Registered Index–Linked Annuities in qualified retirement plans

Abstract

Many Americans continue to be financially underprepared for their retirement. Automatic enrollment in employer-sponsored qualified retirement plans (QRPs) has helped, but the target date funds commonly used as default investment choices have their own problems. We propose a target-date version of the recently developed Registered Index-Linked Annuities and we suggest that these "TD-RILAs" provide a more cost-effective and more transparent way to attain a diversified equity exposure, the level of which decreases over time. A theoretical analysis explores the optimal structure of TD-RILAs and their comparison to target date funds from an investor's perspective. A large-scale lab experiment sheds further light on investors' preferences, focusing on the importance of product transparency, the employer's default investment choice, and the role of information in improving financial literacy. We conclude that TD-RILAs would be a suitable addition to QRPs and may even rival target date funds as Qualified Default Investment Alternatives.

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1. Introduction and motivation

While many other developed nations have strong social security and government pension systems, the United States relies heavily on employer-provided retirement plans and individual saving for households to facilitate their financial retirement planning. With the shift in employer-provided plans from Defined Benefit (DB) to Defined Contribution (DC), individuals are even more responsible for (i) ensuring they have enough savings to fund retirement, and (ii) deciding how to invest their retirement contributions, given the usual trade-off of risk versus return in the face of the investment's long-term nature but also the high-stakes risk of having inadequate funds in old age, when supplementing with labor income may no longer be possible.

Despite considerable tax incentives, many U.S. workers are not saving sufficiently in order to maintain their standard of living through retirement (Munnell et al., 2019; Poterba, 2014). This has negative repercussions for these individuals and their families, but also for society as a whole. Over the past few decades, this problem has led to much public policy debate regarding how to encourage individuals to save through DC plans. Many employers offer and contribute to a qualified retirement plan (QRP) on behalf of the employee. However, it is still up to employees to choose their investment allocation, and evidence shows that they tend not to reallocate or adjust their portfolios over time (Ameriks & Zeldes, 2001; Madrian & Shea, 2001; Mitchell et al., 2006).

To encourage employees to save for retirement and, in particular, to start saving early, many employers are automatically enrolling employees in a QRP upon hire. This has been facilitated by the Pension Protection Act of 2006. More recently, the SECURE 2.0 Act of 2022 requires all new 401(k) and 403(b) retirement plans to have automatic enrollment as part of the plan design. A feature of automatic enrollment is that the employer must also choose a default investment option for employees, typically one that mimics the likely investment choices made by a financially savvy individual in the same situation. This feature is particularly important considering that people tend to stick with the default choice, irrespective of what that choice is (Beshears et al., 2006).

A common choice for such a Qualified Default Investment Alternative (QDIA) is target date funds (TDFs). These investment funds offer a mix of equity and fixed-income securities and automatically allocate and rebalance the investment, tailored to each employee's target retirement date.

The adjustments follow the general insight that employees nearing retirement should invest more conservatively than younger employees (Mitchell & Utkus, 2012). However, TDFs have been criticized for being expensive (Massa et al., 2021) and lacking transparency (Sherill, 2019). Regarding the latter, Balduzzi and Reuter (2019) find that TDFs generally follow very different investment strategies and produce very different outcomes even for the same target retirement date. Furthermore, TDFs with actively managed components have been shown to underperform relative to comparable exchange traded funds, and past performance of TDFs is only a weak predictor of future performance (Shoven & Walton, 2021). This heterogeneity and lack of predictability can be problematic for investors looking to save for a comfortable retirement.

In this study we present an alternative to TDFs and analyze its suitability for inclusion in QRPs. Our proposal builds on a recent innovation in the equity-linked annuity market: Registered Index-Linked Annuities (RILAs). RILAs have drastically gained in popularity in recent years, with annual sales of over $40 billion in 2022. A RILA entails an investment into a separate account managed by an insurance company. The account evolution is linked to the performance of a popular market index—such as the S&P 500—over a crediting term of usually one year (but potentially up to six years). At the end of the year, the insurer credits the investor's account with the index return, subject to downside protection in the form of a floor or buffer. For instance, with a 10% floor the investor can lose at most 10% of her funds over the crediting term, and with a 10% buffer the loss of the index would be reduced by up to 10%. In exchange, the investor accepts an upside limit, usually in the form of a cap, that the credited return cannot exceed. For instance, consider a RILA contract with a $100,000 investment and suppose that the investor chooses a 10% buffer and a 12% cap rate for the first year. If the index loses 14% over the year, the insurer will credit the RILA account a -4% return (with the buffer protecting the investor from the first 10% of the loss), leading to an end-of-year account value of $96,000. On the other hand, if the index gains 14%, the insurer credits the maximum of 12% to the account (due to the cap), increasing the RILA account value to $112,000. Moreover, a small loss below the buffer rate (e.g., a -8% index return) would be fully absorbed by the buffer, leaving the RILA account unchanged at $100,000. And a small gain below the cap (e.g., an 8% index return) would be fully credited to the RILA account (resulting in $108,000 at the end of the first year).

Alternatively, some insurers offer participation rates as a form of (downside) protection or (upside) limit. For instance, consider the same RILA account from the previous example, but suppose instead that the chosen crediting mechanism entails a 50% downside participation rate and a 75% upside participation rate (with no floor, buffer, or cap). In the case of a -14% or -8% index return, only half of the loss would be credited to the RILA account, leaving the investor with $93,000 or $96,000 at the end of the first year, respectively. In contrast, for a positive index return of 8% or 14%, the insurer will credit 75% of the return (that is, 6% or 10.5%, respectively) to the RILA account, resulting in end-of-year account values of $106,000 or $110,500.

RILAs are formally classified and regulated as "variable annuities" and offer long-term payout profiles similar to retail traditional variable annuities (TVAs) with maturity guarantees. However, they have some key advantages for both investors and insurers. First, for investors they are much easier to understand and compare, as carriers compete primarily over the chosen cap rates. Second, unlike for TVAs, RILA carriers can near-perfectly and cheaply hedge their exposure to the embedded equity risk by trading European options in the financial markets. This is because the credited RILA return is tied to the short-term performance of a popular market index, and its crediting mechanism (with floor, buffer, cap, and participation rates) can be decomposed into European call and put options (Moenig, 2022). In contrast, TVA returns are based on the performance of individual mutual funds, and while the embedded guarantees have option-like structures, they are very long-term, beyond the options that are commonly traded in the financial markets. This makes TVA hedging much more complicated, expensive, and subject to model risk and basis risk, compared to RILAs. Moreover, with RILAS, insurers or carriers are not locked into a long-term contract as they can adjust the cap rate at the end of each crediting term to reflect current market conditions (i.e., option prices). Moenig (2022) shows that carriers took advantage of this flexibility in mid-2020 when option prices soared, though not to the detriment of the investors. And third, while retail TVAs are infamous for their high fee rates, RILAs are priced very attractively for investors (Moenig, 2022; Moenig & Samuelson, 2023). This is a direct consequence of their design allowing for low-cost risk management as well as their regulatory environment, in the sense that RILAs do not entail a direct investment into the index, so that carriers can earn a credit spread by investing the funds at their discretion, typically into corporate bond portfolios. As Moenig (2022) illustrates, these features make RILA products consistently profitable for providers while offering investors a low-cost alternative to TVAs. As a result,

it is easy to envision RILAs as a future of the equity-linked annuity market.

For the same reasons, we can envision RILAs as potential investment options in QRPs. They offer diversified equity exposure in a transparent way, with downside protection, and at a very low cost. In this study we propose a new investment product that equips RILAs with a target-date feature to create a meaningful alternative to TDFs. This *target-date RILA* (TD-RILA) has annual crediting terms and credited returns are tied to a common market index, subject to either a floor or buffer and with the level of downside protection automatically increasing as the investor nears her retirement age. As such, TD-RILAs can mimic the typical equity-reduction pattern of a TDF, but in their own way and with the aforementioned advantages of the established RILA products. We explore this comparison—and the TD-RILAs more generally—with both a theoretical analysis and a large-scale lab experiment.

Our theoretical comparison relies on contract designs that are optimized to suit the needs of a typical investor who gains utility from the QRP account value at retirement. Through this analysis we are able to confirm that the optimal floor level in a TD-RILA is declining over time, while the optimal buffer level increases, consistent with the equity-reduction pattern found in TDFs and supported by Mitchell and Utkus (2012). We find that the target-date feature enhances the value of traditional RILA policies by around 4.5% (similar to the enhanced value of TDFs relative to Ta mutual fund with constant equity exposure.[1] We also observe that within TD-RILAs, the buffer feature is marginally preferable to a floor. Moreover, our analysis reveals that TDFs are preferable to TD-RILAs at equal cost. However, the implicit cost of RILA products in today's market is considerably less than the typical TDF fee rate, and factoring in this difference, we find that TD-RILAs are distinctly better, yielding the investor a risk-adjusted value that is 2.3%–2.8% above a TDF. In general, we conclude that the *cost* of the investment product is more relevant than its *payout structure*, and that TD-RILAs appear to be a viable investment product to include in QRPs.

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[1] We represent the "value" of each product with the investor's certainty equivalent of her terminal account value at retirement. That is, the TD-RILAs have a certainty equivalent (CE) that is approximately 4.5% higher than the CE of the corresponding (non-target-date) RILA contract.

Given these theoretical results, we conduct a randomized online lab experiment to see how employees may feel about TD-RILAs in their QRP, on their own and compared to TDFs. The experimental design assesses the participants' choices within and across a set of target-date products. By varying the fee rate (or implicit cost), we can determine the demand elasticity for each investment product. The experimental design also allows us to assess the importance of a default investment choice and the importance of the level of information provided to an employee. The experimental results support our theoretical findings: TDFs are preferable at equal cost, but the implicit cost was a major driver of participants' investment choices. More broadly, we find evidence to support the impact of an employer-selected default investment choice, consistent with prior literature. However, we also observe that providing employees access to personalized distributional information about their projected retirement income can be of even greater benefit to them.

Our study contributes to the broad literature on financial retirement planning in various ways. We propose a new type of investment product and position it as a viable alternative to the prominent TDFs. QRP managers and insurance carriers can use our modeling approach to develop variations of TD-RILAs that best suit clients' needs. Moreover, we conduct one of the few experiments looking into the effectiveness of default choices in QRPs while also investigating the impact of informational content on investment choices. The experiment also contributes to the behavioral retirement literature, underscoring the importance of the default investment chosen by the employer and the value associated with providing employees information about the projected benefits associated with various investment choices. Lastly, we add to the emerging literature on RILAs by providing another—potentially more prominent—application for this relatively novel product.

The remainder of the paper is structured as follows: In Section 2 we formally describe TD-RILAs, we build a modeling framework for a QRP with various (optimized) investment products, and we conduct a numerical analysis to compare the products from the investor's perspective. Section 3 describes the experimental design and Section 4 presents the experimental results and our discussion thereof. Finally, in Section 5 we provide concluding thoughts and policy implications from this work.

2. A theoretical comparison

For the QRP we consider the following potential investment products:

- Lifestyle fund (LSF): a mutual fund with a fixed equity exposure over the lifecycle.

- Target date fund (TDF), aka lifecycle fund: a mutual fund with equity exposure decreasing automatically as the investor nears retirement age.

- RILA contracts: investor can select a (time-invariant) buffer or floor for downside protection and a cap on potential gains.

- Target-date RILA contracts (TD-RILAs): Buffer level increases (or floor level decreases) over time to reduce equity exposure as the investor nears retirement age.

- Enhanced target-date RILAs (E-TD-RILAs): investor can also select appropriate (upside and downside) participation rate, in addition to the buffer or floor level.

For each specific product we determine the optimal investment strategy (dynamically, where applicable) based on the investor's risk attitudes and under the following model assumptions.

2.1 Qualified retirement plan

2.1.1 Account contributions

We aim to mimic a typical 401(k) savings pattern and consider an individual investor who begins saving a nominal amount of at time and who makes subsequent contributions annually for a total of T years.

The contribution amount increases along with her salary at a constant annual rate of g. That is, at times $t = 0, ... ,T$ - 1, the investor's contribution to the QRP is:

$$I_t = (1 + g)^t.$$

To streamline our analysis, we assume that the investor survives to her retirement age T and remains employed, so that all the aforementioned contributions are made in full.

2.1.2 Evolution of QRP account value

Let A_t denote the QRP account value at time t, prior to the investor's time-t contribution. Beginning with $A_0 = 0$, the account value evolves as follows:

$$A_t = A_{t-1}^+ * (1 + R_t^A), \qquad (1)$$

where

$$A_{t-1}^+ = A_{t-1} + I_{t-1}$$

denotes the QRP account value immediately after the investor's contribution of I_{t-1} at the beginning of year t, and where R_t^A denotes the investment return credited to the QRP account in year t.

For the mutual fund investment strategies, we let α_t denote the proportion of the QRP account value that is invested in the equity index in year t, while the remainder is placed in a money-market account that accumulates at the risk-free rate r (compounded continuously). Letting R_t^S denote the net return of the equity index over year t, we have:

$$R_t^A = e^{-\phi_M} * (\alpha_t * (1 + R_t^S) + (1 - \alpha_t) * e^r), \quad (2)$$

where ϕ_M denotes the annual fee rate on the mutual fund.

For RILA investment strategies with buffer B_t, upside participation rate P_t^u, downside participation rate P_t^d and cap C_t, the year-t credited return is given by:[2]

$$R_t^A = \min\{P_t^d * R_t^S + B_t, 0\} * 1_{\{R_t^S < 0\}} + \min\{P_t^u * R_t^S, C_t\} * 1_{\{R_t^S \geq 0\}}, \quad (3)$$

where $1_{\{x\}}$ denotes the indicator function with respect to statement x, while for a RILA investment with floor F_t the credited return in year t is

$$R_t^A = \min\{P_t^d * R_t^S, -F_t\} * 1_{\{R_t^S < 0\}} + \min\{P_t^u * R_t^S, C_t\} * 1_{\{R_t^S \geq 0\}}. \quad (4)$$

2.2 Model specifications

2.2.1 Investor's risk preferences

We express the investor's risk attitudes with an expected utility model, where utility is defined over her terminal QRP account value A_T at the time of retirement. Specifically, we assume a constant relative risk aversion (CRRA) utility function with relative risk aversion coefficient γ.[3] That is:

$$u(A_T) = \begin{cases} \dfrac{A_T^{1-\gamma}}{1-\gamma} & \text{for } \gamma \neq 1 \\ \ln(A_T) & \text{for } \gamma = 1. \end{cases}$$

2.2.2 Financial market model

For ease of comparison, the investment returns of all retirement products are tied to the same equity index. We assume a constant interest rate r (continuously compounded) and that the equity index follows the jump diffusion model (MJD) of Merton (1976). Under the MJD model, the index return experiences noncontinuous changes ("jumps") of random frequency and severity. In particular, the number of jumps in a given year follows a Poisson distribution with mean λ, while the log returns of each jump are independent and follow a Normal distribution with mean μ_j and standard

deviation σ_j. The index return additionally contains a diffusion process characterized by a geometric Brownian motion with expected annual growth rate μ_d, subject to dividend yield δ, and volatility σ_d. Since jump process and diffusion process are independent, the log return over the year $(t - 1, t)$—conditional on the index experiencing N_t jumps in the year—is given by:

$$LR_t | N_t \text{ jumps} \sim \mathcal{N}\left(\mu_d - \delta - \frac{\sigma^2}{2} + N_t * \mu_j, \sigma_d^2 + N_t * \sigma_j^2\right), \text{ with } N_t \sim Poi(\lambda).$$

Thus:

$$R_t^S = e^{LR_t} - 1$$

denotes the net return of the index in year t, i.e., between times $t - 1$ and t.

Due to the potential for jumps, the equity index operates in an *incomplete* market and thus the risk-neutral (pricing) measure is not unique. To value the various RILA-type products (specifically, to determine an appropriate cap rate) we construct a pricing measure $\mathbb{Q}$ by subtracting a market risk premium from the diffusion drift term μ_d, while leaving all other parameters the same (see Moenig & Samuelson, 2023).

2.2.3 Setting the RILA cap rates

To price the RILA-based investment products, we follow Moenig (2022) and let $\bar{c}$ denote the annual *cost* of the RILA contract to the investor, quoted in proportion to the account value and assessed under the risk-neutral pricing measure $\mathbb{Q}$. That is, for a given RILA contract (specifying the index, a one-year crediting term, the type and level of downside protection B_t or F_t, and participation rates P_t^u and P_t^d) the provider sets the cap rate C_t such that its gross surplus—in risk-neutral expected present value terms—equals $A_{t-1} * \bar{c}$. That is:

$$\text{Surplus}_t = A_{t-1}^+ - \mathbb{E}^{\mathbb{Q}}[e^{-r} * A_t] =$$

$$A_{t-1}^+ - \mathbb{E}^{\mathbb{Q}}[e^{-r} * A_{t-1}^+ * (1 + R_t^A)] = A_{t-1}^+ * \bar{c}.$$

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2 As is customary in practice, our RILA products do not carry a fee. Instead, RILA carriers can attain a fee-like revenue stream by offering cap rates below their fair-market values, as we discuss below.

3 Alternatively, one could convert the terminal QRP account value A_T into a whole life annuity upon the investor's retirement. Under our CRRA utility function, this would provide an identical utility specification.

Note that A_{t-1}^+ can be canceled out of the above equation, so that the pricing identity becomes:

$$e^{-r} * \mathbb{E}^{\mathbb{Q}}[1 + R_t^A] = 1 - \bar{c}. \qquad (5)$$

Given the specifications of R_t^A in Equations (3) and (4), the fair cap rate C_t is independent of the account value, as one would expect. Furthermore, Moenig (2022) has shown that the RILA gross return $1 + R_t^A$ can be decomposed into one-year European call and put options (plus constants), and that for given values of B_t or F_t (and possibly P_t^u and P_t^d) the pricing identity (5) has a unique solution C_t.

2.3 Determining optimal investment strategies

To determine the investor's optimal decisions, we implement a recursive dynamic programming model with annual time steps and the current QRP account value A_t as the (only) state variable. Each year, the investor chooses among the set of possible contract features in order to dynamically optimize the expected utility of her terminal QRP account value A_T.

More formally, let $V(t,A_t)$ denote the value function at discrete times $t \in \{0,1,...,T\}$. We can interpret $V(t,A_t)$ as the expected utility of the investor's QRP account value at retirement, given that we are at time t (immediately prior to the investor's annual account contribution) and that the current QRP account value is A_t. The objective is to determine $V(0,0)$, which can be done numerically using backwards induction, with terminal condition:

$$V(T,A_T) = u(A_T)$$

and Bellman equation:

$$V(t, A_t) = \max_{y} \mathbb{E}^{\mathbb{P}}[V(t + 1, A_{t+1})],$$

where y denotes the vector of decision variables available to the investor (such as the buffer rate B_t).

The updating of the account value from A_t to A_{t+1} is specified in Section 2.1. It requires an estimation of the potential index returns, which we approximate using a Gauss-Hermite quadrature method (see Moenig & Samuelson, 2023).

To be able to compare different investment strategies more easily, we will report the investor's certainty equivalent (CE) of A_T, which is given implicitly by:

$$u(CE) = \mathbb{E}^{\mathbb{P}}[u(A_T)] = V(0,0),$$

with the expected value taken under the real-world probability measure $\mathbb{P}$.

2.4 Numerical implementation

In order to better understand how the different QRP investment options compare *in theory*, we implement the dynamic programming model numerically under the above specifications and with the following parameter choices:

- Contributions begin with a nominal amount of 1, increase annually at constant rate $g = 3\%$ and continue for $T = 40$ years. This reflects an investor who begins saving in her mid-20s and retires in her mid-60s, a common time frame for workers in the United States.

- The investor's risk attitudes are characterized by an expected utility model with a CRRA utility function and coefficient of relative risk aversion $\gamma = 3$, reflecting a moderate level of risk aversion over the QRP account value at retirement, A_T.

