

TARGET-DATE FUNDS: THE GOOD, THE BAD, AND THE UGLY

BY JAVIER ESTRADA

Target-date funds, which become increasingly conservative over time by periodically reducing the proportion of stocks and increasing the proportion of bonds in the portfolio, currently are a core product for individuals saving for retirement. Here, Javier Estrada takes us through the benefits they provide investors with, as well as the important cost they can impose, namely, a smaller nest egg than could be obtained with strategies that make a portfolio increasingly aggressive over time. These contrarian strategies are not difficult for individuals to implement and, even more importantly, the industry should be able to provide them neatly packaged in a product.

It is becoming increasingly the case that individuals have to decide how to invest the forced savings their employers set apart for their retirement. Defined-benefit pension plans are slowly but safely giving way to defined-contribution pension plans, and the latter more often than not require that individuals decide how to invest those savings.¹ Sadly, the vast majority of individuals have little to no idea about how to make this decision wisely, fail to make any choice, and their savings are allocated to some default option.

In the US, the passage of the Pension Protection Act of 2006 made target-date or lifecycle funds a Qualified Default

Investment Alternative, thus making it possible for employers to allocate to these funds the savings of employees that make no investment decisions. As a result of this Act, target-date funds in the US grew from \$71 billion at the end of 2005 to \$378 billion at the end of 2011 and have become the most popular default option for employers.

Target-date funds are funds that become increasingly conservative as the retirement date approaches, largely by reallocating capital from stocks to bonds and cash, and are based on the seemingly plausible idea that investors are able to take larger risks when they are young than when they are approaching retirement. Is it possible that despite their popularity and many valuable characteristics these funds could be detrimental to investors? This is the central question explored in this article.

Lifecycle Strategies and Glidepaths

Lifecycle strategies, on which target-date funds are based, gradually decrease a portfolio's exposure to stocks, and increase its exposure to bonds, thus making the portfolio increasingly conservative over time. Perhaps the best known application of this strategy is the so-called "age in bonds" rule, which suggests that the proportion of bonds in an individual's portfolio should be equal to his age, and that of stocks equal to 100 minus his age.

Thus, an individual should have a 70–30 stock–bond allocation when he is 30 and a 35–65 allocation when he is 65. Some more aggressive variations of this rule are also popular, such as exposure to stocks equal to 110–Age or 120–Age, but their common characteristic is a declining–equity glidepath.

A glidepath is the relationship between a fund’s asset allocation and an individual’s age or number of years to retirement. To illustrate, based on a retirement age of 65, Vanguard maintains a 90% equity exposure through age 40 (the remaining 10% being allocated to investment-grade bonds), gradually declines to a 30% equity exposure through age 72 (the rest being allocated 45% to investment-grade bonds, 20% to TIPS [Treasure Inflated Protection Securities], and 5% to cash), and keeps the asset allocation constant from that point on. Glidepaths may vary considerably across target-date fund providers, but all of them share two characteristics: First, they all periodically decrease the equity allocation and increase the bond allocation, thus becoming increasingly conservative over time; and second, the asset allocation is adjusted exclusively as a function of the number of years to retirement.

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The Good

There is no question that target-date funds are beneficial to many individuals, particularly to those that lack the knowledge to understand the pros and cons of the thousands of financial products in the market, and therefore are not able to put some of them together in a sensible portfolio. Target-date funds provide individuals with a simple, one-stop shopping alternative to accumulate all savings in just one fund. Furthermore, these funds provide diversification both between and within the two major asset classes, exposing investors to a diversified portfolio of both stocks and bonds. Importantly, this diversification is provided at a much lower cost than what an individual would have to bear to put together the same portfolio.

Furthermore, individuals do not have to periodically rebalance their portfolio; a fund manager does it for them. In addition, this rebalancing is implemented according to a pre-set glidepath, thus preventing individuals from engaging in an asset reallocation based on what they view as the appropriate exposure to stocks and bonds at the time of rebalancing. The evidence overwhelmingly shows that this results in a typical buy-high-sell-low behaviour. In short, target-date funds impose badly needed discipline on individuals.

