

Russell Research

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Introducing the Russell Target Date Metric™

A new performance measure for target date funds

Target date funds are becoming increasingly important as investment solutions for retirement savings plans. In 2007 the Department of Labor recognized target date funds as a possible suitable choice as the default investment option for defined contribution plans, and subsequently there has been a surge of assets into these funds. As of April 2009, assets under management in target date funds are estimated to be close to \$314 billion.¹ Investment managers have responded with new products and redesigns of existing products.

For the individual investor, investment advisor or plan sponsor, selecting from among the variety of target date products is a formidable task. One of the fundamental problems is the lack of an objective, returns-based measure of performance that is appropriate for evaluating target date funds. While investment decisions should never be based solely on past performance, any investor choosing among families of target date funds (whether an individual investor, personal investment advisor, plan sponsor or plan participant) is going to ask: "How have they performed? Have they done better than some simple but reasonable benchmark? How has the family of funds I am considering done relative to peers?" Over time, the investor will also need to know: "How will I be able to tell if my fund is doing what the investment manager said it would do?"

Russell has developed the Russell Target Date Metric (TDM)² to meet this need. Russell has long been a leader in performance measurement and benchmarking. The TDM is

¹ Maxie (2009).

² Patent pending.

Russell's most recent innovation in this vital area.³ The TDM is a returns-based, objective metric for target date fund performance. It measures the performance of an entire family of target date funds in terms of their purpose: building wealth for retirement. It allows for unambiguous evaluation of a target date fund family's performance relative to a transparent investable passive alternative and to peers.

In this paper we provide an introduction to target date funds and identify the key determinants of differences in performance across target date fund families. We elucidate why the traditional approach to benchmarking and performance analysis, which has long been tested for single-asset-class and static-mix investment products, fails to meet the needs of target date fund performance measurement. We identify the desirable properties such a measure would have and describe how the TDM meets those requirements.

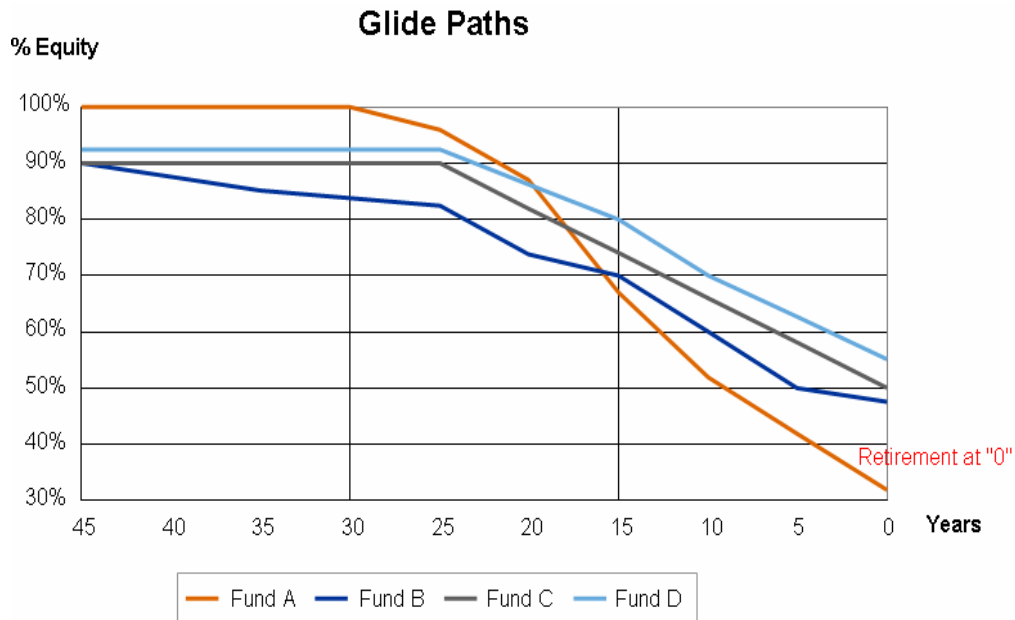
How do target date funds work?

Although target date funds are offered by many investment managers with varying investment philosophies, these funds share common features. The investor chooses a fund with a target date close to his or her retirement—for example, Target Date Fund 2040—and makes regular contributions. The fund manager selects appropriate asset classes, specifies an allocation among them that evolves over the life of the fund, and devises the best investment strategy within each asset class. Thus, there are three major components to target date fund performance: 1) the glide path (the evolution of the mix between equity and fixed income; 2) the allocation among the sectors of the broad equity and fixed income asset classes; and 3) implementation through active and/or passive vehicles within each asset class. While all of these components determine performance, the glide path—the evolution of the mix between equity and fixed income—is the most important determinant of risk and return characteristics of a target date fund.