- The financial market is characterized by a constant $r = 3\%$ risk-free rate of interest, compounded continuously. The annual market risk premium is 5.5%, based on the U.S. average between 2011 and 2021 (see Moenig & Samuelson, 2023). The equity index does not pay dividends and its evolution follows the MJD model with the parameterization of Gugole (2016), calibrated to the historical S&P 500 daily log returns from January 2005 to June 2015:

  $\lambda = 68.150;\ \mu_d = 0.2479;\ \sigma_d = 0.10343;\ \mu_j = -0.0025643;\ \sigma_j = 0.018482.$

- We consider two distinct fee/cost specifications. Under the first specification all investment products are priced at their actuarially fair value, i.e., with mutual fund fee $\phi_M = 0$ and implicit RILA cost $\bar{c} = 0$. Under the second specification, we impose a mutual fund fee rate of $\phi_M = 45$ bps, which corresponds roughly to the average fee rate of the 2060 TDFs offered by the top four TDF managers at the end of 2020: Vanguard (15 bps), Fidelity Aberdeen Street Trust (75 bps), American Funds (40 bps), and T. Rowe Price (64 bps). For RILA-type contracts we assume a cost of $\bar{c}$ = 0.2% p.a., as estimated empirically by Moenig (2022) and Moenig and Samuelson (2023) from market offerings for RILA contracts at the end of 2019 and in early 2022, respectively.

2.5 Investment options

We report the certainty equivalent (CE) of the investor's terminal payout utility for the following optimized contracts:[4]

[0] Risk-free investment, implemented using Equation (2) with $\alpha_t \equiv 0$ for all t.

[1] LSF with constant equity allocation rate $\alpha_t \equiv \alpha$ for all t, based on Equation (2).

[2] RILA with buffer feature, implemented using Equation (3) with $B_t \equiv B$ for all t.

[3] RILA with floor feature, implemented using Equation (4) with $F_t \equiv F$ for all t.

[4] TDF with varying equity allocation percentage α_t, as in Equation (2).

[5] TD-RILA with buffer feature, following Equation (3) with $P_t = P_t^u \equiv 1^d$ for all t.

[6] TD-RILA with floor feature, following Equation (4) with $P_t^u = P_t^d \equiv 1$ for all t.

[7] E-TD-RILA with buffer B_t and (time-varying but) equal participation rates $P_t^u = P_t^d = P_t \in [0.5,1]$, implemented using Equation (3).

[8] E-TD-RILA with floor F_t and (time-varying but) equal participation rates $P_t^u = P_t^d = P_t \in [0.5,1]$, implemented using Equation (4).

[9] E-TD-RILA with buffer B_t and participation rates P_t^u, $P_t^d \in [0.5,1.5]$ to allow for leverage, implemented using Equation (3).

[10] E-TD-RILA with floor F_t and participation rates P_t^u, $P_t^d \in [0.5,1.5]$ to allow for leverage, implemented using Equation (4).

Investment option [0] is presented as a reference. Options [1], [2], and [3] are static, with parameters α, B, and F chosen optimally from the interval [0,1] in increments of 0.01; these parameters remain constant for the QRP's lifetime. Options [4]–[10] allow the investor to choose her allocation dynamically, as a function of time and the QRP account value. The dynamic optimization process is described in Section 2.3. Specifically, here she may choose α_t, B_t, and F_t among the same interval [0,1] in increments of 0.01. For options [7] and [8] the investor can additionally optimize the participation rate P_t (applying to both gains and losses on the index) over the interval [0.5,1] in increments of 0.05. Finally, options [9] and [10] provide the investor with the most flexibility, as we separate upside and downside participation rates and allow her to take on a leveraged position in the equity index between, e.g., floor and cap rate, by choosing P_t^u and P_t^d among the interval [0.5,1.5], also in increments of 0.05.

2.6 Results

Table 1 shows the results of our numerical exercise in the form of a certainty equivalent for each investment option, both with and without fees. Figures 1 and 2 provide further insights into the investor's optimal allocation behavior. We make the following observations:

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4   All RILA contracts (and variations thereof) have a one-year crediting term.

Table 1. Certainty equivalents for optimized investment options

| Investment Option		Optimized Parameters	Certainty Equivalents	
			No fees	With fees
[0]	Risk-free investment	--	131.46	
[1]	LSF	$alpha$	206.45	187.29
[2]	RILA with buffer	B	201.33	192.57
[3]	RILA with floor	F	200.72	192.25
[4]	TDF	$alpha_t$	215.47	195.51
[5]	TD-RILA with buffer	B_t	210.77	200.98
[6]	TD-RILA with floor	F_t	209.47	199.96
[7]	E-TD-RILA with buffer	B_t, P_t	215.02	205.26
[8]	E-TD-RILA with floor	F_t, P_t	212.96	203.70
[9]	E-TD-RILA with buffer & leverage	B_t, P_t^u, P_t^d	220.38	210.82
[10]	E-TD-RILA with floor & leverage	F_t, P_t^u, P_t^d	219.96	210.75

Note. The investment options are described in Section 2.5. Parameter specifications from the baseline setting are provided in Section 2.4.

First, the ability to vary the investment allocation over time is of considerable value. Table 1 demonstrates that the TDF [4] is clearly preferable to the LSF [1], just like the TD-RILA options [5] and [6] are preferable to the RILAs [2] and [3]. As panel (a) in Figure 1 shows, the young investor prefers 100% equity exposure, with a decline beginning between 20 and 30 years before retirement, culminating at around 50% equity exposure as the investor reaches her retirement age. This pattern is consistent with current market offerings of the major TDFs and thus provides evidence in support of our modeling choices. Panels (b) and (c) of Figure 1 show the same pattern for the two TD-RILA policies. The underlying driver of this pattern is that the terminal account value A_T depends not only on the return of the equity index but also on the investor's future contributions to the QRP account. Since these contributions are deterministic, they mimic a risk-free return and thus incentivize the investor to pursue a relatively higher level of risk exposure with her fund investment. Ceteris paribus, this incentive is greater earlier on and if A_t is smaller, since in both cases the future contributions play a relatively larger role in shaping A_T. This explains the shape of the lines in Figure 1 (downward-sloping for TDF and floor, and upward-sloping for buffer) as well as the relative positioning of the lines based on the current account value A_t.

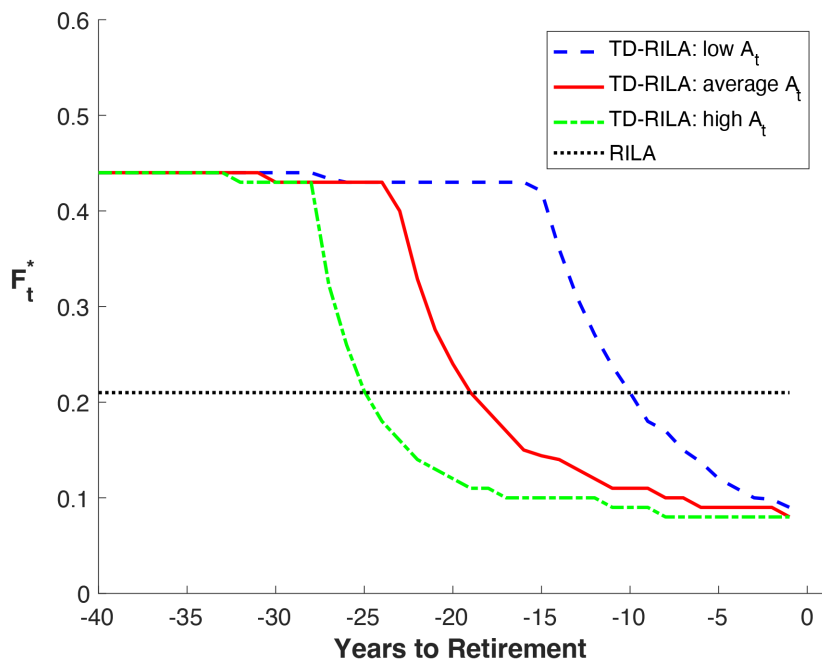**Figure 1. Optimal Target Date allocation strategies**
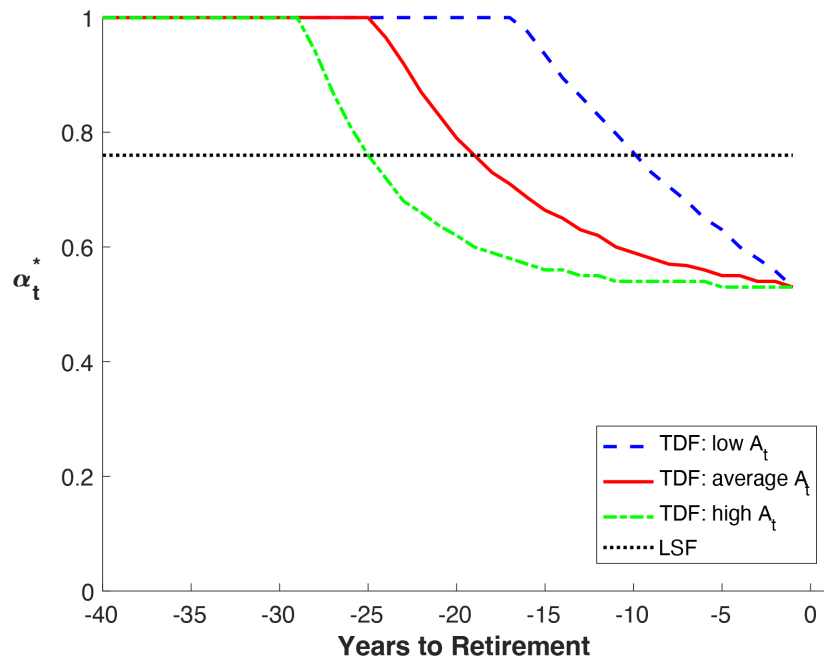
(a) Target Date Fund

(b) Target-Date RILA with buffer

Figure 1. Optimal Target Date allocation strategies (continued)

(c) Target-Date RILA with floor

Note. The figures display the investor's optimal asset allocation patterns over time, under the parameterization of Section 2.4 without fees, and for varying paths of the QRP account value A_t. Under the "average" path (solid red line) the account evolves under the assumption of a constant 8.5% investment return p.a. (in addition to the specified contributions). The dashed-dotted green line assumes twice the equity return and the dashed blue line reflects a zero-growth market. The dotted black line reflects the investor's optimal choice for a time-invariant allocation rate.

Second, at equal cost, TDFs tend to provide more utility to the investor than TD-RILAs. In general, the investor prefers the linearity of a mutual fund return over the hard cut-offs introduced by floor, buffer and cap. However, when considering average product costs faced by the investor in today's market, TD-RILAs [5] and [6] are distinctly better, with a certainty equivalent of 2.3%–2.8% above the TDF [4] under our parameterization. This suggests that (i) the *cost* of the investment product is more relevant than its *payout structure*, and (ii) TD-RILAs appear to be a viable investment product to include in QRPs.

Third, within RILA-type contracts the buffer feature is slightly (but consistently) preferable to a floor. This is contrary to results obtained by Moenig and Samuelson (2023)—who study a RILA with a *one-time* investment—but can potentially explain the higher demand for buffer contracts in recent years (LIMRA, 2020).

Figure 2. Optimal allocation strategies for E-TD-RILAs
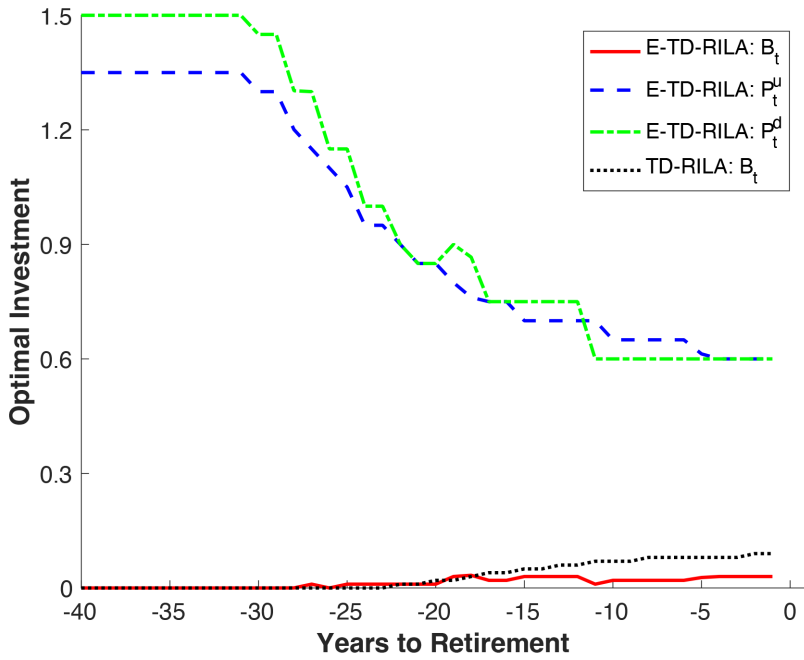

(a) Enhanced Target-Date RILA with buffer
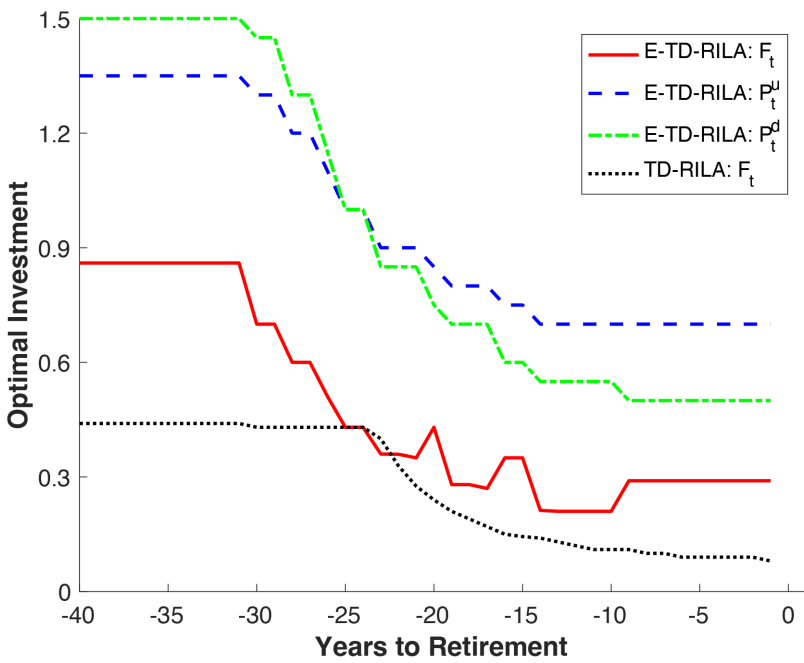
(b) Enhanced Target-Date RILA with floor

Note. The figures display the investor's optimal asset allocation patterns over time, under the parameterization of Section 2.4 without fees, and for the "average" return path of the QRP account value A_t (see Figure 1). For reference, the dotted black line reflects the investor's optimal choice of B_t or F_t for a TD-RILA with participation rates $P_t^u = P_t^d = 1$ from Figure 1.

And fourth, allowing the investor to also vary the upside and downside participation rates in the equity index within E-TD-RILA contracts [9] and [10] provides additional benefits and leads to a CE that exceeds the TDF even at equal cost. This is particularly true if we allow for leverage in the investor's equity exposure (i.e., participation rates greater than 1), which is the driving factor here, as Figure 2 shows: in both panels, the young investor prefers a higher level of equity exposure than a TDF or TD-RILA can provide, and she chooses participation rates in excess of 1 (while maintaining a buffer of 0 and a floor of 1), to allow for full risk exposure.[5] Later on, the investor gradually reduces her risk exposure by lowering participation rates below , rather than by increasing the buffer (or by reducing the floor) to its TD-RILA level (dotted black lines in Figure 2). This result is in line with our earlier observation that the investor generally prefers to reduce her exposure to equity risk by lowering the equity participation rates, rather than by imposing a nonlinear downside restriction such as a floor or buffer. Finally, we note that P_t^u and P_t^d are relatively similar over time; thus, they can be combined into a single participation rate that applies both to the upside and downside risk without much loss to the investor. This also implies that the opportunity to attain a leveraged equity position—which would not be possible with, e.g., a TDF—is the driving factor behind the increased utility of the E-TD-RILA.

3. Experimental design

To test an individual's behavior when choosing among various investment choices for a retirement plan, a computer-based questionnaire was administered to subjects through the survey website Prolific.[6] Subjects were given general information about the study and were told that it would involve questions related to investment choices for an employer-sponsored retirement account. Subjects were provided with information about three main investment choices: RILAs, TDFs, and TD-RILAs. They were asked to complete a series of practice questions to assess their comprehension of these investment options. The questions covered topics such as understanding RILAs with a floor, RILAs with a buffer, and choosing among investment funds more generally. After completing the practice questions, subjects then moved to the actual experiment. They completed a series of investment choice questions in which they were told they had a retirement plan offered to them by their employer, were presented with a menu of investment options, and were asked to choose which fund they would select to invest their retirement money.

Subjects had also been randomly assigned to one of four groups at the start of the study: (1) baseline information with

no default investment option, (2) baseline information with a default investment option, (3) additional distributional information with no default investment option, and (4) additional distributional information with a default investment option. All choices for the experiment included target date type funds. Groups 1 and 2 were provided "baseline information," which means basic information about the investment choices offered, such as the target date, gross expense ratio, and glidepath for each fund. For TDFs, the glidepath included the current, middle, and final (at retirement age) equity to fixed-income ratio for the investment. For TD-RILA investments, the glidepath included the current, middle, and final (i.e., at retirement age) floor or buffer and cap levels.

Groups 3 and 4 were provided "additional distributional information" to study the impact of information on investment choices. For these groups, subjects were given the same "baseline information" (i.e., the information given to Groups 1 and 2) such as the target date, gross expense ratio, and glidepath for each fund choice. Additionally, subjects were provided with the anticipated retirement benefit for each fund choice, that is, an anticipated benefit displayed as a monthly income amount, in today's dollars. They were also given the worst probable outcome (benefit), expected outcome, best probable outcome, and the standard deviation associated with these projected benefits.

Subjects in Groups 3 and 4 were provided with the following information about how this distributional information was estimated: "Note: The numbers for the anticipated retirement benefit are estimates. These numbers assume you will be in retirement for 20 years, your wages will grow 3% annually while working, inflation will be 2% annually, and you will contribute 10% of your annual income to the account each year. The estimates include how much you have already accumulated in your retirement account, as answered earlier in the survey."

To examine how having a predetermined default investment choice selected by the employer impacts investment choices, Groups 2 and 4 were told that the employer had chosen a fund in which to invest retirement money for those employees who do not actively choose an investment. Subjects were then told they also had two other fund choices to invest their retirement

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5 Technically, the leverage may require the RILA carrier to impose a (high) cap on the upside risk.

6 Please see Appendix A for details on the experimental design and examples of screenshots.

money in, if desired. They had to choose among the three retirement investment choices given (one default investment plus two other choices).

For all groups, after completing the practice questions and before starting the experimental questions, each subject was asked about their current age, their expected age of retirement, their current annual salary (approximately), and the current value of their retirement account (if applicable). The reasoning for these questions was that the investment options given to subjects for all investment choices in the experiment were target date funds of some kind (TDFs or TD-RILAs); as such, based on the subject's self-reported current age and expected retirement age, the computer program for the experiment automatically generated the target date for investment choices for the year of the subject's expected retirement.

To give appropriate projections of the future value of account balances at retirement and subsequent monthly benefits in retirement (for Groups 3 and 4 who received additional distributional information), subjects were asked their approximate income and the value of any existing retirement plans. Given a preset annual contribution to a QRP, as a percent of salary, the computer program for the experiment then forecast the final account balance and monthly benefit in retirement for a given fund if the individual continues to invest in that fund during his/her working life.[7]

Each group of subjects was then given four different sets of information and questions: (1) choices among TDF funds only; (2) choices among TD-RILAs with a floor only; (3) choices among TD-RILAs with a buffer only; and (4) choices among TDFS, TD-RILAs with a floor, and TD-RILAs with a buffer. Within each set, three different questions were asked.