Finally, target-date funds simply feel right. It seems natural to most individuals to bear some short-term volatility in exchange for some long-term appreciation when they are young; and to protect their savings as they approach retirement, so as



Exhibit 1: Terminal Wealth (Thousands of Dollars)

	100 - 0	0 - 100	90 - 10	10 - 90	80 - 20	20 - 80	70 - 30	30 - 70	50 x 40	60 x 40
Mean	104.2	127.2	106.3	124.5	108.4	122.0	110.5	119.6	114.9	127.5
Median	89.0	115.4	89.2	105.8	90.2	102.8	88.0	99.8	93.3	110.1
P1	16.8	21.6	17.3	21.1	17.7	20.6	18.2	20.1	19.1	20.3
P10	21.0	32.1	22.0	31.2	23.0	30.2	24.1	28.9	26.4	28.7

to avoid suffering a year like 2008 with little or no time left to recover.

The Bad

We will focus here on two issues, one from the perspective of the industry and the other from the perspective of investors. Regarding the former, recall that target-date funds determine their asset allocation based exclusively on the number of years to retirement. The holding period is in fact a very important variable when making investment decisions, but so is an individual's ability to tolerate risk; having a 30% equity exposure by the retirement date may be too aggressive for some individuals and too conservative for others. Ideally, for any given retirement year, the industry should provide at least an aggressive, a moderate, and a conservative fund for individuals to choose from.

From the perspective of investors, target-date funds are designed to be one-stop-shopping funds, in which all the savings for retirement are accumulated. Unfortunately, most individuals do not use them that way. Rather, they use them as one of the (perhaps many) funds in their portfolio, thus throwing into disarray whatever asset allocation the target-date fund manager may have planned for the investors in his

fund. Ideally, individuals should know rather precisely their asset allocation at any point in time (simply by observing their target-date fund's asset allocation), but because they typically own several funds, they fail to know this critically important variable most of the time.

The Ugly

The main cost that target-date funds impose on investors however affects a critical variable, the size of the nest egg upon retirement, and it is the consequence of an asset allocation based on a lifecycle strategy.² This strategy has a high exposure to stocks when individuals are young and their capital is small, and a low exposure to stocks when individuals are older and their accumulated capital is much larger. In other words, they expose a smaller capital to a higher expected return and a larger capital to a lower expected return, with the obvious negative effect on capital accumulation.

To assess the impact of this shortcoming consider Exhibit 1. The individual considered here has a working life of 40 years and makes 40 annual contributions to his retirement fund. Each year he contributes an inflation-adjusted lump sum of \$1,000, and rebalances his portfolio between stocks and bonds at the same time, for a cumulative contribution

of \$40,000 in real terms. For Europe as a whole, 71 historical 40-year working lifetimes are considered, 1900-1939, 1901-1940,..., 1970-2009. The focus of the analysis is on the series that collects the terminal wealth (the capital accumulated at retirement) across the 71 working lifetimes considered.

Four lifecycle strategies are considered in the exhibit: 100-0, 90-10, 80-20, and 70-30. These numbers indicate the exposure to stocks at the beginning and at the end of the average 40-year lifetime; hence, 90-10 indicates that an individual begins with a 90% exposure to stocks (hence a 10% exposure to bonds) and 40 years later he has a 10% exposure to stocks (hence a 90% exposure to bonds). In between, the individual switches periodically and linearly away from stocks and into bonds, thus making his portfolio more conservative over time.

These four lifecycle strategies are evaluated against their respective mirrors (0-100, 10-90, 20-80, and 30-70); that is, contrarian strategies that have the *opposite* allocation to stocks and bonds year after year. Importantly, note that these strategies become more *aggressive* over time; that is, they increase the allocation to stocks and decrease the allocation to bonds as the working lifetime goes on.