The glide paths of target date funds have a common feature: the allocation to equity declines as the fund approaches the target date. Younger investors in funds with distant target dates therefore will have a higher allocation to equity than older investors in funds with nearby target dates. Despite this common framework, there is no commonly accepted glide path. Figure 1, below, demonstrates how different the glide paths—the dynamic allocation to equity and bonds—can be from one fund family to another.

³ Russell's innovation in benchmarking and indexation is well known. For Russell-sponsored ground-breaking research in performance measurement, see Spaulding and Tzitzouris (2009) and Christopherson, Carino and Ferson (2009).

Figure 1



This hypothetical example is for illustration only and is not intended to reflect any actual investment.

Conventional performance measures do not work for target date funds

Traditional fund performance measures use time-weighted portfolio returns over various periods—one month, one year, three years, etc. They group similar funds into a performance universe, comparing them against each other and against a passive market index benchmark.

These measures work well for typical single-asset-class funds and can be adapted to evaluate multi-asset-class funds with static asset allocations. However, they have serious shortcomings when applied to target date funds.

The choice of a benchmark portfolio for a given target date fund is problematic. Over any evaluation period, performance will differ among the target date funds in a fund family, because each fund has a different asset allocation. It seems sensible that each target date fund should have its own benchmark. For example, the return of a 2035 fund could be compared to the return of a weighted composite of stock and fixed income indexes that is appropriate for 2035 funds. This date-specific return would be based upon the performance of a “benchmark” target date fund that evolves along a benchmark glide path. Calculation of this benchmark return, however, necessitates assumptions about the glide path (the structure of the changing allocations to stocks and bonds over the life of the target date fund) and the asset mix within the stock and bond asset classes. Existing target date fund index providers employ differing complex glide path and asset mix assumptions and different methodologies regarding glide path construction.

There is no metric for a fund family’s aggregate performance. Even if benchmark portfolios for individual target date funds are available to produce performance numbers on a fund-by-fund basis, using such benchmarks can lead to poor choices. Comparing funds across different target dates is problematic. Consider this example: Suppose that Fundco’s

2020 fund has a higher one-year return than SaveMore's 2020 fund and that the funds' rankings are reversed for their 2040 funds. Current approaches in performance evaluation would say that Fundco's 2020 performed better than SaveMore's, and that its 2040 performed worse. But this is unhelpful, since both of these Fundco funds are, after all, simply different aspects of the same target date strategy. Even if it were feasible to choose specific target date funds from among different providers—say, the 2020 from Fundco and the 2040 from SaveMore—over time (20 years, in this example), the 2040 SaveMore would evolve into the 2020 SaveMore. In this sense, when you buy one target date fund from a family, you are buying all of that family's funds, since they all move along the same glide path. Furthermore, since you cannot feasibly mix target date fund selections between providers, no actionable information for participants or plan sponsors is contained in this comparison.

Traditional approaches do not meaningfully measure a target date fund in terms of meeting its investment goal. Traditional time-weighted returns are purposely designed to remove the effects of the timing of cash flows. This is appropriate for measuring the performance of an equity or bond manager who faces cash inflows and outflows that are beyond his or her control. Yet the essential purpose of a target date fund is to take a stream of cash flows over time and create wealth. To measure the success of target date funds in a manner consistent with the primary investment purpose, it is necessary to incorporate both the size and the timing of cash flows. Time-weighted returns assume away a critical aspect of target date performance. In particular, time-weighted returns ignore the fact that returns in the final few years before the target date have much more impact on the retirement wealth of a typical investor than do returns in the early years. Thus, Russell believes an appropriate performance metric for target date funds should give greater importance to returns nearer the target date.

Essential characteristics of a target date performance metric

Regardless of what type of fund is being evaluated, Russell believes that a performance metric should have the following characteristics:

- It should allow comparison with a benchmark portfolio that is an investable alternative strategy.
- It should allow the construction of a performance universe of similar funds that provides a fair, objective comparison.
- It should be based on actual fund returns.
- It should measure the fund's success in performing an investment "task" over a specified period.

Traditional time-weighted returns satisfy these standards when applied to conventional equity and fixed income funds and to balanced funds with static allocations. In developing a performance metric for target date funds, these same standards should be met.