The first set of questions consisted of a choice among a menu of three funds, all of which were TDFs. The subjects were asked to choose where to invest their retirement funds. In this first question, all the TDFs had the same gross expense ratio but different glidepaths. The computer program then randomly increased the "fee" on the fund chosen in the first question by 10 basis points, 30 basis points, or 70 basis points. The subjects were then asked to choose among the three funds again. If they continued to choose the same fund (even with a higher fee), they were asked to report the expense ratio which would have caused them to switch their fund choice. If they chose a different fund, they were asked to report the expense ratio which would have caused them to not switchfunds. These answers were limited so they could not give nonsensical answers.

Similar questions were asked in question sets two, three, and four, with the investment menus consisting of: (2) a choice

among a menu of TD-RILAs with floor, (3) a choice among a menu of TD-RILAs with buffer, and (4) a choice among funds chosen from the prior three sets (TDF, TD- RILA with floor, and TD-RILA with buffer).

For Groups 2 and 4, which were given a default investment option, the potential default option was the "middle-risk" plan for the first three question sets (TDF only, TD-RILA with floor only, and TD-RILA with buffer only). For the final question set, which asked subjects to choose among a TDF, TD-RILA with a floor, and TD-RILA with a buffer, the TDF was the set as the default investment option.

At the end of the experiment, characteristic information such as gender, race, marital status, and education was collected from each subject. Subjects were also asked if they had any prior experience with retirement decisions and were asked to give a self-rated assessment of their financial literacy. Allgood and Walstad (2015) find that perceived financial literacy can significantly influence financial behaviors, and Parker et al. (2012) find that perceived financial knowledge positively affected cautious planning for retirement, separate and distinct from actual knowledge. It will be interesting to see if subjects with higher self-reported financial literacy do in fact make better investment choices within the experiment.

Further, subjects were asked to give a self-rated assessment of risk aversion and were asked monetary risky choice questions, similar to those created by Kahneman and Tversky (1979), to determine their level of loss aversion. Although subjects gave a self-assessment of risk aversion, they were also asked the standard Holt-Laury risk aversion questions (Holt & Laury, 2002) to determine their objective level of risk aversion. It will be interesting to determine if subjects' self-reported risk aversion is in alignment with the risk aversion level estimated from the Holt-Laury assessment.

To determine a subject's financial literacy more objectively, subjects were asked questions about interest and inflation. There were correct answers associated with these questions. Subjects who answered all these questions correctly could then be coded more financially literate than subjects who did not answer all (or any) of the questions correctly.

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7 As noted earlier, this projection assumed an annual contribution to the fund equal to 10% of income, assumed wages would grow 3% annually while working, assumed inflation would be 2% annually, and assumed the subject would be in retirement for 20 years.

Subjects' expectations about future stock market performance and anticipated inflation could significantly alter their investment choices. Therefore, subjects were asked what their expectation was for the stock market in the next 12 months. They were also asked about their expectations regarding inflation over the next 12 months. Additionally, several attention-check questions were included and the time spent on the survey was recorded. The median respondent who passed the attention checks took around 45 minutes. We dropped all data from respondents who finished the survey in less than 30 minutes or who failed any attention checks. After these deletions, we had 813 respondents split approximately evenly across the four groups.

Please see Appendix A for sample screenshots of the implemented experiment, including how demographic, risk aversion, loss aversion, and risk tolerance questions were framed.

4. Experiment: Results and discussion

We now describe the results of our experiment. To begin, Figure 3 illustrates the participants' overall choices (aggregated over all treatment arms of the experiment) among each of the target-date products. We see that among the TDFs (panel a), most participants chose the riskiest of the three plans, while for TD-RILAs with a floor (panel c) they chose the plan with the least equity exposure. For the buffer-based TD-RILA (panel b), all choices were equally popular. When asked to choose *across* the different target-date products, Figure 4(a) shows that around 70% of participants preferred a TDF over a TD-RILA product. This is consistent with our modeling results that—at equal cost—TDFs tend to be theoretically superior to TD-RILAs. The relative preference for TDFs can potentially explain the seemingly contradictory results of Figure 3(a) and (c): most participants liked the TDF and wanted a high level of equity exposure but were less comfortable with the floor-RILA and elected a more conservative investment approach, which would also allow them to take advantage of the full downside protection offered by the floor feature.[8] Our experimental results also confirmed the theoretical insight that for TD-RILAs a buffer feature tends to be slightly better for the investor than a floor.

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8   Alternative explanations for the discrepancy, including loss aversion and differing demand elasticities for the different products, are possible as well, but we did not obtain conclusive evidence in their favor.

Figure 3. Participants' allocation choices for each Target-Date product
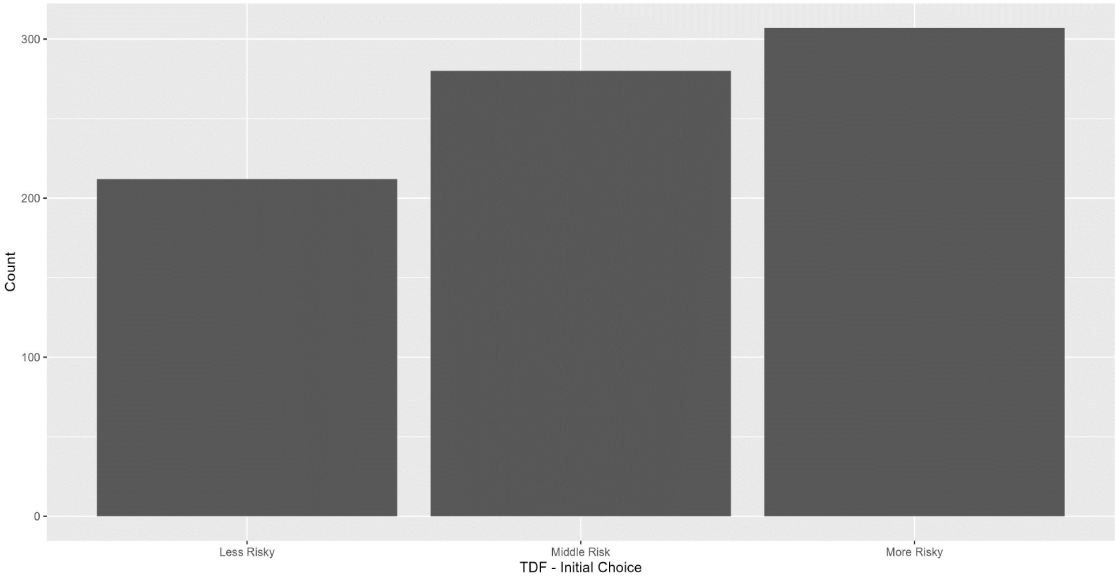
(a) Target Date Fund
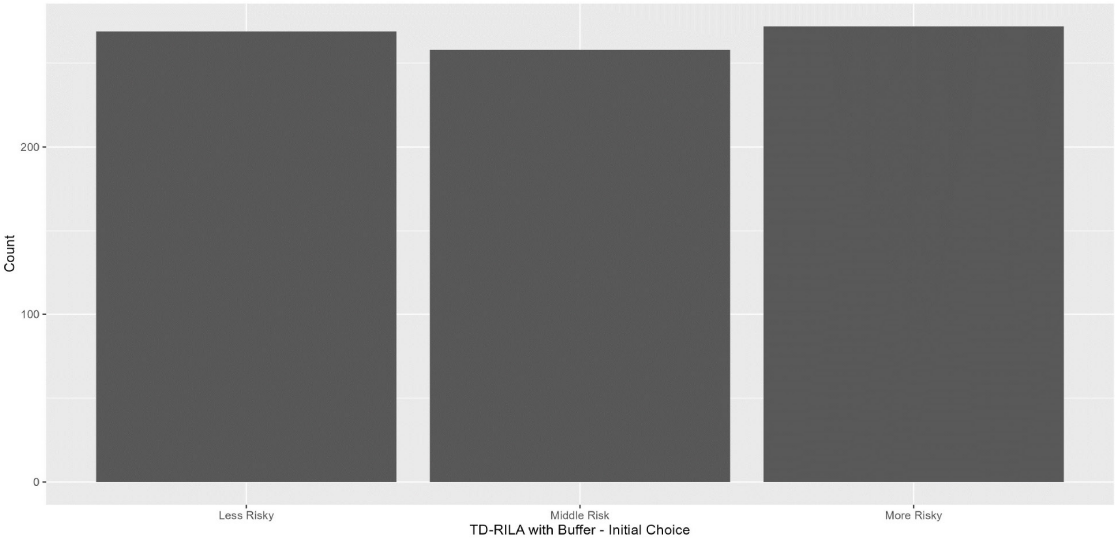
(b) Target-Date RILA with buffer

Figure 3. Participants' allocation choices for each Target-Date product (continued)
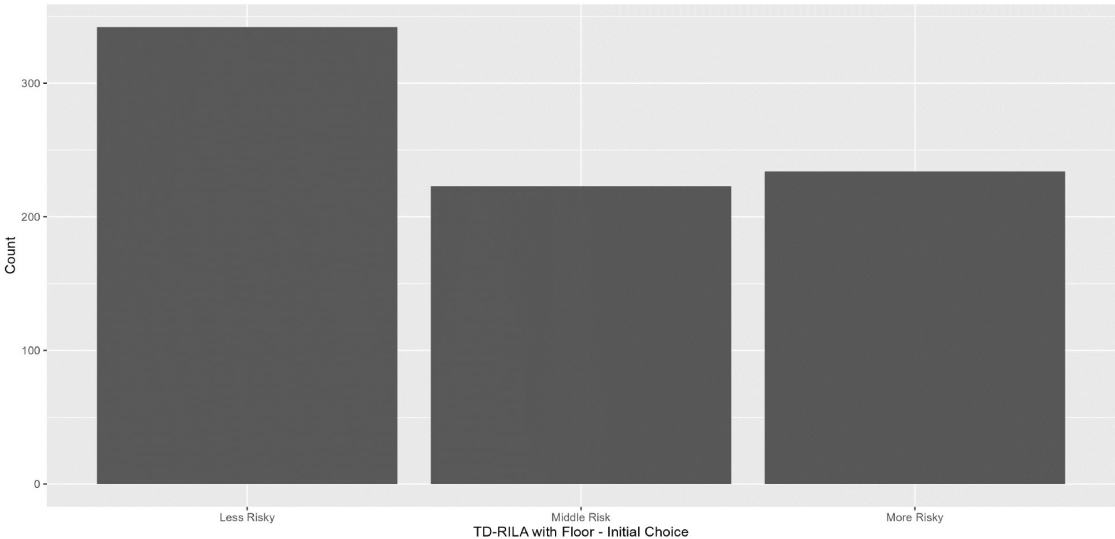
(c) Target-Date RILA with floor

Note. These figures display participants' initial choice of risk type within plan type.

Figure 4. Participants' cross-product choices
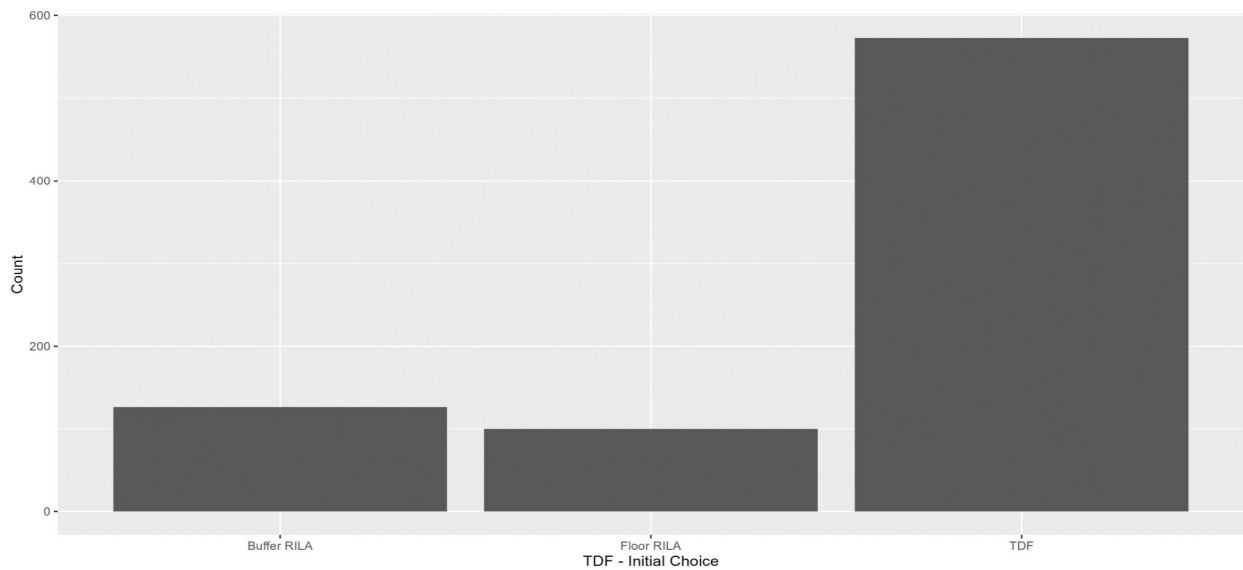
(a) Aggregate
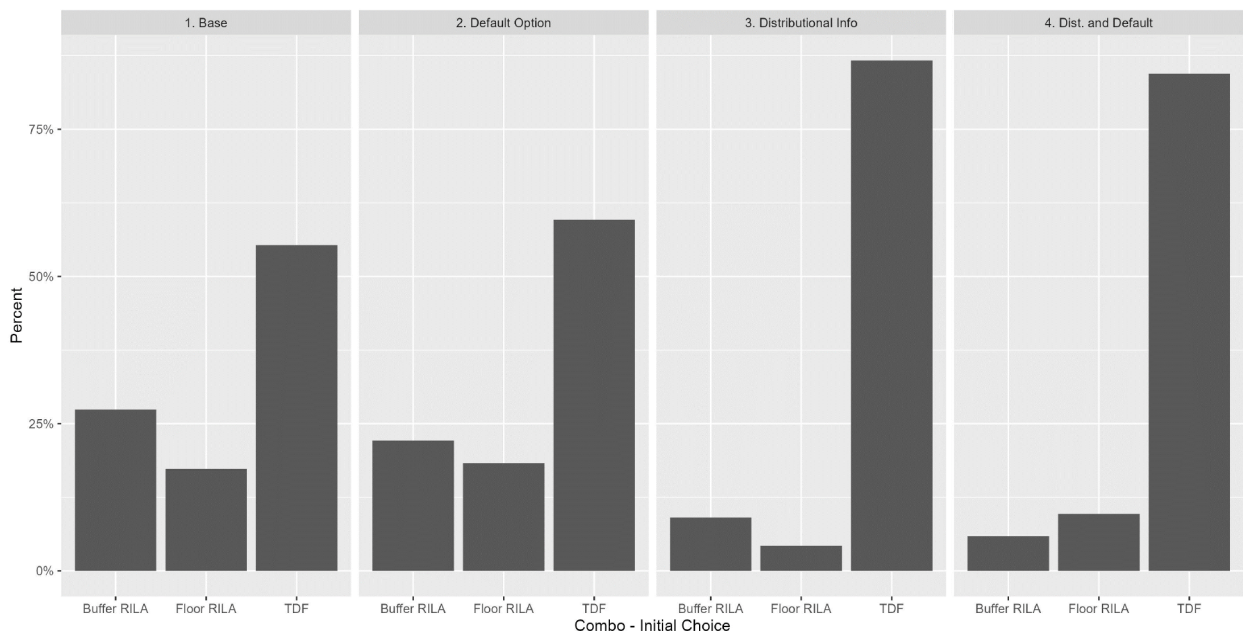
(b) Grouped by Default Option and Distributional Information

Note. These figures represent participants' choice across plan types.

Next, we examine the influence of a default option and of distributional information on participants' choices. The results are presented in Figure 5, separated by product type. In all cases, the "middle risk" option was selected as the default choice. By comparing the first and second bar graph within each panel (a), (b), and (c), it is evident that the default option had a significant impact on participants' choices. In the case of the TDF, for instance, 38% of participants chose the "middle risk" option when it was set as the default, while 22% chose

it when no default option was provided. Notably, this shift in preferences toward the default option appears to be largely driven by participants who would have otherwise selected the high-equity investment. This pattern, which we observe for all three product types, has important implications for employers when it comes to selecting the optimal default options in their QRP: employees who prefer less equity exposure will pursue that regardless of the default option, while less "risk averse" employees can be persuaded by a more conservative default choice.

Figure 5. Participants' within-product choices with default option and distributional information
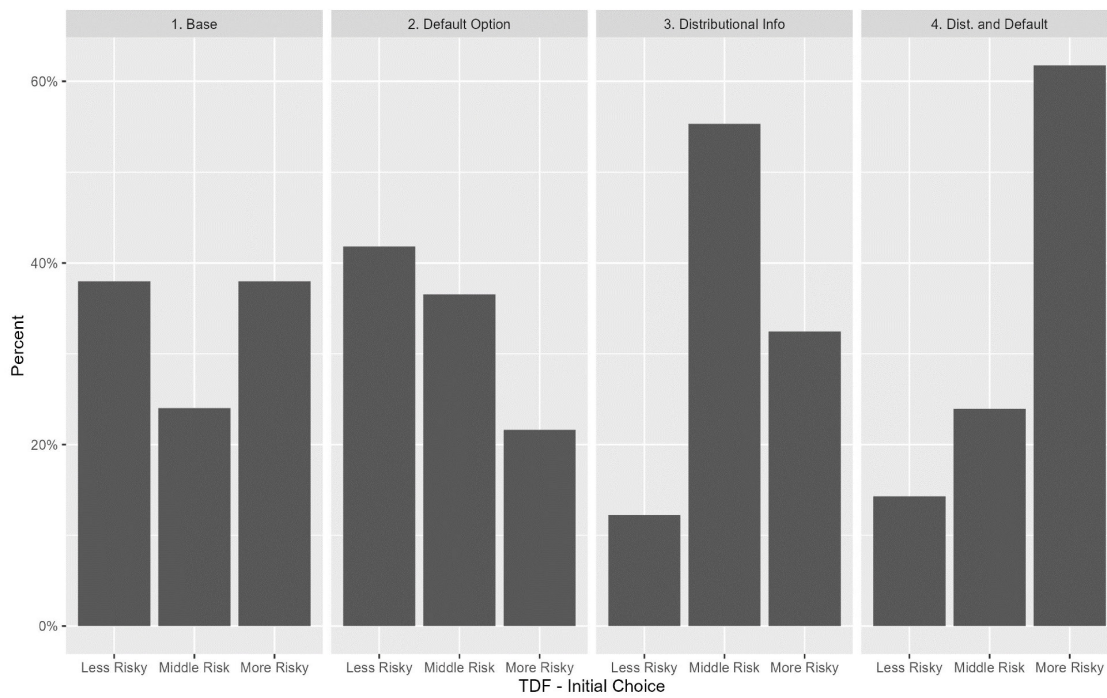
(a) Target Date Fund