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A contrarian strategy may sound like a crazy approach to follow, but the evidence says otherwise. Comparing the (mean and median) size of the nest egg upon retirement, the exhibit clearly shows that lifecycle strategies underperform contrarian strategies; without exception, the four lifecycle strategies considered left individuals with a smaller (mean and median) retirement fund than their respective mirrors. In other words, if the goal of an individual during his working years is to build the largest possible nest egg, he should *increase* his allocation to stocks (and decrease that to bonds) over time, which is the opposite of what lifecycle strategies (hence target-date funds) do.

The last two columns of Exhibit 1 show two static or balanced strategies, with a constant exposure of 50% (50×40) and 60% (60×40) to stocks during the 40-year working lifetime, with the rest invested in bonds. As the mean and median figures show, these very simple strategies also outperformed lifecycle strategies in terms of (mean and median) capital accumulation.

But what about risk? What would happen to a retiree heavily exposed to stocks if he happens to retire in a year like 2008? The P1 figures in the exhibit show the size of the nest egg at the end of the worst 1% of all retirement periods considered, which amounts to the

historical worst-case scenario. As the exhibit shows, in all cases both contrarian and static strategies left individuals with a bigger nest egg than did lifecycle strategies. The results are similar if the focus is on the size of the nest egg at the end of the worst 10% of all retirement periods considered (P10); that is, in all cases lifecycle strategies underperformed both contrarian and static strategies in the sense of leaving individuals with a smaller nest egg. Put differently, if risk is thought of as the size of the nest egg in very bad periods, then lifecycle strategies are riskier than contrarian and static strategies simply because they leave individuals with less money.

How can this be? These results are explained by two facts. First, years like 2008 are extremely unlikely; they are ugly when they happen but they happen extremely rarely. Second, if you go up 100 steps and fall 20, you end up at a higher level than if you went up 70 steps without ever falling. In other words, portfolios that have an increasing exposure to stocks may fall by a large amount by the end of the retirement period, but they do so after having accumulated more capital, and therefore end with a bigger nest egg, than portfolios heavily invested in bonds. In yet other words, the investment results accumulated over a working lifetime from a portfolio with an increasing exposure to stocks are likely to more than offset potential bad luck towards the end of the road.

A Final Word

Target-date funds are beneficial to individuals in many ways, and yet they are detrimental in some others. Their main shortcoming is that they are likely to leave individuals with a smaller nest egg than they could have, both on average and in particularly bad times. To overcome this limitation individuals could choose to invest their capital for retirement in static or balanced funds that maintain a constant exposure to stocks of no less than

50–60%. At the same time, the industry could provide target-date funds that periodically increase their exposure to stocks, thus becoming increasingly aggressive over time; the market will then decide whether these funds are a plausible alternative when saving for retirement. 

About the Author



Javier Estrada is Professor of Financial Management at IESE Business School. He has done extensive research on many issues in the area of portfolio management and investment strategies. He is also the author of *The FT Guide to Understanding Finance* (FT Prentice Hall, 2011) and *The Essential Financial Toolkit - Everything You Always Wanted To Know About Finance But Were Afraid To Ask*, published by Palgrave Macmillan in 2011. Prof. Estrada is a partner and financial advisor at Sports Global Consulting Investments, a company that specialises in providing wealth management advice to professional athletes; is a member of the CFA Institute's Speaker Retainer Program; and was a tennis instructor.

References

1. In a defined-benefit plan, an individual receives during his retirement a specified monthly amount from his previous employer; the amount is typically based on a predetermined formula that accounts for variables such as the employee's salary during his last few years of employment, his tenure of service, and his age. In a defined-contribution plan, in turn, the employer makes regular contributions on behalf of an employee, those contributions are invested until the employee retires, at which point he withdraws a fixed sum that results from the compound value of the forced savings during his working years.
2. The arguments that follow are a very condensed version of those I discuss in my recent publication, (Summer, 2014) 'The Glidepath Illusion: An International Perspective.' *Journal of Portfolio Management*, pp. 52–64. I also discuss related issues in my follow-up working paper, 'The Retirement Glidepath: An International Perspective.'