIREMENT FUNDS Series
PIMCO RealRetirement Series	Harbor Target Retirement Series	ING Solution Series
MFS Lifetime Series	Nationwide Target Destination Series	John Hancock Retirement Choices Series
AllianceBernstein Retirement Str Series	Great-West Lifetime III Series	MassMutual RetireSMART Series
American Funds Trgt Date Rtrmt Series	Great-West Lifetime II Series	Legg Mason Target Retirement Series
T. Rowe Price Retirement Series	Great-West Lifetime I Series	Principal LifeTime Series
TIAA-CREF Lifecycle Series	Hartford Target Retirement Series	PNC Target Series
American Century LIVESTRONG Series		
Fidelity Advisor Freedom Series		
Fidelity Freedom Series		
Manning & Napier Target Series		
Vanguard Target Retirement Series		
JPMorgan SmartRetirement Series		
BlackRock LifePath® Active Series		
BlackRock LifePath Index Series		
Fidelity Freedom Index Series		
Fidelity Freedom K Series		
TIAA-CREF Lifecycle Index Series		
Putnam RetirementReady Series		
Invesco Balanced-Risk Retirement Series		