Figure 5. Participants' within-product choices with default option and distributional information (continued)
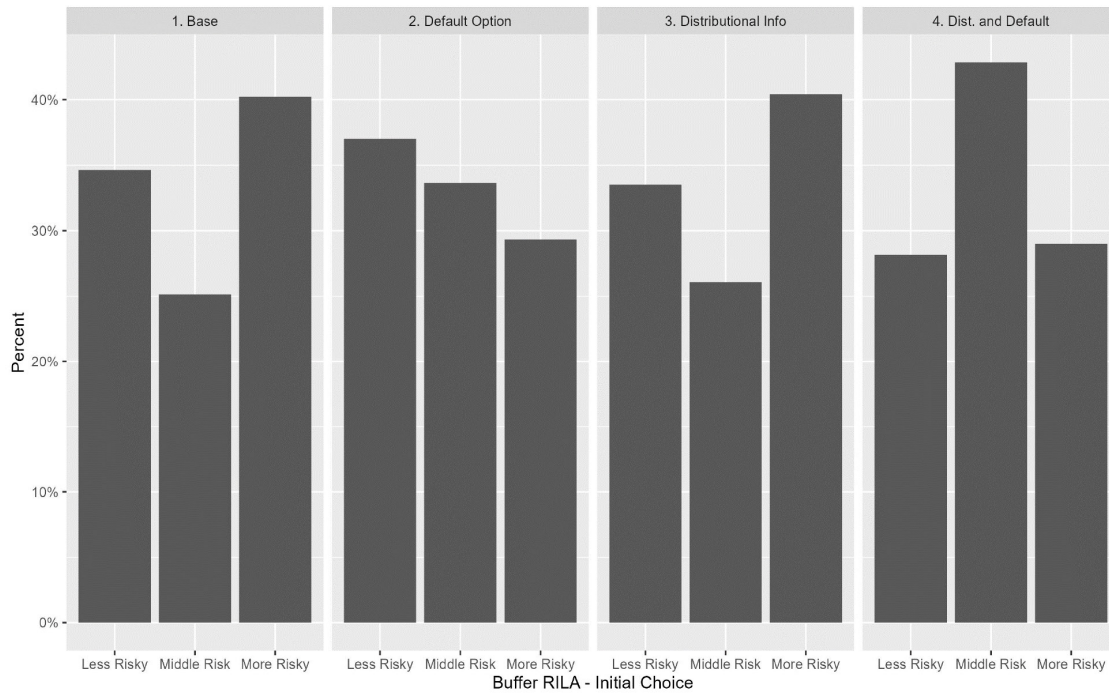
(b) Target-Date RILA with buffer
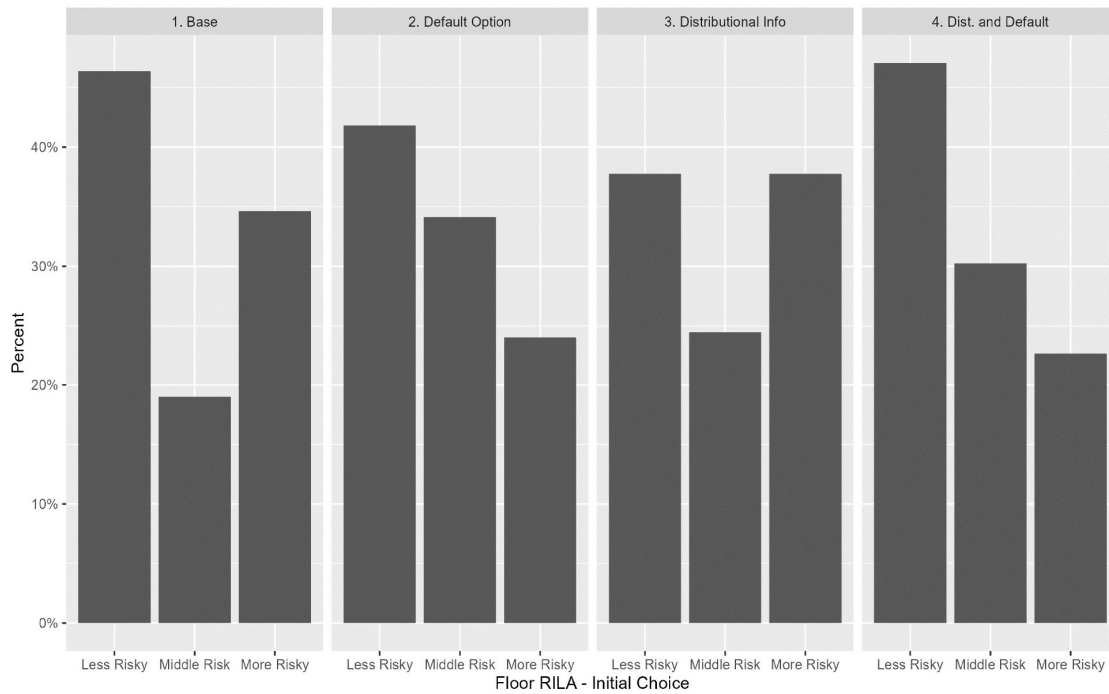
(c) Target-Date RILA with floor

Note. These figures represent participants' initial choice within plan types separated out by experimental group.

Figure 5 also allows us to compare the impact of providing participants with simulated distributional information on their potential monthly retirement income by contrasting the first bar graph of each panel in Figure 5 with the corresponding third bar graph. The distributional information was customized to each participant based on their QRP choices and demographic data collected through the survey. We find that the distributional information particularly impacted participants who would otherwise choose the low-risk investment option, giving them confidence to invest their money with more equity exposure. This effect was present particularly in TDFs, and to a lesser extent in TD-RILAs with a floor. For buffer-RILAs, the distributional information did not appear to sway participants. Similarly, we can compare the second and fourth bar graph on each panel in Figure 5 to assess the impact of access to distributional information on the "default option" effect. We observe that for TDFs and for TD-RILAs with a floor, the distributional information persuaded investors to avoid the default option. For TD-RILAs with a buffer, the additional information had the opposite effect and further enhanced the impact of the default option. We conclude that having access to distributional information can be more impactful for employees' decision making than being given a default investment choice.

We next turn to comparisons across product types. Figure 4(b) plots the participants' initial choice of target-date product across the four groups. As discussed above, TDFs dominate the selection. We now see that this is particularly true when participants were provided with customized distributional information, representing around 80–85% of the initial picks, relative to 55–60% for the base and default-only groups. This once again suggests that the distributional information helped them in their decision making: when participants were given concrete evidence of our modeling results, they generally followed that guidance.

Our theoretical model also predicted that the cost (or fee) is crucial to the employees' decision making, and the participants in our experiment confirmed this conclusion as well. Columns 1–3 of Table 2 show estimated semi-elasticities for substitution *within* each type of target-date product. We find that TDFs exhibit the lowest price sensitivity within products, with an average semi-elasticity of around -.2. The within-product elasticity for both types of TD-RILAs is notably more price sensitive, with an average semi-elasticity of -.3 for floor-based TD-RILAs and -.37 for buffer-based TD-RILAs. Interestingly, neither default options nor distributional information have a large impact on the within-product semi-elasticities. In contrast, Column 4 of Table 2 shows elasticities *across* the target-date products. We find that participants are sensitive to fees across all groups. For instance, we estimate that an increase in the TDF fee rate from 20bps (baseline) to 40bps would reduce the share of participants who prefer the TDF over the TD-RILAs from approximately 55% to 40% for Group 1 (no default, no information) and from approximately 85% to 54% for Group 3 (information, no default). In particular, we find that participants who received distributional information exhibited higher price sensitivity. This suggests that employees will find it difficult to monetize the impact of annual fees (or implicit costs) over such a long time period, and shows the benefit that personalized information about the projected distribution of an employee's retirement income can have for their decision making.

Table 2. Estimated semi-elasticities to fee rates/implicit cost

Dependent Variable: Prob(Switching Initial Choice)				
	TDF	Floor RILA	Buffer RILA	Combo
log(expense_ratio)	0.18623	0.29682	0.3691	0.12339
	(4.07)	(6.85)	(8.57)	(3.00)
log(expense_ratio)*default	0.17457	0.28332	0.36907	0.11372
	(3.78)	(6.49)	(8.50)	(2.74)
log(expense_ratio)*distribution	0.22331	0.29766	0.36505	0.16298
	(4.88)	(6.87)	(8.48)	(3.96)
log(expense_ratio)*both	0.19225	0.3098	0.37111	0.18294
	(4.17)	(7.09)	(8.55)	(4.41)

Note. t-values in parentheses. Intercept term not reported.

5. Conclusion

The United States relies heavily on employer-provided retirement plans and individual choices to facilitate retirement savings. Despite incentives, many workers are not saving enough, which can have negative consequences for individuals and society. To encourage saving, automatic enrollment in QRPs has been introduced and the default investment option is typically a TDF. However, TDFs have recently been heavily criticized for their high costs, underperformance, and lack of transparency.

We show theoretically that RILAs have great potential as investment vehicles within QRPs and even as a potential QDIA. RILAs offer diversified equity exposure with downside protection at a low cost; we show how they can adopt the glidepath framework to match the risk profile of traditional TDFs. While we do find that traditional TDFs outperform RILAs in a financial vacuum, many realistic frictions and distributional assumptions can make TD-RILAs preferable.

We also present results of a virtual lab experiment to estimate the demand for two different forms of TD-RILAs and compare them to the demand for TDFs. In the experiment we randomly assigned fee increases to different plans and we introduced additional features such as providing default options and simulated distributional information about the participant's monthly retirement income. We found that the latter in particular had a substantial impact on participants' decision-making.

In conclusion, our findings contribute to the understanding of how participants in employer-provided retirement plans make decisions about their contributions, as well as the role that fees, risk aversion, loss aversion, and concerns about inflation play in those participants' decision-making processes. Plan sponsors and financial advisors can use this information to improve plan design and make better recommendations to participants, which will ultimately assist those individuals in meeting their retirement objectives.

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Appendix A Experimental Design

Welcome!

Thank you for participating in this study. This form gives a brief preliminary overview of the study and provides contact information in case of any questions. Please indicate that you agree with the conditions of the study by proceeding.

Title of the Research Study: Registered Index-Linked Annuities in Qualified Retirement Plans

Investigators:
Cameron Ellis, University of Iowa
Thorsten Moenig, Fox School of Business, Temple University
Jacqueline Volkman-Wise, Wharton School, University of Pennsylvania

IRB Protocol Number: 851987

This study involves research. The purpose of the research is **to investigate decision making in retirement investment situations.** This study is being conducted by Cameron Ellis, Thorsten Moenig, and Jacqueline Volkman-Wise. The study will be completed at the Wharton School, University of Pennsylvania (Philadelphia, Pennsylvania) and will be conducted online.

You must be 18 years or older to participate in this study.

If you agree to be in this study, you will be asked to do the following:
- Complete a set of questions about hypothetical retirement investment choices you are offered.
- Complete a set of questions about your background (no personal identifying information will be collected).

Participation in this study will involve a total of **60 minutes** of your time.

What you should know about a research study:
- Someone will explain this research study to you.
- You volunteer to be in a research study.
- Whether you take part in this study is up to you.
- You can choose not to take part in the research study.
- You can agree to take part now and later change your mind.
- Whatever you decide, it will not be held against you.

- Feel free to ask all the questions you want before and after you decide.

Additional information about this study:
- There are no known risks associated with your participation in this research beyond those of everyday life.
- The benefit you will obtain from this research study is knowing that you have contributed to the understanding of this topic.
- This study is part of the Behavioral Lab's regular sessions, and you will be compensated for your time according to their procedures.
- Participation in this research is voluntary. You will not receive any direct benefits from the study.
- If you have additional questions or wish to report a research-related problem, you may contact the primary investigator, Jacqueline Volkman-Wise, via email at jvwise@wharton.upenn.edu.
- If you have questions about your rights and welfare as a volunteer in the research study, please contact the Office of Regulatory Affairs at the University of Pennsylvania at 215-898-2614.
- This research has been reviewed and approved by the University of Pennsylvania Institutional Review Board.
- Confidentiality of your research records will be strictly maintained by ensuring all data is kept secure, and only the primary investigator and the research team will have access to this data. This means that nobody else will have access to your data at any point during or after the study.

The alternative to participating is **not to participate.**

By proceeding, you are agreeing to take part in this research study. If you have any questions or there is something you do not understand, please ask.

I Agree

Welcome!

Welcome to this study on choice behavior. Thanks for your willingness to participate. In this study you are a company employee, and you will be asked to make an investment choice for your employer-provided retirement account. You will need to choose among three investment options offered, each involving risk. The options will be named Fund A, Fund B, and Fund C. Figure 1 below shows how the choice options will be presented to you.

	Type of Fund	Target Date	Gross Expense Ratio	Target Allocation (equity/fixed-income)		
				Current	Middle	Final (at retirement age)
Fund A	Target Date Fund	2060	0.20%	93.5% / 6.5%	70% / 30%	50% / 50%
Fund B	Target Date Fund	2060	0.20%	100% / 0%	80% / 20%	60% / 40%
Fund C	Target Date Fund	2060	0.20%	80% / 20%	50% / 50%	40% / 60%

As Figure 1 shows, the investment options are indicated in rows. Each fund choice has information regarding the fund's expense ratio, or management fee charged, and information on how the fund's asset allocation will change over time.

In this example, the choices are called Target Date Funds. These funds take the complexity out of deciding which investment approach is right for you. They provide access to a broadly diversified portfolio within a single investment that automatically adjusts over time.

Target Date Funds seek high total return over time through a combination of capital appreciation and income. These funds are designed to provide a single diversified portfolio managed with a target retirement date in mind. The target date is the approximate date when investors expect to begin withdrawing money from the fund. Each portfolio invests primarily in underlying equity and fixed-income index funds. Over time, the fund's target allocations will gradually become more conservative.

For example, Fund A in Figure 1 above has a target date of 2060. Currently 93.5% of the fund assets are in equity funds and 6.5% of assets are in fixed-income funds. As shown in the last column, by the target date, 2060, 50% of the fund will be invested in equity and 50% will be invested in fixed-income. Equity funds, on average, have a long-term return of around 8% (annually). Fixed-income funds, on average, have a long-term return of around 3% (annually).

In what follows, you will be given information about different fund types for investing your retirement money. You will be asked which fund you would like to select to invest your retirement money. You will be asked to confirm your choice after you select the fund you prefer.

Continue

Practice Question 1: Target Date Funds

Some of the funds you will be offered as an investment choice are called "Target Date Funds" (TDFs). These funds take the complexity out of deciding which investment approach is right for you. They provide access to a broadly diversified portfolio within a single investment that automatically adjusts over time.

Target Date Funds seek high total return over time through a combination of capital appreciation and income. These funds are designed to provide a single diversified portfolio managed with a target retirement date in mind. The target date is the approximate date when investors expect to begin withdrawing money from the Fund. Each portfolio invests primarily in underlying equity (riskier) and fixed-income (safer) index funds. Over time, the Fund's target allocations will gradually become more conservative.

Suppose you anticipate you will retire in 2060.

You have a retirement plan offered to you by your employer. Below are a set of target date funds with target dates that appropriately correspond to your anticipated year of retirement. The table below shows information for each fund.
- The "Gross Expense Ratio" indicates the annual fee that will be charged for managing the fund.
- The three columns under the "Target Allocation" heading indicate how the asset allocation for the fund changes over time. That is, they show what portion of the fund is invested in riskier equity versus safer fixed-income securities for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is the anticipated fund allocation at your retirement age).
- Equity funds, on average, have a long-term return of around 8% (annually). Fixed-income funds, on average, have a long-term return of 3% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

| | Type of Fund | Target Date | Gross Expense Ratio | Target Allocation (equity/fixed-income) | | |
				Current	Middle	Final (at retirement age)
Fund A	Target Date Fund	2060	0.20%	94% / 6%	70% / 30%	50% / 50%

Fund B	Target Date Fund	2060	0.20%	100% / 0%	80% / 20%	60% / 40%
Fund C	Target Date Fund	2060	0.20%	80% / 20%	50% / 50%	40% / 60%

You have a retirement plan offered to you by your employer. Which of the funds would you like to choose to invest your retirement money into?

- o Fund A
- o Fund B
- o Fund C

Confirm

Practice Question 2: Registered Index-Linked Annuities (RILAs)

Another type of investment product is called a Registered Index-Linked Annuity (RILA). These investments have an account that receives a return based on the performance of a market index, such as the S&P 500. RILAS have a minimum guarantee on the return to help the investor have protection in cases of high negative returns on the associated index. The minimum guaranteed return is offered by the RILA having either a "floor" or "buffer," which will be explained more below. In exchange for this guaranteed minimum return, there is also a cap on the highest return the RILA can earn. The minimum guaranteed return and cap are based on the returns on the index over one year.

RILAs are becoming more popular as they provide gains that can be offered through investment in equities, provide protection from overly high negative returns, and have lower fees or costs than other managed investment funds like Target Date Funds.

RILAs With a Floor
One type of RILA has what is called a "floor" for the minimum guarantee on the return. The floor is the lowest return the RILA could earn. For example, suppose a RILA has a floor of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -10%, the return on the RILA would only be -5% since that is the lowest return the RILA can earn (or the maximum loss that could be obtained).

As mentioned earlier, RILAs also have a cap, which is the maximum return the RILA can earn. Suppose the cap on a RILA is 8%. If the actual return on the index the RILA is associated with is 12%, the RILA would only earn a return of 8% since that is the cap and the maximum return the RILA can earn.

To better illustrate RILAs with a floor, consider the following example: Suppose you invest in a **RILA that has a -10% floor and 8% cap**. The table below shows the return the RILA would earn for different levels of actual returns on the index associated with the RILA.

Actual Return on Associated Index	Return on RILA	Reasoning
-15%	-10%	Actual return is less than RILA floor of -10%
-5%	-5%	Actual return is higher than floor of -10%
5%	5%	Actual return is below cap of 8%
15%	8%	Actual return is higher than RILA cap of 8%

RILAs With a Buffer

Another type of RILA has what is called a "buffer" for downside protection, which limits the loss on the RILA when the return on the associated index is negative. That is, when the index associated with the RILA obtains a negative return, the return on the RILA is reduced by the buffer amount. For example, suppose a RILA has a buffer of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -8%, the return on the RILA would only be -3%. Since the RILA has a buffer that offers protection of -5%, the return on the RILA equals the return on the associated index reduced by this buffer amount.

Please note that if the buffer amount covers more than the negative return on the associated index, the return on the RILA will be zero. Buffers will not allow for positive returns on the RILA if the associated index had a negative return.

As mentioned earlier, RILAs also have a cap, which is the maximum return the RILA can earn. Suppose the cap on a RILA is 8%. If the actual return on the index the RILA is associated with is 12%, the RILA would only earn a return of 8% since that is the cap and the maximum return the RILA can earn.

To better illustrate RILAs with a buffer, consider the following example: Suppose you invest in a **RILA that has a -10% buffer and 8% cap**. The table below shows the return the RILA would earn for different levels of actual returns on the index associated with the RILA.

Actual Return on Associated Index	Return on RILA	Reasoning
-15%	-5%	Actual return is reduced by the buffer amount so that the RILA return equals: (-15%) - (-10%) = -5%
-5%	0%	Actual return is reduced by the buffer amount to limit the loss to 0%. Note that the buffer amount does not allow for positive returns to be earned when the return on the index is negative.
5%	5%	Actual return is below cap of 8%
15%	8%	Actual return is higher than RILA cap of 8%

Below are some practice questions to ensure you understand how a floor and buffer work for RILAs.

Practice Questions for RILA With Floor

Suppose you invest in a RILA that has a floor of -15% and a cap of 10%. Please answer the following questions:

1. The return on the index associated with the RILA is 12%. What is the return you earn on the RILA?
   o   0%
   o   10%
   o   12%
   o   15%
   o   27%

2. The return on the index associated with the RILA is -20%. What is the return you earn on the RILA?
   o   0%
   o   10%
   o   -5%
   o   -15%
   o   -20%

Practice Questions for RILA With Buffer

Suppose you invest in a RILA that has a buffer of -10% and a cap of 12%. Please answer the following questions:

1. The return on the index associated with the RILA is 10%. What is the return you earn on the RILA?
   o   0%
   o   2%
   o   10%
   o   12%
   o   22%

2. The return on the index associated with the RILA is -15%. What is the return you earn on the RILA?
   o   0%
   o   -3%
   o   -5%
   o   -15%
   o   -25%

Confirm

Practice Question 3: Target Date Registered Index-Linked Annuities (Target Date RILAs)

Some of the funds you will be offered as an investment choice are called "Target Date Registered Index-Linked Annuities" (Target Date RILAs). This investment takes the complexity out of deciding which investment approach is right for you. Similar to Target Date Funds, Target Date RILAs provide access to equity markets and automatically adjust the level of risk exposure over time.