For target date funds, additional requirements need to be met:

- The benchmark portfolio must be based on a transparent and investable glide path structure and asset mix.
- It must measure the performance of a family of target funds.
- The measurement must be made relative to the primary investment goal of building retirement wealth
- It must capture the impact of the timing of cash flows and returns.

The Russell Target Date Metric

The Russell TDM combines monthly returns of a fund family's suite of target date funds to generate a performance measure over a specified period.

The Russell Target Date Metric is the ratio of retirement wealth generated by a fund family to the wealth generated by investing in an appropriate benchmark over the same period.

The intuition behind the TDM is simple. The longest-dated target date funds typically have about 45 years until the target date. If we had 45 years (540 months) of return data for a given target date fund and for the benchmark fund, and a path of 540 monthly contributions, it would be possible to calculate the “true value” of the TDM and measure success.⁴ That true value would be the ratio of ending wealth generated by the target date fund to the ending wealth generated by the benchmark fund. By construction, it would take into account the entire glide path and the timing of cash flows.

Unfortunately, 45 years is a long time to wait to measure performance. We need something that gives us useful information about the target date fund over shorter periods, such as three months, year-to-date, and one, three and five years, that are typical of performance measures.

Constructing this performance measure based on limited periodic returns means that certain assumptions about target date funds must be made. These assumptions should reflect empirical realities of the actual products in the marketplace and the behavior of investors. Unfortunately, there is limited evidence on many of the needed assumptions. When there is limited evidence and divergence of opinion, Russell opts for the simplest assumptions. As this marketplace matures, these assumptions may change. The basic methodology of the TDM can easily be adapted to alternative assumptions in the future.

The current assumptions employed in the TDM are:

- The glide paths for target date funds begin 45 years before the target date. This is based on the observation that few fund families currently have target dates beyond 2050.
- For each fund family, target date funds exist at five-year intervals. If there are gaps in the fund lineup the returns of the missing funds are generated either by taking the average return of the funds with next highest and next lowest target dates, or, if no fund with a higher target date exists, by making a linear projection based on the two funds with the closest target dates.
- \$1 is deposited at the beginning of each month for 45 years (540 periods). This assumption is made for simplicity. While conventional wisdom and empirical evidence suggest that defined contribution plan participants' contributions increase as the target date gets closer, estimates of the growth in contributions vary.
- The benchmark glide path is a constant allocation of 40% Russell 3000[®], 20% Russell Global ex-U.S. Index and 40% Barclays Capital U.S. Aggregate Bond Index. Again, this assumption is made for simplicity. A constant 60/40 equity/bond mix is certainly a feasible, if primitive, glide path. This benchmark reflects the returns to a balanced fund with a constant allocation mix to stocks and bonds and as such is a transparent, investable alternative to target date funds.

⁴ For calculation specifications, see forthcoming research by Gardner and Sirohi (2009).

Using these assumptions, we calculate a periodic version of the Russell TDM over a specific evaluation horizon that is a valid estimate of the true value of the TDM.

Interpreting the TDM

The TDM is the ratio of the wealth generated by a family of target date funds to the wealth generated by the benchmark fund over a specific time period. If a fund family's TDM over a three-month period is 105, that indicates that the fund family generated 5% more in target date wealth over those three months than did the benchmark portfolio. Each evaluation horizon—three months, one year, three years, etc.—will have its own value of the TDM.

The TDMs of different families over the same evaluation period can be compared directly to each other, meaning that conventional performance universes can be constructed at the family-of-funds level. For example, suppose that for this three-month period, the TDM for the Fundco target date funds was 110, while the competitor SaveMore target date funds had a TDM of 121. These values mean that over these three months:

- Fundco's target date funds added 10% more to retirement wealth than the benchmark portfolio, while SaveMore's target date funds added 21% more.
- SaveMore's funds outperformed Fundco's funds—SaveMore's funds added 10% more to retirement wealth than did Fundco's (121 is 10% larger than 110).

Performance universe example:

Table 1 shows TDM calculations for seven randomly selected actual fund families over various performance intervals ending in June 2009. This table illustrates a basic performance universe.