The target date is the approximate date when you expect to begin withdrawing money. As you near your target date, the buffer becomes larger (or the floor becomes smaller), thereby increasing your protection against negative outcomes. Additionally, the cap rate will be reduced accordingly as there will be less opportunity for large gains. The automatic adjustment in floors (or buffers) and cap rates creates a similar dynamic risk profile to Target Date Funds.

Suppose you anticipate you will retire in 2050.

You have a retirement plan offered to you by your employer. Below are a set of Target Date RILAs with target dates that appropriately correspond to your anticipated year of retirement. The Target Date RILAs shown below all have floors.

The table below shows information for each investment.
- The "Implied Gross Expense Ratio" indicates the cost for the investment implied by its cap rate. This number has been estimated to help you determine the implied cost of the product.
- The three columns under the "Floor/Cap Level" heading indicate how the floor and cap levels for the RILA change over time. That is, they show what the floor and cap will be for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is at your retirement age).
- Recall that for RILAs with a floor:
    - The floor is the guaranteed minimum return that can be earned.
    - The cap is the maximum return that can be earned.
- Recall that equity funds, on average, have a long-term return of around 8% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

	Type of Fund	Target Date	Implied Gross Expense Ratio	Floor/Cap Level		
				Current	Middle	Final (at retirement age)
Fund A	Target Date RILA	2050	0.20%	-24.37% / 26.71%	-14.87% / 19.02%	-6.00% / 11.19%

Fund B	Target Date RILA	2050	0.20%	- 20.87% / 23.44%	-11.37% / 16.01%	-2.50% / 7.93%
Fund C	Target Date RILA	2050	0.20%	-18.87% / 22.38%	-9.37% / 14.21%	-0.50% / 6.06%

Recall the Following Information About Target Date RILAs With a Floor:
The floor offers a minimum guarantee on the return. The floor is the lowest return the RILA could earn. For example, suppose a RILA has a floor of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -10%, the return on the RILA would only be -5% since that is the lowest return the RILA can earn (or the maximum loss that could be obtained).

As mentioned earlier, RILAs also have a cap, which is the maximum return the RILA can earn. Suppose the cap on a RILA is 8%. If the actual return on the index the RILA is associated with is 12%, the RILA would only earn a return of 8% since that is the cap and the maximum return the RILA can earn.

You have a retirement plan offered to you by your employer. Which of the funds would you like to choose to invest your retirement money into?
- o   Fund A
- o   Fund B
- o   Fund C

Confirm

Practice Question 4: Target Date Registered Index-Linked Annuities (Target Date RILAs)

Suppose you anticipate you will retire in 2050.

You have a retirement plan offered to you by your employer. Below are a set of Target Date RILAs with target dates that appropriately correspond to your anticipated year of retirement. The Target Date RILAs shown below all have buffers.

The table below shows information for each investment.
- The "Implied Gross Expense Ratio" indicates the cost for the investment implied by its cap rate. This number has been estimated to help you determine the implied cost of the product.
- The three columns under the "Buffer/Cap Level" heading indicate how the buffer and cap levels for the RILA change over time. That is, they show what the buffer and cap will be for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is at your retirement age).
- Recall that for RILAs with a buffer:
  - The buffer is the amount that limits losses when the return on the associated index is negative. That is, the buffer is the amount that the negative return on the index is reduced by to determine the return earned on the RILA.
  - The cap is the maximum return that can be earned.
- Recall that equity funds, on average, have a long-term return of around 8% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

	Type of Fund	Target Date	Implied Gross Expense Ratio	Buffer/Cap Level		
				Current	Middle	Final (at retirement age)
Fund A	Target Date RILA	2050	0.20%	-0.33% / 33.82%	-5.33% / 17.29%	-10.00% / 12.34%
Fund B	Target Date RILA	2050	0.20%	-2.83% / 22.18%	-7.83% / 14.19%	-12.50% / 10.75%
Fund C	Target Date RILA	2050	0.20%	-5.33% / 17.29%	-10.33% / 12.09%	-15.00% / 9.51%

Recall the Following Information About Target Date RILAs With a Buffer:

The buffer limits the loss on the RILA when the return on the associated index is negative. That is, when the index associated with the RILA obtains a negative return, the return on the RILA is reduced by the buffer amount. For example, suppose a RILA has a buffer of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -8%, the return on the RILA would only be -3%. Since the RILA has a buffer that offers protection of -5%, the return on the RILA equals the return on the associated index reduced by this buffer amount.

Please note that if the buffer amount covers more than the negative return on the associated index, the return on the RILA will be zero. Buffers will not allow for positive returns on the RILA if the associated index had a negative return.

As mentioned earlier, RILAs also have a cap, which is the maximum return the RILA can earn. Suppose the cap on a RILA is 8%. If the actual return on the index the RILA is associated with is 12%, the RILA would only earn a return of 8% since that is the cap and maximum return the RILA can earn.

Target Date RILAs provide access to equity markets and automatically adjust the level of risk exposure over time. The target date is the approximate date when you expect to begin withdrawing money. As you near your target date, the buffer becomes larger (or the floor becomes smaller), thereby increasing your protection against negative outcomes. Additionally, the cap rate will be reduced accordingly as there will be less opportunity for large gains. The automatic adjustment in floors (or buffers) and cap rates creates a similar dynamic risk profile to Target Date Funds.

You have a retirement plan offered to you by your employer. Which of the funds would you like to choose to invest your retirement money into?

     o   Fund A
     o   Fund B
     o   Fund C

Confirm

Do you understand fully the instructions of this study? If you understand and are ready to proceed to the first part of the study, please check the "I understand and am ready to proceed" box and click "Continue" at the bottom of the screen. If you do not understand the instructions, or if you have any questions about this survey, please raise your hand, and the attendant will discuss with you.

☐ I understand and am ready to proceed.

Continue

- What is your current age? Please enter the answer in the text box below.

- At what age do you expect to retire? Please enter the answer in the text box below.

- What is your current annual salary (approximately)? If you are a student, please enter your expected salary upon completing your program of study. Please enter your answer in the text box below.

- If you currently have a retirement plan, approximately how much money do you have in the plan now? If you do not know the exact number, please estimate it as best as you can and enter it in the text box below. If you have never had a retirement plan, please enter $0.

Confirm

Group 1 Questions (Baseline Info, No Default)

Question 1–A
Based on the information you gave in the prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are a set of target date funds with target dates that appropriately correspond to your anticipated year of retirement.

The table below shows information for each fund.
- – The "Gross Expense Ratio" indicates the annual fee that will be charged for managing the fund.
- – The three columns under the "Target Allocation" heading indicate how the asset allocation for the fund changes over time. That is, they show what portion of the fund is invested in riskier equity versus safer fixed-income securities for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is the anticipated fund allocation at your retirement age).
- – Equity funds, on average, have a long-term return of around 8% (annually). Fixed-income funds, on average, have a long-term return of around 3% (annually).
- – Recall that funds with greater risk (volatility) typically have higher returns.

	Type of Fund	Target Date	Gross Expense Ratio	Target Allocation (equity/fixed-income)		
				Current	Middle	Final (at retirement age)
Fund A	Target Date Fund	2052	0.20%	94% / 6%	79% / 21%	65% / 35%
Fund B	Target Date Fund	2052	0.20%	84% / 16%	69% / 31%	55% / 45%
Fund C	Target Date Fund	2052	0.20%	74% / 26%	59% / 41%	45% / 55%

Recall This Information About Target Date Funds:
Target Date Funds seek high total return over time through a combination of capital appreciation and income. These funds are designed to provide a single diversified portfolio managed with a target retirement date in mind. The target date is the approximate date when investors expect to begin withdrawing money from the Fund. Each portfolio invests primarily in underlying equity and fixed-income index funds. Over time, the Fund's target allocations will gradually become more conservative.

You have a retirement plan offered to you by your employer. Which of the funds would you like to choose to invest your retirement money into?

- o Fund A
- o Fund B
- o Fund C

Confirm

Question 1–B

Based on the information you gave in the prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are a set of target date funds with target dates that appropriately correspond to your anticipated year of retirement.

The table below shows information for each fund.
- – The "Gross Expense Ratio" indicates the annual fee that will be charged for managing the fund.
- – The three columns under the "Target Allocation" heading indicate how the asset allocation for the fund changes over time. That is, they show what portion of the fund is invested in riskier equity versus safer fixed-income securities for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is the anticipated fund allocation at your retirement age).
- – Equity funds, on average, have a long-term return of around 8% (annually). Fixed-income funds, on average, have a long-term return of around 3% (annually).
- – Recall that funds with greater risk (volatility) typically have higher returns.

	Type of Fund	Target Date	Gross Expense Ratio	Target Allocation (equity/fixed-income)		
				Current	Middle	Final (at retirement age)
Fund A	Target Date Fund	2052	0.60%	94% / 6%	79% / 21%	65% / 35%
Fund B	Target Date Fund	2052	0.20%	84% / 16%	69% / 31%	55% / 45%
Fund C	Target Date Fund	2052	0.20%	74% / 26%	59% / 41%	45% / 55%

Recall This Information About Target Date Funds:

Target Date Funds seek high total return over time through a combination of capital appreciation and income. These funds are designed to provide a single diversified portfolio managed with a target retirement date in mind. The target date is the approximate date when investors expect to begin withdrawing money from the Fund. Each portfolio invests primarily in underlying equity and fixed-income index funds. Over time, the Fund's target allocations will gradually become more conservative.

You have a retirement plan offered to you by your employer. Which of the funds would you like to choose to invest your retirement money into?

- o Fund A
- o Fund B
- o Fund C

Confirm

<u>Question 1–C1 (for those subjects who switched choices between 1–A and 1–B)</u>

In the previous question, the gross expense ratio had been increased for the fund you had chosen earlier. As a result, you chose a different fund to invest your retirement funds.

What is the lowest gross expense ratio on your originally selected fund where you would not have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

<div align="center">

Confirm

</div>

<u>Question 1–C2 (for those subjects who did not switch choices between 1–A and 1–B)</u>

In the previous question, the gross expense ratio had been increased for the fund you had chosen earlier. You continued to choose the fund that you had originally selected.

What is the highest gross expense ratio on your originally selected fund where you would have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

To which fund would you have switched?
- o   Fund B
- o   Fund C

<div align="center">

Confirm

</div>

Question 2–A

Based on the information you gave in prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are a set of Target Date RILAs with target dates that appropriately correspond to your anticipated year of retirement. The Target Date RILAs shown below all have floors.

The table below shows information for each investment.
- The "Implied Gross Expense Ratio" indicates the cost for the investment implied by its cap rate. This number has been estimated to help you determine the implied cost of the product.
- The three columns under the "Floor/Cap Level" heading indicate how the floor and cap levels for the RILA change over time. That is, they show what the floor and cap will be for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is at your retirement age).
- Recall that for RILAs with a floor:
  - The floor is the guaranteed minimum return that can be earned.
  - The cap is the maximum return that can be earned.
- Recall that equity funds, on average, have a long-term return of around 8% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

	Type of Fund	Target Date	Implied Gross Expense Ratio	Floor/Cap Level		
				Current	Middle	Final (at retirement age)
Fund A	Target Date RILA	2052	0.20%	-24.37% / 26.71%	-14.87% / 19.02%	-6.00% / 11.19%
Fund B	Target Date RILA	2052	0.20%	-20.87% / 23.96%	-11.37% / 16.01%	-2.50% / 7.93%
Fund C	Target Date RILA	2052	0.20%	-18.87% / 22.38%	-9.37% / 14.21%	-0.50% / 6.06%

Recall This information About Target Date RILAs With Floors:

The floor offers a minimum guarantee on the return. The floor is the lowest return the RILA could earn. For example, suppose a RILA has a floor of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -10%, the return on the

RILA would only be -5% since that is the lowest return the RILA can earn (or the maximum loss that could be obtained).

As mentioned earlier, RILAs also have a cap, which is the maximum return the RILA can earn. Suppose the cap on a RILA is 8%. If the actual return on the index the RILA is associated with is 12%, the RILA would only earn a return of 8% since that is the cap and the maximum return the RILA can earn.

Target Date RILAs provide access to equity markets and automatically adjust the level of risk exposure over time. The target date is the approximate date when you expect to begin withdrawing money. As you near your target date, the buffer becomes larger (or the floor becomes smaller), thereby increasing your protection against negative outcomes. Additionally, the cap rate will be reduced accordingly as there will be less opportunity for large gains. The automatic adjustment in floors (or buffers) and cap rates creates a similar dynamic risk profile to Target Date Funds.

You have a retirement plan offered to you by your employer. Which of the funds below would you like to choose to invest your retirement money into?
- o   Fund A
- o   Fund B
- o   Fund C

$$\boxed{\text{Confirm}}$$

Question 2–B

Based on the information you gave in prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are a set of Target Date RILAs with target dates that appropriately correspond to your anticipated year of retirement. The Target Date RILAs shown below all have floors.

The table below shows information for each investment.
- The "Implied Gross Expense Ratio" indicates the cost for the investment implied by its cap rate. This number has been estimated to help you determine the implied cost of the product.
- The three columns under the "Floor/Cap Level" heading indicate how the floor and cap levels for the RILA change over time. That is, they show what the floor and cap will be for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is at your retirement age).
- Recall that for RILAs with a floor:
    - The floor is the guaranteed minimum return that can be earned.
    - The cap is the maximum return that can be earned.
- Recall that equity funds, on average, have a long-term return of around 8% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

	Type of Fund	Target Date	Implied Gross Expense Ratio	Floor/Cap Level		
				Current	Middle	Final (at retirement age)
Fund A	Target Date RILA	2052	0.60%	-24.37% / 22.90%	-14.87% / 16.92%	-6.00% / 9.93%
Fund B	Target Date RILA	2052	0.20%	-20.87% / 23.96%	-11.37% / 16.01%	-2.50% / 7.93%
Fund C	Target Date RILA	2052	0.20%	-18.87% / 22.38%	-9.37% / 14.21%	-0.50% / 6.06%

Recall This information About Target Date RILAs With Floors:

The floor offers a minimum guarantee on the return. The floor is the lowest return the RILA could earn. For example, suppose a RILA has a floor of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -10%, the return on the

RILA would only be -5% since that is the lowest return the RILA can earn (or the maximum loss that could be obtained).

As mentioned earlier, RILAs also have a cap, which is the maximum return the RILA can earn. Suppose the cap on a RILA is 8%. If the actual return on the index the RILA is associated with is 12%, the RILA would only earn a return of 8% since that is the cap and the maximum return the RILA can earn.

Target Date RILAs provide access to equity markets and automatically adjust the level of risk exposure over time. The target date is the approximate date when you expect to begin withdrawing money. As you near your target date, the buffer becomes larger (or the floor becomes smaller), thereby increasing your protection against negative outcomes. Additionally, the cap rate will be reduced accordingly as there will be less opportunity for large gains. The automatic adjustment in floors (or buffers) and cap rates creates a similar dynamic risk profile to Target Date Funds.

You have a retirement plan offered to you by your employer. Which of the funds below would you like to choose to invest your retirement money into?
- o Fund A
- o Fund B
- o Fund C

Confirm

Question 2–C1 (for those subjects who switched choices between 2–A and 2–B)

In the previous question, the implied gross expense ratio had been increased for the fund you had chosen earlier. As a result, you chose a different fund to invest your retirement funds.

What is the lowest gross expense ratio on your originally selected fund where you would not have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

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Confirm

Question 2–C2 (for those subjects who did not switch choices between 2–A and 2–B)

In the previous question, the implied gross expense ratio had been increased for the fund you had chosen earlier. You continued to choose the fund that you had originally selected.

What is the highest gross expense ratio on your originally selected fund where you would have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

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To which fund would you have switched?
- o   Fund B
- o   Fund C

Confirm

Question 3–A

Based on the information you gave in prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are a set of Target Date RILAs with target dates that appropriately correspond to your anticipated year of retirement. The Target Date RILAs shown below all have buffers.

The table below shows information for each investment.
- The "Implied Gross Expense Ratio" indicates the cost for the investment implied by its cap rate. This number has been estimated to help you determine the implied cost of the product.
- The three columns under the "Buffer/Cap Level" heading indicate how the buffer and cap levels for the RILA change over time. That is, they show what the buffer and cap will be for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is at your retirement age).
- Recall that for RILAs with a buffer:
    - The buffer is the amount that limits losses when the return on the associated index is negative. That is, the buffer is the amount that the negative return on the index is reduced by to determine the return earned on the RILA.
    - The cap is the maximum return that can be earned.
- Recall that equity funds, on average, have a long-term return of around 8% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

	Type of Fund	Target Date	Implied Gross Expense Ratio	Buffer/Cap Level		
				Current	Middle	Final (at retirement age)
Fund A	Target Date RILA	2052	0.20%	-0.33% / 33.82%	-5.33% / 17.29%	-10.00% / 12.34%
Fund B	Target Date RILA	2052	0.20%	-2.83% / 22.18%	-7.83% / 14.19%	-12.50% / 10.75%
Fund C	Target Date RILA	2052	0.20%	-5.33% / 17.29%	-10.33% / 12.09%	-15.00% / 9.51%

Recall the Following Information About Target Date RILAs With a Buffer:
The buffer limits the loss on the RILA when the return on the associated index is negative. That is, when the index associated with the RILA obtains a negative return, the return on the RILA is reduced by the buffer amount. For example, suppose a RILA has a buffer of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -8%, the return on the RILA would only be -3%. Since the RILA has a buffer that offers protection of -5%, the return on the RILA equals the return on the associated index reduced by this buffer amount.

Please note that if the buffer amount covers more than the negative return on the associated index, the return on the RILA will be zero. Buffers will not allow for positive returns on the RILA if the associated index had a negative return.

As mentioned earlier, RILAs also have a cap, which is the maximum return the RILA can earn. Suppose the cap on a RILA is 8%. If the actual return on the index the RILA is associated with is 12%, the RILA would only earn a return of 8% since that is the cap and the maximum return the RILA can earn.

Target Date RILAs provide access to equity markets and automatically adjust the level of risk exposure over time. The target date is the approximate date when you expect to begin withdrawing money. As you near your target date, the buffer becomes larger (or the floor becomes smaller), thereby increasing your protection against negative outcomes. Additionally, the cap rate will be reduced accordingly as there will be less opportunity for large gains. The automatic adjustment in floors (or buffers) and cap rates creates a similar dynamic risk profile to Target Date Funds.

You have a retirement plan offered to you by your employer. Which of the funds below would you like to choose to invest your retirement money into?
- o   Fund A
- o   Fund B
- o   Fund C

Confirm

Question 3–B

Based on the information you gave in prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are a set of Target Date RILAs with target dates that appropriately correspond to your anticipated year of retirement. The Target Date RILAs shown below all have buffers.

The table below shows information for each investment.

- The "Implied Gross Expense Ratio" indicates the cost for the investment implied by its cap rate. This number has been estimated to help you determine the implied cost of the product.
- The three columns under the "Buffer/Cap Level" heading indicate how the buffer and cap levels for the RILA change over time. That is, they show what the buffer and cap will be for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is at your retirement age).
- Recall that for RILAs with a buffer:
    o The buffer is the amount that limits losses when the return on the associated index is negative. That is, the buffer is the amount that the negative return on the index is reduced by to determine the return earned on the RILA.
    o The cap is the maximum return that can be earned.
- Recall that equity funds, on average, have a long-term return of around 8% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

	Type of Fund	Target Date	Implied Gross Expense Ratio	Buffer/Cap Level		
				Current	Middle	Final (at retirement age)
Fund A	Target Date RILA	2052	0.60%	-0.33% / 27.24%	-5.33% / 15.43%	-10.00% / 11.02%
Fund B	Target Date RILA	2052	0.20%	-2.83% / 22.18%	-7.83% / 14.19%	-12.50% / 10.75%
Fund C	Target Date RILA	2052	0.20%	-5.33% / 17.29%	-10.33% / 12.09%	-15.00% / 9.51%

Recall the Following Information About Target Date RILAs With a Buffer:
The buffer limits the loss on the RILA when the return on the associated index is negative. That is, when the index associated with the RILA obtains a negative return, the return on the RILA is reduced by the buffer amount. For example, suppose a RILA has a buffer of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -8%, the return on the RILA would only be -3%. Since the RILA has a buffer that offers protection of -5%, the return on the RILA equals the return on the associated index reduced by this buffer amount.