Table 1 / TDM for Periods Ending June 30, 2009

Family	3-month	1-year	2-year	3-year
Family 1	114.1	100.3	105.0	92.1
Family 2	125.2	86.3	76.4	74.6
Family 3	110.4	80.0	75.9	74.3
Family 4	142.2	73.5	64.8	66.5
Family 5	112.8	73.0	68.4	63.2
Family 6	123.2	69.0	70.8	63.0
Family 7	131.0	65.0	63.6	60.0
Family 8	125.6	74.6	62.7	53.9
Family 9	133.6	50.2	45.2	42.9
TDM Equity – Bond Return ⁵	19.2%	-33.8%	-49.1%	-40.8%

Sources: Russell, Barclays Capital, Morningstar

The essential requirement of a performance universe is to provide an unambiguous rank ordering of the universe members over a specified return history. The TDM allows this ordering by giving a single number that represents the overall performance of all target date funds in a family. Moreover, as just discussed, the TDM quantifies the magnitude by which each fund family outperforms the benchmark, as well as the magnitude by which one family outperforms another universe member.

⁵ The total return of global equity as measured by the 67%/33% mix of the Russell 3000 and Russell Global ex-U.S. Indexes minus the return of the Barclays Capital U.S Aggregate Bond Index.

From Table 1 we observe:

- Family 1 is the only one that outperforms the benchmark over the one- and two-year periods.
- Over the most recent quarter, all fund families have outperformed the benchmark; Family 1 comes in 7th out of 9 over the quarter.

While every aspect of a fund family's investment process—the glide path, allocations among sectors of the fixed income and equity asset classes, the use and success of active management, etc.—influences the returns and hence the TDM, it is possible to determine some general characteristics of the investment policy and the return environment that drive universe ranking.

The primary drivers are the overall equity/fixed income allocation along the glide path and the relative returns to equity and fixed income over an evaluation interval. Generally, fund families with higher overall equity allocations will rank higher than those with lower equity allocations in periods when stocks outperform bonds. This characteristic seems obvious, and would be trivial if the families' glide paths never “crossed.” That is to say, if for any possible pair of glide paths in the universe, one family had a higher allocation to equity than the other family at every point on the glide path, then the family with the consistently higher equity allocation would likely have a higher TDM than the other over evaluation periods when stocks outperformed bonds. However, glide paths of families do indeed cross, and an important feature of the TDM is that it allows an unambiguous overall measure of relative performance even in this situation.

The sample universe in Table 1 gives a sense of the range of values in a TDM performance universe. Note that for every evaluation period except the most recent quarter, bonds outperformed stocks by a significant margin. The distinct difference between the performance of Family 1 and the other members of the universe suggests that Family 1 may have a generally higher bond exposure than the other families. Family 9's performance over the different periods suggests a high equity allocation. This sample universe demonstrates that the TDM captures the impact on performance of notable differences among target date fund products.

Performance ranking is sensitive to time period. This is true of any returns-based performance metric. This fact must be kept in mind in interpreting the Russell TDM: it is a measure of performance over a given time period, not a predictor of future performance.

Additional applications of the TDM

Custom applications of the TDM allow for:

- Fund contribution analysis—estimation of the contribution of each target date fund within a fund family to the total TDM.
- Performance attribution—access to glide path specifics of their target date funds enables investors and fiduciaries to conduct attribution analysis of total return to glide path structure, asset mix and implementation.

Additionally, the TDM has attractive statistical qualities that allow for the estimation of the confidence region around the TDM, as well as a risk-adjusted return metric analogous to the information ratio.⁶

⁶ For more on the information ratio, see Goodwin (1998).

In conclusion: the TDM is a vital new performance metric

During June and July 2009, Congress held hearings and heard testimony regarding the performance of target date funds. Among other things, this reflects how important these investment vehicles have become and how great the need is for credible performance measures. Russell has developed the TDM to fill this need. The TDM meets all the criteria we have established for performance measures across all investment products, as well as those specific to target date funds. In summary, the TDM:

- Provides a valid estimate of the true value of TDM for a given family of funds, using fund returns over a limited evaluation period.
- Reflects the relative importance of each fund's position on its glide path: returns of funds near their target dates have more influence on retirement wealth than returns of more distant funds. *This characteristic of the weights means that the TDM is meaningfully capturing the success of a family of target date funds in the performance of its essential task: creating wealth at retirement.*
- Takes into account the timing of cash flows as a typical investor saves for retirement.
- Determines the value of TDM over a given performance period by differences in the returns of the funds in the family and the benchmark returns. *The TDM is returns-based; thus, it captures the performance differentials that are due to glide path structure, asset mix and active/passive implementation, the three key components of target date fund performance differences.*
- Measures performance relative to a passive investable alternative.
- Can be used to meaningfully compare the performance of any two families of funds over a common performance period. *The TDM allows the construction of a meaningful performance universe.*

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