Please note that if the buffer amount covers more than the negative return on the associated index, the return on the RILA will be zero. Buffers will not allow for positive returns on the RILA if the associated index had a negative return.

As mentioned earlier, RILAs also have a cap, which is the maximum return the RILA can earn. Suppose the cap on a RILA is 8%. If the actual return on the index the RILA is associated with is 12%, the RILA would only earn a return of 8% since that is the cap and maximum return the RILA can earn.

Target Date RILAs provide access to equity markets and automatically adjust the level of risk exposure over time. The target date is the approximate date when you expect to begin withdrawing money. As you near your target date, the buffer becomes larger (or the floor becomes smaller), thereby increasing your protection against negative outcomes. Additionally, the cap rate will be reduced accordingly as there will be less opportunity for large gains. The automatic adjustment in floors (or buffers) and cap rates creates a similar dynamic risk profile to Target Date Funds.

You have a retirement plan offered to you by your employer. Which of the funds below would you like to choose to invest your retirement money into?
- o   Fund A
- o   Fund B
- o   Fund C

Confirm

Question 3–C1 (for those subjects who switched choices between 3–A and 3–B)

In the previous question, the implied gross expense ratio had been increased for the fund you had chosen earlier. As a result, you chose a different fund to invest your retirement funds.

What is the lowest gross expense ratio on your originally selected fund where you would not have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

Confirm

Question 3–C2 (for those subjects who did not switch choices between 3–A and 3–B)

In the previous question, the implied gross expense ratio had been increased for the fund you had chosen earlier. You continued to choose the fund that you had originally selected.

What is the highest gross expense ratio on your originally selected fund where you would have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

To which fund would you have switched?
- o   Fund B
- o   Fund C

Confirm

Question 4–A

Based on the information you gave in the prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are three funds that you can select, all with target dates that appropriately correspond to your anticipated year of retirement. One fund is a Target Date Fund. The second fund is a Target Date RILA with a floor, and the third fund is a Target Date RILA with a buffer.

The tables below show information for each fund.
- For the Target Date Fund:
  o The Expense Ratio indicates the annual fee that will be charged for managing the fund.
  o The three columns under the "Target Allocation" heading for the Target Date Fund indicate how the asset allocation for the fund changes over time. That is, they show what portion of the fund is invested in riskier equity versus safer fixed-income securities for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is the anticipated fund allocation at your retirement age).
- For the Target Date RILAs:
  o The "Implied Gross Expense Ratio" indicates the cost for the investment implied by its cap rate. This number has been estimated to help you determine the implied cost of the product.
  o The floor is the guaranteed minimum return that can be earned.
  o The buffer is the amount that limits losses when the return on the associated index is negative. That is, the buffer is the amount that the negative return on the index is reduced by to determine the return earned on the RILA.
  o The cap is the maximum return that can be earned.
- Equity funds, on average, have a long-term return of around 8% (annually). Fixed-income funds, on average, have a long-term return of around 3% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

	Type of Fund	Target Date	Gross Expense Ratio	Target Allocation (equity/fixed-income)		
				Current	Middle	Final (at retirement age)
Fund A	Target Date Fund	2052	0.20%	94% / 6%	79% / 21%	65% / 35%

	Type of Fund	Target Date	Implied Gross Expense Ratio	Floor/Cap Level		
				Current	Middle	Final (at retirement age)
Fund B	Target Date RILA	2052	0.20%	-24.37% / 26.71%	-14.87% / 19.02%	-6.00% / 11.19%

	Type of Fund	Target Date	Implied Gross Expense Ratio	Buffer/Cap Level		
				Current	Middle	Final (at retirement age)
Fund C	Target Date RILA	2052	0.20%	-0.33% / 33.82%	-5.33% / 17.29%	-10.00% / 12.34%

Recall This Information About Target Date Funds:

Target Date Funds seek high total return over time through a combination of capital appreciation and income. These funds are designed to provide a single diversified portfolio managed with a target retirement date in mind. The target date is the approximate date when investors expect to begin withdrawing money from the Fund. Each portfolio invests primarily in underlying equity and fixed-income index funds. Over time, the Fund's target allocations will gradually become more conservative.

Recall the Following Information About Target Date RILAs:

Target Date RILAs provide access to equity markets and automatically adjust the level of risk exposure over time. The target date is the approximate date when you expect to begin withdrawing money. As you near your target date, the buffer becomes larger (or the floor becomes smaller), thereby increasing your protection against negative outcomes. Additionally, the cap rate will be reduced accordingly as there will be less opportunity for large gains. The automatic adjustment in floors (or buffers) and cap rates creates a similar dynamic risk profile to Target Date Funds.

Floor: The floor offers a minimum guarantee on the return. The floor is the lowest return the RILA could earn. For example, suppose a RILA has a floor of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -10%, the return

on the RILA would only be -5% since that is the lowest return the RILA can earn (or the maximum loss that could be obtained).

Buffer: The buffer limits the loss on the RILA when the return on the associated index is negative. That is, when the index associated with the RILA obtains a negative return, the return on the RILA is reduced by the buffer amount. For example, suppose a RILA has a buffer of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -8%, the return on the RILA would only be -3%. Since the RILA has a buffer which offers protection of -5%, the return on the RILA equals the return on the associated index reduced by this buffer amount.

Cap: The cap is the maximum return the RILA can earn. Suppose the cap on a RILA is 8%. If the actual return on the index the RILA is associated with is 12%, the RILA would only earn a return of 8% since that is the cap and the maximum return the RILA can earn.

You have a retirement plan offered to you by your employer. Which of the funds below would you like to choose to invest your retirement money into?
- o   Fund A
- o   Fund B
- o   Fund C

Confirm

Question 4–B

Based on the information you gave in the prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are three funds that you can select, all with target dates that appropriately correspond to your anticipated year of retirement. One fund is a Target Date Fund. The second fund is a Target Date RILA with a floor, and the third fund is a Target Date RILA with a buffer.

The tables below show information for each fund.
  - For the Target Date Fund:
    o The Expense Ratio indicates the annual fee that will be charged for managing the fund.
    o The three columns under the "Target Allocation" heading for the Target Date Fund indicate how the asset allocation for the fund changes over time. That is, they show what portion of the fund is invested in riskier equity versus safer fixed-income securities for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is the anticipated fund allocation at your retirement age).
  - For the Target Date RILAs:
    o The "Implied Gross Expense Ratio" indicates the cost for the investment implied by its cap rate. This number has been estimated to help you determine the implied cost of the product.
    o The floor is the guaranteed minimum return that can be earned.
    o The buffer is the amount that limits losses when the return on the associated index is negative. That is, the buffer is the amount that the negative return on the index is reduced by to determine the return earned on the RILA.
    o The cap is the maximum return that can be earned.
  - Equity funds, on average, have a long-term return of around 8% (annually). Fixed-income funds, on average, have a long-term return of around 3% (annually).
  - Recall that funds with greater risk (volatility) typically have higher returns.

	Type of Fund	Target Date	Gross Expense Ratio	Target Allocation (equity/fixed-income)		
				Current	Middle	Final (at retirement age)
Fund A	Target Date Fund	2052	0.60%	94% / 6%	79% / 21%	65% / 35%

	Type of Fund	Target Date	Implied Gross Expense Ratio	Floor/Cap Level		
				Current	Middle	Final (at retirement age)
Fund B	Target Date RILA	2052	0.20%	-24.37% / 26.71%	-14.87% / 19.02%	-6.00% / 11.19%

	Type of Fund	Target Date	Implied Gross Expense Ratio	Buffer/Cap Level		
				Current	Middle	Final (at retirement age)
Fund C	Target Date RILA	2052	0.20%	-0.33% / 33.82%	-5.33% / 17.29%	-10.00% / 12.34%

Recall This Information About Target Date Funds:

Target Date Funds seek high total return over time through a combination of capital appreciation and income. These funds are designed to provide a single diversified portfolio managed with a target retirement date in mind. The target date is the approximate date when investors expect to begin withdrawing money from the Fund. Each portfolio invests primarily in underlying equity and fixed-income index funds. Over time, the Fund's target allocations will gradually become more conservative.

Recall The Following Information About Target Date RILAs:

Target Date RILAs provide access to equity markets and automatically adjust the level of risk exposure over time. The target date is the approximate date when you expect to begin withdrawing money. As you near your target date, the buffer becomes larger (or the floor becomes smaller), thereby increasing your protection against negative outcomes. Additionally, the cap rate will be reduced accordingly as there will be less opportunity for large gains. The automatic adjustment in floors (or buffers) and cap rates creates a similar dynamic risk profile to Target Date Funds.

Floor: The floor offers a minimum guarantee on the return. The floor is the lowest return the RILA could earn. For example, suppose a RILA has a floor of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -10%, the return

on the RILA would only be -5% since that is the lowest return the RILA can earn (or the maximum loss that could be obtained).

<u>Buffer</u>: The buffer limits the loss on the RILA when the return on the associated index is negative. That is, when the index associated with the RILA obtains a negative return, the return on the RILA is reduced by the buffer amount. For example, suppose a RILA has a buffer of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -8%, the return on the RILA would only be -3%. Since the RILA has a buffer that offers protection of -5%, the return on the RILA equals the return on the associated index reduced by this buffer amount.

<u>Cap</u>: The cap is the maximum return the RILA can earn. Suppose the cap on a RILA is 8%. If the actual return on the index the RILA is associated with is 12%, the RILA would only earn a return of 8% since that is the cap and the maximum return the RILA can earn.

You have a retirement plan offered to you by your employer. Which of the funds below would you like to choose to invest your retirement money into?
- o Fund A
- o Fund B
- o Fund C

Confirm

Question 4–C1

In the previous question, the gross expense ratio or implied gross ratio had been increased for the fund you had chosen earlier. As a result, you chose a different fund to invest your retirement funds.

What is the lowest gross expense ratio on your originally selected fund where you would not have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

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Confirm

Question 4–C2

In the previous question, the gross expense ratio or implied gross expense ratio had been increased for the fund you had chosen earlier. You continued to choose the fund that you had originally selected.

What is the highest gross expense ratio on your originally selected fund where you would have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

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To which fund would you have switched?

- o   Fund B
- o   Fund C

Confirm

Group 2 Questions (Baseline Info, Default)

Question 1–A

Based on the information you gave in the prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are a set of target date funds with target dates that appropriately correspond to your anticipated year of retirement. The first table shows the target date fund your employer already chose for your investments. The second table shows other target date funds that are available for you to invest your retirement money.

The tables below show information for each fund option offered.
- The "Gross Expense Ratio" indicates the annual fee that will be charged for managing the fund.
- The three columns under the "Target Allocation" heading indicate how the asset allocation for the fund changes over time. That is, they show what portion of the fund is invested in riskier equity versus safer fixed-income securities for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is the anticipated fund allocation at your retirement age).
- Equity funds, on average, have a long-term return of around 8% (annually). Fixed-income funds, on average, have a long-term return of around 3% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

Your employer has already chosen the following target date fund to invest retirement money for employees who do not actively choose an investment:

	Type of Fund	Target Date	Gross Expense Ratio	Target Allocation (equity/fixed-income)		
				Current	Middle	Final (at retirement age)
Fund A	Target Date Fund	2052	0.20%	94% / 6%	79% / 21%	65% / 35%

You also have the choice to invest in one of the following funds if you would like:

	Type of Fund	Target Date	Gross Expense Ratio	Target Allocation (equity/fixed-income)		
				Current	Middle	Final

						(at retirement age)
Fund B	Target Date Fund	2052	0.20%	84% / 16%	69% / 31%	55% / 45%
Fund C	Target Date Fund	2052	0.20%	74% / 26%	59% / 41%	45% / 55%

Recall This Information About Target Date Funds:

Target Date Funds seek high total return over time through a combination of capital appreciation and income. These funds are designed to provide a single diversified portfolio managed with a target retirement date in mind. The target date is the approximate date when investors expect to begin withdrawing money from the Fund. Each portfolio invests primarily in underlying equity and fixed-income index funds. Over time, the Fund's target allocations will gradually become more conservative.

You have a retirement plan offered to you by your employer. Which of the funds would you like to choose to invest your retirement money into?

- o   Fund A
- o   Fund B
- o   Fund C

Confirm

Question 1–B

Based on the information you gave in the prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are a set of target date funds with target dates that appropriately correspond to your anticipated year of retirement.

The table below shows information for each fund.
- The "Gross Expense Ratio" indicates the annual fee that will be charged for managing the fund.
- The three columns under the "Target Allocation" heading indicate how the asset allocation for the fund changes over time. That is, they show what portion of the fund is invested in riskier equity versus safer fixed-income securities for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is the anticipated fund allocation at your retirement age).
- Equity funds, on average, have a long-term return of around 8% (annually). Fixed-income funds, on average, have a long-term return of around 3% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

Your employer has already chosen the following target date fund to invest retirement money for employees who do not actively choose an investment:

	Type of Fund	Target Date	Gross Expense Ratio	Target Allocation (equity/fixed-income)		
				Current	Middle	Final (at retirement age)
Fund A	Target Date Fund	2052	0.60%	94% / 6%	79% / 21%	65% / 35%

You also have the choice to invest in one of the following funds if you would like:

	Type of Fund	Target Date	Gross Expense Ratio	Target Allocation (equity/fixed-income)		
				Current	Middle	Final (at retirement age)
Fund B	Target Date Fund	2052	0.20%	84% / 16%	69% / 31%	55% / 45%
Fund C	Target Date Fund	2052	0.20%	74% / 26%	59% / 41%	45% / 55%

Recall This Information About Target Date Funds:

Target Date Funds seek high total return over time through a combination of capital appreciation and income. These funds are designed to provide a single diversified portfolio managed with a target retirement date in mind. The target date is the approximate date when investors expect to begin withdrawing money from the Fund. Each portfolio invests primarily in underlying equity and fixed-income index funds. Over time, the Fund's target allocations will gradually become more conservative.

You have a retirement plan offered to you by your employer. Which of the funds would you like to choose to invest your retirement money into?

- o Fund A
- o Fund B
- o Fund C

Confirm

Question 1–C1 (for those subjects who switched choices between 1–A and 1–B)

In the previous question, the gross expense ratio had been increased for the fund you had chosen earlier. As a result, you chose a different fund to invest your retirement funds.

What is the lowest gross expense ratio on your originally selected fund where you would not have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

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Question 1–C2 (for those subjects who did not switch choices between 1–A and 1–B)

In the previous question, the gross expense ratio had been increased for the fund you had chosen earlier. You continued to choose the fund that you had originally selected.

What is the highest gross expense ratio on your originally selected fund where you would have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

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To which fund would you have switched?
- o   Fund B
- o   Fund C

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│   Confirm    │
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Question 2–A

Based on the information you gave in prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are a set of Target Date RILAs with target dates that appropriately correspond to your anticipated year of retirement. The Target Date RILAs shown below all have floors.

The tables below show information for each investment.
 - The "Implied Gross Expense Ratio" indicates the cost for the investment implied by its cap rate. This number has been estimated to help you determine the implied cost of the product.
 - The three columns under the "Floor/Cap Level" heading indicate how the floor and cap levels for the RILA change over time. That is, they show what the floor and cap will be for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is at your retirement age).
 - Recall that for RILAs with a floor:
     o The floor is the guaranteed minimum return that can be earned.
     o The cap is the maximum return that can be earned.
 - Recall that equity funds, on average, have a long-term return of around 8% (annually).
 - Recall that funds with greater risk (volatility) typically have higher returns.

Your employer has already chosen the following Target Date RILA to invest retirement money for employees who do not actively choose an investment:

	Type of Fund	Target Date	Implied Gross Expense Ratio	Floor/Cap Level		
				Current	Middle	Final (at retirement age)
Fund A	Target Date RILA	2052	0.20%	-24.37% / 26.71%	-14.87% / 19.02%	-6.00% / 11.19%

You also have the choice to invest in one of the following investments if you would like:

	Type of Fund	Target Date	Implied Gross Expense Ratio	Floor/Cap Level		
				Current	Middle	Final (at retirement age)

Fund B	Target Date RILA	2052	0.20%	-20.87% / 23.96%	-11.37% / 16.01%	-2.50% / 7.93%
Fund C	Target Date RILA	2052	0.20%	-18.87% / 22.38%	-9.37% / 14.21%	-0.50% / 6.06%

Recall This Information About Target Date RILAs with Floors:

The floor offers a minimum guarantee on the return. The floor is the lowest return the RILA could earn. For example, suppose a RILA has a floor of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -10%, the return on the RILA would only be -5% since that is the lowest return the RILA can earn (or the maximum loss that could be obtained).

As mentioned earlier, RILAs also have a cap, which is the maximum return the RILA can earn. Suppose the cap on a RILA is 8%. If the actual return on the index the RILA is associated with is 12%, the RILA would only earn a return of 8% since that is the cap and the maximum return the RILA can earn.

Target Date RILAs provide access to equity markets and automatically adjust the level of risk exposure over time. The target date is the approximate date when you expect to begin withdrawing money. As you near your target date, the buffer becomes larger (or the floor becomes smaller), thereby increasing your protection against negative outcomes. Additionally, the cap rate will be reduced accordingly as there will be less opportunity for large gains. The automatic adjustment in floors (or buffers) and cap rates creates a similar dynamic risk profile to Target Date Funds.

You have a retirement plan offered to you by your employer. Which of the funds below would you like to choose to invest your retirement money into?

- o   Fund A
- o   Fund B
- o   Fund C

Confirm

Question 2–B

Based on the information you gave in prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are a set of Target Date RILAs with target dates that appropriately correspond to your anticipated year of retirement. The Target Date RILAs shown below all have floors.

The tables below show information for each investment.
- The "Implied Gross Expense Ratio" indicates the cost for the investment implied by its cap rate. This number has been estimated to help you determine the implied cost of the product.
- The three columns under the "Floor/Cap Level" heading indicate how the floor and cap levels for the RILA change over time. That is, they show what the floor and cap will be for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is at your retirement age).
- Recall that for RILAs with a floor:
    o The floor is the guaranteed minimum return that can be earned.
    o The cap is the maximum return that can be earned.
- Recall that equity funds, on average, have a long-term return of around 8% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

Your employer has already chosen the following Target Date RILA to invest retirement money for employees who do not actively choose an investment:

	Type of Fund	Target Date	Implied Gross Expense Ratio	Floor/Cap Level		
				Current	Middle	Final (at retirement age)
Fund A	Target Date RILA	2052	0.60%	-24.37% / 22.90%	-14.87% / 16.92%	-6.00% / 9.93%

You also have the choice to invest in one of the following investments if you would like:

	Type of Fund	Target Date	Implied Gross Expense Ratio	Floor/Cap Level		
				Current	Middle	Final (at retirement age)
Fund B	Target Date RILA	2052	0.20%	-20.87% / 23.96%	-11.37% / 16.01%	-2.50% / 7.93%
Fund C	Target Date RILA	2052	0.20%	-18.87% / 22.38%	-9.37% / 14.21%	-0.50% / 6.06%

<u>Recall This Information About Target Date RILAs With Floors:</u>
The floor offers a minimum guarantee on the return. The floor is the lowest return the RILA could earn. For example, suppose a RILA has a floor of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -10%, the return on the RILA would only be -5% since that is the lowest return the RILA can earn (or the maximum loss that could be obtained).

As mentioned earlier RILAs also have a cap, which is the maximum return the RILA can earn. Suppose the cap on a RILA is 8%. If the actual return on the index the RILA is associated with is 12%, the RILA would only earn a return of 8% since that is the cap and maximum return the RILA can earn.

Target Date RILAs provide access to equity markets and automatically adjust the level of risk exposure over time. The target date is the approximate date when you expect to begin withdrawing money. As you near your target date, the buffer becomes larger (or the floor becomes smaller), thereby increasing your protection against negative outcomes. Additionally, the cap rate will be reduced accordingly as there will be less opportunity for large gains. The automatic adjustment in floors (or buffers) and cap rates creates a similar dynamic risk profile to Target Date Funds.

You have a retirement plan offered to you by your employer. Which of the funds below would you like to choose to invest your retirement money into?
- o   Fund A
- o   Fund B
- o   Fund C

Confirm

<u>Question 2–C1 (for those subjects who switched choices between 2–A and 2–B)</u>

In the previous question, the implied gross expense ratio had been increased for the fund you had chosen earlier. As a result, you chose a different fund to invest your retirement funds.

What is the lowest gross expense ratio on your originally selected fund where you would not have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

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Confirm

<u>Question 2–C2 (for those subjects who did not switch choices between 2–A and 2–B)</u>

In the previous question, the implied gross expense ratio had been increased for the fund you had chosen earlier. You continued to choose the fund that you had originally selected.

What is the highest gross expense ratio on your originally selected fund where you would have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

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To which fund would you have switched?
- o   Fund B
- o   Fund C

Confirm

Question 3–A

Based on the information you gave in prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are a set of Target Date RILAs with target dates that appropriately correspond to your anticipated year of retirement. The Target Date RILAs shown below all have buffers.

The tables below show information for each investment.
- The "Implied Gross Expense Ratio" indicates the cost for the investment implied by its cap rate. This number has been estimated to help you determine the implied cost of the product.
- The three columns under the "Buffer/Cap Level" heading indicate how the buffer and cap levels for the RILA change over time. That is, they show what the buffer and cap will be for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is at your retirement age).
- Recall that for RILAs with a buffer:
    o The buffer is the amount that limits losses when the return on the associated index is negative. That is, the buffer is the amount that the negative return on the index is reduced by to determine the return earned on the RILA.
    o The cap is the maximum return that can be earned.
- Recall that equity funds, on average, have a long-term return of around 8% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

Your employer has already chosen the following Target Date RILA to invest retirement money for employees who do not actively choose an investment:

	Type of Fund	Target Date	Implied Gross Expense Ratio	Buffer/Cap Level		
				Current	Middle	Final (at retirement age)
Fund A	Target Date RILA	2052	0.20%	-0.33% / 33.82%	-5.33% / 17.29%	-10.00% / 12.34%

You also have the choice to invest in one of the following investments if you would like:

	Type of Fund	Target Date	Implied Gross Expense Ratio	Buffer/Cap Level		
				Current	Middle	Final (at retirement age)
Fund B	Target Date RILA	2052	0.20%	-2.83% / 22.18%	-7.83% / 14.19%	-12.50% / 10.75%
Fund C	Target Date RILA	2052	0.20%	-5.33% / 17.29%	-10.33% / 12.09%	-15.00% / 9.51%

Recall the Following Information About Target Date RILAs With a Buffer:
The buffer limits the loss on the RILA when the return on the associated index is negative. That is, when the index associated with the RILA obtains a negative return, the return on the RILA is reduced by the buffer amount. For example, suppose a RILA has a buffer of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -8%, the return on the RILA would only be -3%. Since the RILA has a buffer that offers protection of -5%, the return on the RILA equals the return on the associated index reduced by this buffer amount.

Please note that if the buffer amount covers more than the negative return on the associated index, the return on the RILA will be zero. Buffers will not allow for positive returns on the RILA if the associated index had a negative return.

As mentioned earlier, RILAs also have a cap, which is the maximum return the RILA can earn. Suppose the cap on a RILA is 8%. If the actual return on the index the RILA is associated with is 12%, the RILA would only earn a return of 8% since that is the cap and the maximum return the RILA can earn.

Target Date RILAs provide access to equity markets and automatically adjust the level of risk exposure over time. The target date is the approximate date when you expect to begin withdrawing money. As you near your target date, the buffer becomes larger (or the floor becomes smaller), thereby increasing your protection against negative outcomes. Additionally, the cap rate will be reduced accordingly as there will be less opportunity for large gains. The automatic adjustment in floors (or buffers) and cap rates creates a similar dynamic risk profile to Target Date Funds.

You have a retirement plan offered to you by your employer. Which of the funds below would you like to choose to invest your retirement money into?
- o   Fund A
- o   Fund B
- o   Fund C

Confirm

Question 3–B

Based on the information you gave in prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are a set of Target Date RILAs with target dates that appropriately correspond to your anticipated year of retirement. The Target Date RILAs shown below all have buffers.

The tables below show information for each investment.
- The "Implied Gross Expense Ratio" indicates the cost for the investment implied by its cap rate. This number has been estimated to help you determine the implied cost of the product.
- The three columns under the "Buffer/Cap Level" heading indicate how the buffer and cap levels for the RILA change over time. That is, it shows what the buffer and cap will be for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is at your retirement age).
- Recall that for RILAs with a buffer:
  - The buffer is the amount that limits losses when the return on the associated index is negative. That is, the buffer is the amount that the negative return on the index is reduced by to determine the return earned on the RILA.
  - The cap is the maximum return that can be earned.
- Recall that equity funds, on average, have a long-term return of around 8% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

Your employer has already chosen the following Target Date RILA to invest retirement money for employees who do not actively choose an investment:

| | Type of Fund | Target Date | Implied Gross Expense Ratio | Buffer/Cap Level | | |
				Current	Middle	Final (at retirement age)
Fund A	Target Date RILA	2052	0.60%	-0.33% / 27.24%	-5.33% / 15.43%	-10.00% / 11.02%

You also have the choice to invest in one of the following investments if you would like:

| | Type of Fund | Target Date | Implied Gross Expense Ratio | Buffer/Cap Level | | |
				Current	Middle	Final (at retirement age)
Fund B	Target Date RILA	2052	0.20%	-2.83% / 22.18%	-7.83% / 14.19%	-12.50% / 10.75%
Fund C	Target Date RILA	2052	0.20%	-5.33% / 17.29%	-10.33% / 12.09%	-15.00% / 9.51%

Recall the Following Information About Target Date RILAs With a Buffer:
The buffer limits the loss on the RILA when the return on the associated index is negative. That is, when the index associated with the RILA obtains a negative return, the return on the RILA is reduced by the buffer amount. For example, suppose a RILA has a buffer of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -8%, the return on the RILA would only be -3%. Since the RILA has a buffer which offers protection of -5%, the return on the RILA equals the return on the associated index reduced by this buffer amount.

Please note that if the buffer amount covers more than the negative return on the associated index, the return on the RILA will be zero. Buffers will not allow for positive returns on the RILA if the associated index had a negative return.

As mentioned earlier, RILAs also have a cap, which is the maximum return the RILA can earn. Suppose the cap on a RILA is 8%. If the actual return on the index the RILA is associated with is 12%, the RILA would only earn a return of 8% since that is the cap and the maximum return the RILA can earn.

Target Date RILAs provide access to equity markets and automatically adjust the level of risk exposure over time. The target date is the approximate date when you expect to begin withdrawing money. As you near your target date, the buffer becomes larger (or the floor becomes smaller), thereby increasing your protection against negative outcomes. Additionally, the cap rate will be reduced accordingly as there will be less opportunity for large gains. The automatic adjustment in floors (or buffers) and cap rates creates a similar dynamic risk profile to Target Date Funds.

You have a retirement plan offered to you by your employer. Which of the funds below would you like to choose to invest your retirement money into?
- o Fund A
- o Fund B
- o Fund C

Confirm

<u>Question 3–C1 (for those subjects who switched choices between 3–A and 3–B)</u>

In the previous question, the implied gross expense ratio had been increased for the fund you had chosen earlier. As a result, you chose a different fund to invest your retirement funds.

What is the lowest gross expense ratio on your originally selected fund where you would not have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

Confirm

<u>Question 3–C2 (for those subjects who did not switch choices between 3–A and 3–B)</u>

In the previous question, the implied gross expense ratio had been increased for the fund you had chosen earlier. You continued to choose the fund that you had originally selected.

What is the highest gross expense ratio on your originally selected fund where you would have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

To which fund would you have switched?
- o Fund B
- o Fund C

Confirm

Question 4–A

Based on the information you gave in the prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are three funds that you can select, all with target dates that appropriately correspond to your anticipated year of retirement. One fund is a Target Date Fund. The second fund is a Target Date RILA with a floor, and the third fund is a Target Date RILA with a buffer.

The tables below show information for each fund.
  – For the Target Date Fund:
    o The Expense Ratio indicates the annual fee that will be charged for managing the fund.
    o The three columns under the "Target Allocation" heading for the Target Date Fund indicate how the asset allocation for the fund changes over time. That is, they show what portion of the fund is invested in riskier equity versus safer fixed-income securities for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is the anticipated fund allocation at your retirement age).
  – For the Target Date RILAs:
    o The "Implied Gross Expense Ratio" indicates the cost for the investment implied by its cap rate. This number has been estimated to help you determine the implied cost of the product.
    o The floor is the guaranteed minimum return that can be earned.
    o The buffer is the amount that limits losses when the return on the associated index is negative. That is, the buffer is the amount that the negative return on the index is reduced by to determine the return earned on the RILA.
    o The cap is the maximum return that can be earned.
  – Equity funds, on average, have a long-term return of around 8% (annually). Fixed-income funds, on average, have a long-term return of around 3% (annually).
  – Recall that funds with greater risk (volatility) typically have higher returns.

Your employer has already chosen the following Target Date Fund to invest retirement money for employees who do not actively choose an investment:

	Type of Fund	Target Date	Gross Expense Ratio	Target Allocation (equity/fixed-income)		
				Current	Middle	Final (at retirement age)
Fund A	Target Date Fund	2052	0.20%	94% / 6%	79% / 21%	65% / 35%

You also have the choice to invest in one of the following Target Date RILAs if you would like:

	Type of Fund	Target Date	Implied Gross Expense Ratio	Floor/Cap Level		
				Current	Middle	Final (at retirement age)
Fund B	Target Date RILA	2052	0.20%	-24.37% / 26.71%	-14.87% / 19.02%	-6.00% / 11.19%

	Type of Fund	Target Date	Implied Gross Expense Ratio	Buffer/Cap Level		
				Current	Middle	Final (at retirement age)
Fund C	Target Date RILA	2052	0.20%	-0.33% / 33.82%	-5.33% / 17.29%	-10.00% / 12.34%

Recall This Information About Target Date Funds:
Target Date Funds seek high total return over time through a combination of capital appreciation and income. These funds are designed to provide a single diversified portfolio managed with a target retirement date in mind. The target date is the approximate date when investors expect to begin withdrawing money from the Fund. Each portfolio invests primarily in underlying equity and fixed-income index funds. Over time, the Fund's target allocations will gradually become more conservative.

Recall the Following Information About Target Date RILAs:
Target Date RILAs provide access to equity markets and automatically adjust the level of risk exposure over time. The target date is the approximate date when you expect to begin withdrawing money. As you near your target date, the buffer becomes larger (or the floor becomes smaller), thereby increasing your protection against negative outcomes. Additionally, the cap rate will be reduced accordingly as there will be less opportunity for large gains. The automatic adjustment in floors (or buffers) and cap rates creates a similar dynamic risk profile to Target Date Funds.

Floor: The floor offers a minimum guarantee on the return. The floor is the lowest return the RILA could earn. For example, suppose a RILA has a floor of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -10%, the return on the RILA would only be -5% since that is the lowest return the RILA can earn (or the maximum loss that could be obtained).

Buffer: The buffer limits the loss on the RILA when the return on the associated index is negative. That is, when the index associated with the RILA obtains a negative return, the return on the RILA is reduced by the buffer amount. For example, suppose a RILA has a buffer of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -8%, the return on the RILA would only be -3%. Since the RILA has a

buffer which offers protection of -5%, the return on the RILA equals the return on the associated index reduced by this buffer amount.

Cap: The cap is the maximum return the RILA can earn. Suppose the cap on a RILA is 8%. If the actual return on the index the RILA is associated with is 12%, the RILA would only earn a return of 8% since that is the cap and the maximum return the RILA can earn.

You have a retirement plan offered to you by your employer. Which of the funds below would you like to choose to invest your retirement money into?

- o   Fund A
- o   Fund B
- o   Fund C

Confirm

Question 4–B

Based on the information you gave in the prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are three funds that you can select, all with target dates that appropriately correspond to your anticipated year of retirement. One fund is a Target Date Fund. The second fund is a Target Date RILA with a floor, and the third fund is a Target Date RILA with a buffer.

The tables below show information for each fund.
- For the Target Date Fund:
  - o The Expense Ratio indicates the annual fee that will be charged for managing the fund.
  - o The three columns under the "Target Allocation" heading for the Target Date Fund indicate how the asset allocation for the fund changes over time. That is, they show what portion of the fund is invested in riskier equity versus safer fixed-income securities for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is the anticipated fund allocation at your retirement age).
- For the Target Date RILAs:
  - o The "Implied Gross Expense Ratio" indicates the cost for the investment implied by its cap rate. This number has been estimated to help you determine the implied cost of the product.
  - o The floor is the guaranteed minimum return that can be earned.
  - o The buffer is the amount that limits losses when the return on the associated index is negative. That is, the buffer is the amount that the negative return on the index is reduced by to determine the return earned on the RILA.
  - o The cap is the maximum return that can be earned.
- Equity funds, on average, have a long-term return of around 8% (annually). Fixed-income funds, on average, have a long-term return of around 3% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

Your employer has already chosen the following Target Date Fund to invest retirement money for employees who do not actively choose an investment:

	Type of Fund	Target Date	Gross Expense Ratio	Target Allocation (equity/fixed-income)		
				Current	Middle	Final (at retirement age)
Fund A	Target Date Fund	2052	0.60%	94% / 6%	79% / 21%	65% / 35%

You also have the choice to invest in one of the following Target Date RILAs if you would like:

	Type of Fund	Target Date	Implied Gross Expense Ratio	Floor/Cap Level		
				Current	Middle	Final (at retirement age)
Fund B	Target Date RILA	2052	0.20%	-24.37% / 26.71%	-14.87% / 19.02%	-6.00% / 11.19%

	Type of Fund	Target Date	Implied Gross Expense Ratio	Buffer/Cap Level		
				Current	Middle	Final (at retirement age)
Fund C	Target Date RILA	2052	0.20%	-0.33% / 33.82%	-5.33% / 17.29%	-10.00% / 12.34%

Recall This Information About Target Date Funds:
Target Date Funds seek high total return over time through a combination of capital appreciation and income. These funds are designed to provide a single diversified portfolio managed with a target retirement date in mind. The target date is the approximate date when investors expect to begin withdrawing money from the Fund. Each portfolio invests primarily in underlying equity and fixed-income index funds. Over time, the Fund's target allocations will gradually become more conservative.

Recall the Following Information About Target Date RILAs:
Target Date RILAs provide access to equity markets and automatically adjust the level of risk exposure over time. The target date is the approximate date when you expect to begin withdrawing money. As you near your target date, the buffer becomes larger (or the floor becomes smaller), thereby increasing your protection against negative outcomes. Additionally, the cap rate will be reduced accordingly as there will be less opportunity for large gains. The automatic adjustment in floors (or buffers) and cap rates creates a similar dynamic risk profile to Target Date Funds.

Floor: The floor offers a minimum guarantee on the return. The floor is the lowest return the RILA could earn. For example, suppose a RILA has a floor of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -10%, the return on the RILA would only be -5% since that is the lowest return the RILA can earn (or the maximum loss that could be obtained).

Buffer: The buffer limits the loss on the RILA when the return on the associated index is negative. That is, when the index associated with the RILA obtains a negative return, the return on the RILA is reduced by the buffer amount. For example, suppose a RILA has a buffer of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -8%, the return on the RILA would only be -3%. Since the RILA has a

buffer which offers protection of -5%, the return on the RILA equals the return on the associated index reduced by this buffer amount.

Cap: The cap is the maximum return the RILA can earn. Suppose the cap on a RILA is 8%. If the actual return on the index the RILA is associated with is 12%, the RILA would only earn a return of 8% since that is the cap and the maximum return the RILA can earn.

You have a retirement plan offered to you by your employer. Which of the funds below would you like to choose to invest your retirement money into?
- Fund A
- Fund B
- Fund C

Confirm

Question 4–C1

In the previous question, the gross expense ratio or implied gross ratio had been increased for the fund you had chosen earlier. As a result, you chose a different fund to invest your retirement funds.

What is the lowest gross expense ratio on your originally selected fund where you would not have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

Confirm

Question 4–C2

In the previous question, the gross expense ratio or implied gross expense ratio had been increased for the fund you had chosen earlier. You continued to choose the fund that you had originally selected.

What is the highest gross expense ratio on your originally selected fund where you would have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

To which fund would you have switched?
- o   Fund B
- o   Fund C

Confirm

Group 3 Questions (Distributional Info, No Default)

Question 1–A

Based on the information you gave in the prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are a set of target date funds with target dates that appropriately correspond to your anticipated year of retirement.

The table below shows information for each fund.
- The "Gross Expense Ratio" indicates the annual fee that will be charged for managing the fund.
- The three columns under the "Target Allocation" heading indicate how the asset allocation for the fund changes over time. That is, they show what portion of the fund is invested in riskier equity versus safer fixed-income securities for three different points in time: current, middle (which is midway between now and your retirement age,) and final (which is the anticipated fund allocation at your retirement age).
- The columns under the heading "Anticipated Retirement Benefit (Monthly Annuity)" indicate the anticipated **monthly** income you will receive in retirement if you invest in that target date fund for all your working years.
  - Worst Probable Outcome = there is a 1% chance the anticipated monthly benefit is this low
  - Expected Outcome = the average or expected monthly benefit
  - Best Probable Outcome = there is a 1% chance the anticipated monthly benefit is this high
  - Standard Deviation = the level of variability in the average outcome
- Recall that equity funds, on average, have a long-term return of around 8% (annually). Fixed-income funds, on average, have a long-term return of around 3% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

	Type of Fund	Target Date	Gross Expense Ratio	Target Allocation (equity/fixed-income)			Anticipated Retirement Benefit (Monthly Income, in today's dollars)*			
				Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund A	Target Date Fund	2052	0.20%	94% / 6%	79% / 21%	65% / 35%	$658	$3,065	$13,038	$1,986
Fund B	Target Date Fund	2052	0.20%	84% / 16%	69% / 31%	55% / 45%	$724	$2,682	$9,480	$1,447

Fund C	Target Date Fund	2052	0.20%	74% / 26%	59% / 41%	45% / 55%	$792	$2,351	$6,877	$1,035

Note. The numbers for the anticipated retirement benefit are estimates. These numbers assume you will be in retirement for 20 years, your wages will grow 3% annually while working, inflation will be 2% annually, and you will contribute 10% of your annual income to the account each year. The estimates include how much you have already accumulated in your retirement account, as answered earlier in the survey.

Recall This Information About Target Date Funds:
Target Date Funds seek high total return over time through a combination of capital appreciation and income. These funds are designed to provide a single diversified portfolio managed with a target retirement date in mind. The target date is the approximate date when investors expect to begin withdrawing money from the Fund. Each portfolio invests primarily in underlying equity and fixed-income index funds. Over time, the Fund's target allocations will gradually become more conservative.

You have a retirement plan offered to you by your employer. Which of the funds would you like to choose to invest your retirement money into?
- o   Fund A
- o   Fund B
- o   Fund C

Confirm

Question 1–B

Based on the information you gave in the prior questions you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are a set of target date funds with target dates that appropriately correspond to your anticipated year of retirement.

The table below shows information for each fund.
- The "Gross Expense Ratio" indicates the annual fee that will be charged for managing the fund.
- The three columns under the "Target Allocation" heading indicate how the asset allocation for the fund changes over time. That is, they show what portion of the fund is invested in riskier equity versus safer fixed-income securities for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is the anticipated fund allocation at your retirement age).
- The columns under the heading "Anticipated Retirement Benefit (Monthly Annuity)" indicate the anticipated **monthly** income you will receive in retirement if you invest in that target date fund for all your working years.
  - Worst Probable Outcome = there is a 1% chance the anticipated monthly benefit is this low
  - Expected Outcome = the average or expected monthly benefit
  - Best Probable Outcome = there is a 1% chance the anticipated monthly benefit is this high
  - Standard Deviation = the level of variability in the average outcome
- Recall that equity funds, on average, have a long-term return of around 8% (annually. Fixed-income funds, on average, have a long-term return of around 3% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

	Type of Fund	Target Date	Gross Expense Ratio	Target Allocation (equity/fixed-income)			Anticipated Retirement Benefit (Monthly Income, in today's dollars)*			
				Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund A	Target Date Fund	2052	0.60%	94% / 6%	79% / 21%	65% / 35%	$629	$2,863	$12,057	$1,835
Fund B	Target Date Fund	2052	0.20%	84% / 16%	69% / 31%	55% / 45%	$724	$2,682	$9,480	$1,447
Fund C	Target Date Fund	2052	0.20%	74% / 26%	59% / 41%	45% / 55%	$792	$2,351	$6,877	$1,035

Note. The numbers for the anticipated retirement benefit are estimates. These numbers assume you will be in retirement for 20 years, your wages will grow 3% annually while working, inflation will be 2% annually, and you will contribute 10% of your annual income to the account each year. The estimates include how much you have already accumulated in your retirement account, as answered earlier in the survey.

Recall This Information About Target Date Funds:
Recall Target Date Funds seek high total return over time through a combination of capital appreciation and income. These funds are designed to provide a single diversified portfolio managed with a target retirement date in mind. The target date is the approximate date when investors expect to begin withdrawing money from the Fund. Each portfolio invests primarily in underlying equity and fixed-income index funds. Over time, the Fund's target allocations will gradually become more conservative.

You have a retirement plan offered to you by your employer. Which of the funds would you like to choose to invest your retirement money into?
- o   Fund A
- o   Fund B
- o   Fund C

Confirm

Question 1–C1 (for those subjects who switched between 1–A and 1–B)

In the previous question, the gross expense ratio had been increased for the fund you had chosen earlier. As a result, you chose a different fund to invest your retirement funds.

What is the lowest gross expense ratio on your originally selected fund where you would not have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

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│   Confirm    │
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Question 1–C2 (for those subjects who did not switch choices between 1–A and 1–B)

In the previous question, the gross expense ratio had been increased for the fund you had chosen earlier. You continued to choose the fund that you had originally selected.

What is the highest gross expense ratio on your originally selected fund where you would have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

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To which fund would you have switched?
- o   Fund B
- o   Fund C

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┌──────────────┐
│   Confirm    │
└──────────────┘
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Question 2–A

Based on the information you gave in prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are a set of Target Date RILAs with target dates that appropriately correspond to your anticipated year of retirement. The Target Date RILAs shown below all have floors.

The table below shows information for each investment.
- The "Implied Gross Expense Ratio" indicates the cost for the investment implied by its cap rate. This number has been estimated to help you determine the implied cost of the product.
- The three columns under the "Floor/Cap Level" heading indicate how the floor and cap levels for the RILA change over time. That is, they show what the floor and cap will be for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is at your retirement age).
- Recall that for RILAs with a floor:
  - The floor is the guaranteed minimum return that can be earned.
  - The cap is the maximum return that can be earned.
- The columns under the heading "Anticipated Retirement Benefit (Monthly Annuity)" indicate the anticipated **monthly** income you will receive in retirement if you invest in that target date fund for all your working years.
  - Worst Probable Outcome = there is a 1% chance the anticipated monthly benefit is this low
  - Expected Outcome = the average or expected monthly benefit
  - Best Probable Outcome = there is a 1% chance the anticipated monthly benefit is this high
  - Standard Deviation = the level of variability in the average outcome
- Recall that equity funds, on average, have a long-term return of around 8% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

| | Type of Fund | Target Date | Implied Gross Expense Ratio | Floor/Cap Level | | | Anticipated Retirement Benefit (Monthly Income, in today's dollars)* | | | |
				Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund A	Target Date RILA	2052	0.20%	-24.37% / 26.71%	-14.87% / 19.02%	-6.00% / 11.19%	$770	$2,372	$7,052	$1,084
Fund B	Target Date RILA	2052	0.20%	-20.87% / 23.96%	-11.37% / 16.01%	-2.50% / 7.93%	$836	$2,084	$5,208	$774

Fund C	Target Date RILA	2052	0.20%	-18.87% / 22.38%	-9.37% / 14.21%	-0.50% / 6.06%	$875	$1,920	$4,292	$614

Note. The numbers for the anticipated retirement benefit are estimates. These numbers assume you will be in retirement for 20 years, your wages will grow 3% annually while working, inflation will be 2% annually, and you will contribute 10% of your annual income to the account each year. The estimates include how much you have already accumulated in your retirement account, as answered earlier in the survey.

Recall This information About Target Date RILAs With Floors:
The floor offers a minimum guarantee on the return. The floor is the lowest return the RILA could earn. For example, suppose a RILA has a floor of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -10%, the return on the RILA would only be -5% since that is the lowest return the RILA can earn (or the maximum loss that could be obtained).

As mentioned earlier, RILAs also have a cap, which is the maximum return the RILA can earn. Suppose the cap on a RILA is 8%. If the actual return on the index the RILA is associated with is 12%, the RILA would only earn a return of 8% since that is the cap and the maximum return the RILA can earn.

Target Date RILAs provide access to equity markets and automatically adjust the level of risk exposure over time. The target date is the approximate date when you expect to begin withdrawing money. As you near your target date, the buffer becomes larger (or the floor becomes smaller), thereby increasing your protection against negative outcomes. Additionally, the cap rate will be reduced accordingly as there will be less opportunity for large gains. The automatic adjustment in floors (or buffers) and cap rates creates a similar dynamic risk profile to Target Date Funds.

You have a retirement plan offered to you by your employer. Which of the funds below would you like to choose to invest your retirement money into?
- o   Fund A
- o   Fund B
- o   Fund C

Confirm

Question 2–B

Based on the information you gave in prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are a set of Target Date RILAs with target dates that appropriately correspond to your anticipated year of retirement. The Target Date RILAs shown below all have floors.

The table below shows information for each investment.
- The "Implied Gross Expense Ratio" indicates the cost for the investment implied by its cap rate. This number has been estimated to help you determine the implied cost of the product.
- The three columns under the "Floor/Cap Level" heading indicate how the floor and cap levels for the RILA change over time. That is, they show what the floor and cap will be for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is at your retirement age).
- Recall that for RILAs with a floor:
    o The floor is the guaranteed minimum return that can be earned.
    o The cap is the maximum return that can be earned.
- The columns under the heading "Anticipated Retirement Benefit (Monthly Annuity)" indicate the anticipated **monthly** income you will receive in retirement if you invest in that target date fund for all your working years.
    o Worst Probable Outcome = there is a 1% chance the anticipated monthly benefit is this low
    o Expected Outcome = the average or expected monthly benefit
    o Best Probable Outcome = there is a 1% chance the anticipated monthly benefit is this high
    o Standard Deviation = the level of variability in the average outcome
- Recall that equity funds, on average, have a long-term return of around 8% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

	Type of Fund	Target Date	Implied Gross Expense Ratio	Floor/Cap Level			Anticipated Retirement Benefit (Monthly Income, in today's dollars)*			
				Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund A	Target Date RILA	2052	0.60%	-24.37% / 22.90%	-14.87% / 16.92%	-6.00% / 9.93%	$741	$2,138	$5,970	$913
Fund B	Target Date RILA	2052	0.20%	-20.87% / 23.96%	-11.37% / 16.01%	-2.50% / 7.93%	$836	$2,084	$5,208	$774

| Fund C | Target Date RILA | 2052 | 0.20% | -18.87% / 22.38% | -9.37% / 14.21% | -0.50% / 6.06% | $875 | $1,920 | $4,292 | $614 |

Note. The numbers for the anticipated retirement benefit are estimates. These numbers assume you will be in retirement for 20 years, your wages will grow 3% annually while working, inflation will be 2% annually, and you will contribute 10% of your annual income to the account each year. The estimates include how much you have already accumulated in your retirement account, as answered earlier in the survey.

Recall This Information About Target Date RILAs With Floors:
The floor offers a minimum guarantee on the return. The floor is the lowest return the RILA could earn. For example, suppose a RILA has a floor of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -10%, the return on the RILA would only be -5% since that is the lowest return the RILA can earn (or the maximum loss that could be obtained).

As mentioned earlier, RILAs also have a cap, which is the maximum return the RILA can earn. Suppose the cap on a RILA is 8%. If the actual return on the index the RILA is associated with is 12%, the RILA would only earn a return of 8% since that is the cap and the maximum return the RILA can earn.

Target Date RILAs provide access to equity markets and automatically adjust the level of risk exposure over time. The target date is the approximate date when you expect to begin withdrawing money. As you near your target date, the buffer becomes larger (or the floor becomes smaller), thereby increasing your protection against negative outcomes. Additionally, the cap rate will be reduced accordingly as there will be less opportunity for large gains. The automatic adjustment in floors (or buffers) and cap rates creates a similar dynamic risk profile to Target Date Funds.

You have a retirement plan offered to you by your employer. Which of the funds below would you like to choose to invest your retirement money into?
   o Fund A
   o Fund B
   o Fund C

Confirm

Question 2–C1 (for those subjects who switched choices between 2–A and 2–B)

In the previous question, the implied gross expense ratio had been increased for the fund you had chosen earlier. As a result, you chose a different fund to invest your retirement funds.

What is the lowest gross expense ratio on your originally selected fund where you would not have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

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Question 2–C2 (for those subjects who did not switch choices between 2–A and 2–B)

In the previous question, the implied gross expense ratio had been increased for the fund you had chosen earlier. You continued to choose the fund that you had originally selected.

What is the highest gross expense ratio on your originally selected fund where you would have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

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To which fund would you have switched?
- o   Fund B
- o   Fund C

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Question 3–A

Based on the information you gave in prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are a set of Target Date RILAs with target dates that appropriately correspond to your anticipated year of retirement. The Target Date RILAs shown below all have buffers.

The table below shows information for each investment.
- The "Implied Gross Expense Ratio" indicates the cost for the investment implied by its cap rate. This number has been estimated to help you determine the implied cost of the product.
- The three columns under the "Buffer/Cap Level" heading indicate how the buffer and cap levels for the RILA change over time. That is, they show what the buffer and cap will be for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is at your retirement age).
- Recall that for RILAs with a buffer:
    o The buffer is the amount that limits losses when the return on the associated index is negative. That is, the buffer is the amount that the negative return on the index is reduced by to determine the return earned on the RILA.
    o The cap is the maximum return that can be earned.
- The columns under the heading "Anticipated Retirement Benefit (Monthly Annuity)" indicate the anticipated **monthly** income you will receive in retirement if you invest in that target date fund for all your working years.
    o Worst Probable Outcome = there is a 1% chance the anticipated monthly benefit is this low
    o Expected Outcome = the average or expected monthly benefit
    o Best Probable Outcome = there is a 1% chance the anticipated monthly benefit is this high
    o Standard Deviation = the level of variability in the average outcome
- Recall that equity funds, on average, have a long-term return of around 8% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

	Type of Fund	Target Date	Implied Gross Expense Ratio	Buffer/Cap Level			Anticipated Retirement Benefit (Monthly Income, in today's dollars)*			
				Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund A	Target Date RILA	2052	0.20%	-0.33% / 33.82%	-5.33% / 17.29%	-10.00% / 12.34%	$617	$2,363	$7,152	$1,146

Fund B	Target Date RILA	2052	0.20%	-2.83% / 22.18%	-7.83% / 14.19%	-12.50% / 10.75%	$652	$2,071	$5,151	$821
Fund C	Target Date RILA	2052	0.20%	-5.33% / 17.29%	-10.33% / 12.09%	-15.00% / 9.51%	$688	$1,878	$4,015	$622

Note. The numbers for the anticipated retirement benefit are estimates. These numbers assume you will be in retirement for 20 years, your wages will grow 3% annually while working, inflation will be 2% annually, and you will contribute 10% of your annual income to the account each year. The estimates include how much you have already accumulated in your retirement account, as answered earlier in the survey.

Recall the Following Information About Target Date RILAs With a Buffer:
The buffer limits the loss on the RILA when the return on the associated index is negative. That is, when the index associated with the RILA obtains a negative return, the return on the RILA is reduced by the buffer amount. For example, suppose a RILA has a buffer of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -8%, the return on the RILA would only be -3%. Since the RILA has a buffer which offers protection of -5%, the return on the RILA equals the return on the associated index reduced by this buffer amount.

Please note that if the buffer amount covers more than the negative return on the associated index, the return on the RILA will be zero. Buffers will not allow for positive returns on the RILA if the associated index had a negative return.

As mentioned earlier, RILAs also have a cap, which is the maximum return the RILA can earn. Suppose the cap on a RILA is 8%. If the actual return on the index the RILA is associated with is 12%, the RILA would only earn a return of 8% since that is the cap and the maximum return the RILA can earn.

Target Date RILAs provide access to equity markets and automatically adjust the level of risk exposure over time. The target date is the approximate date when you expect to begin withdrawing money. As you near your target date, the buffer becomes larger (or the floor becomes smaller), thereby increasing your protection against negative outcomes. Additionally, the cap rate will be reduced accordingly as there will be less opportunity for large gains. The automatic adjustment in floors (or buffers) and cap rates creates a similar dynamic risk profile to Target Date Funds.

You have a retirement plan offered to you by your employer. Which of the funds below would you like to choose to invest your retirement money into?
- o Fund A
- o Fund B
- o Fund C

Confirm

Question 3–B

Based on the information you gave in prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are a set of Target Date RILAs with target dates that appropriately correspond to your anticipated year of retirement. The Target Date RILAs shown below all have buffers.

The table below shows information for each investment.
- – The "Implied Gross Expense Ratio" indicates the cost for the investment implied by its cap rate. This number has been estimated to help you determine the implied cost of the product.
- – The three columns under the "Buffer/Cap Level" heading indicate how the buffer and cap levels for the RILA change over time. That is, they show what the buffer and cap will be for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is at your retirement age).
- – Recall that for RILAs with a buffer:
  - o The buffer is the amount that limits losses when the return on the associated index is negative. That is, the buffer is the amount by which the negative return on the index is reduced by to determine the return earned on the RILA.
  - o The cap is the maximum return that can be earned.
- – The columns under the heading "Anticipated Retirement Benefit (Monthly Annuity)" indicate the anticipated **monthly** income you will receive in retirement if you invest in that target date fund for all your working years.
  - o Worst Probable Outcome = there is a 1% chance the anticipated monthly benefit is this low
  - o Expected Outcome = the average or expected monthly benefit
  - o Best Probable Outcome = there is a 1% chance the anticipated monthly benefit is this high
  - o Standard Deviation = the level of variability in the average outcome
- – Recall that equity funds, on average, have a long-term return of around 8% (annually).
- – Recall that funds with greater risk (volatility) typically have higher returns.

	Type of Fund	Target Date	Implied Gross Expense Ratio	Buffer/Cap Level			Anticipated Retirement Benefit (Monthly Income, in today's dollars)*			
				Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund A	Target Date RILA	2052	0.60%	-0.33% / 27.24%	-5.33% / 15.43%	-10.00% / 11.02%	$591	$2,132	$6,062	$973

Fund B	Target Date RILA	2052	0.20%	-2.83% / 22.18%	-7.83% / 14.19%	-12.50% / 10.75%	$652	$2,071	$5,151	$821
Fund C	Target Date RILA	2052	0.20%	-5.33% / 17.29%	-10.33% / 12.09%	-15.00% / 9.51%	$688	$1,878	$4,015	$622

Note. The numbers for the anticipated retirement benefit are estimates. These numbers assume you will be in retirement for 20 years, your wages will grow 3% annually while working, inflation will be 2% annually, and you will contribute 10% of your annual income to the account each year. The estimates include how much you have already accumulated in your retirement account, as answered earlier in the survey.

Recall the Following Information About Target Date RILAs With a Buffer:
The buffer limits the loss on the RILA when the return on the associated index is negative. That is, when the index associated with the RILA obtains a negative return, the return on the RILA is reduced by the buffer amount. For example, suppose a RILA has a buffer of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -8%, the return on the RILA would only be -3%. Since the RILA has a buffer which offers protection of -5%, the return on the RILA equals the return on the associated index reduced by this buffer amount.

Please note that if the buffer amount covers more than the negative return on the associated index, the return on the RILA will be zero. Buffers will not allow for positive returns on the RILA if the associated index had a negative return.

As mentioned earlier, RILAs also have a cap, which is the maximum return the RILA can earn. Suppose the cap on a RILA is 8%. If the actual return on the index the RILA is associated with is 12%, the RILA would only earn a return of 8% since that is the cap and the maximum return the RILA can earn.

Target Date RILAs provide access to equity markets and automatically adjust the level of risk exposure over time. The target date is the approximate date when you expect to begin withdrawing money. As you near your target date, the buffer becomes larger (or the floor becomes smaller), thereby increasing your protection against negative outcomes. Additionally, the cap rate will be reduced accordingly as there will be less opportunity for large gains. The automatic adjustment in floors (or buffers) and cap rates creates a similar dynamic risk profile to Target Date Funds.

You have a retirement plan offered to you by your employer. Which of the funds below would you like to choose to invest your retirement money into?
- o Fund A
- o Fund B
- o Fund C

Confirm

Question 3–C1 (for those subjects who switched choices between 3–A and 3–B)

In the previous question, the implied gross expense ratio had been increased for the fund you had chosen earlier. As a result, you chose a different fund to invest your retirement funds.

What is the lowest gross expense ratio on your originally selected fund where you would not have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

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Question 3–C2 (for those subjects who did not switch choices between 3–A and 3–B)

In the previous question, the implied gross expense ratio had been increased for the fund you had chosen earlier. You continued to choose the fund that you had originally selected.

What is the highest gross expense ratio on your originally selected fund where you would have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

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To which fund would you have switched?
- o   Fund B
- o   Fund C

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Question 4–A

Based on the information you gave in the prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are three funds that you can select, all with target dates that appropriately correspond to your anticipated year of retirement. One fund is a Target Date Fund. The second fund is a Target Date RILA with a floor, and the third fund is a Target Date RILA with a buffer.

The tables below show information for each fund.
- For the Target Date Fund:
    - The Expense Ratio indicates the annual fee that will be charged for managing the fund.
    - The three columns under the "Target Allocation" heading for the Target Date Fund indicate how the asset allocation for the fund changes over time. That is, it shows what portion of the fund is invested in riskier equity versus safer fixed-income securities for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is the anticipated fund allocation at your retirement age).
- For the Target Date RILAs:
    - The "Implied Gross Expense Ratio" indicates the cost for the investment implied by its cap rate. This number has been estimated to help you determine the implied cost of the product.
    - The floor is the guaranteed minimum return that can be earned.
    - The buffer is the amount that limits losses when the return on the associated index is negative. That is, the buffer is the amount that the negative return on the index is reduced by to determine the return earned on the RILA.
    - The cap is the maximum return that can be earned.
- The columns under the heading "Anticipated Retirement Benefit (Monthly Annuity)" indicate the anticipated **monthly** income you will receive in retirement if you invest in that target date fund for all your working years.
    - Worst Probable Outcome = there is a 1% chance the anticipated monthly benefit is this low
    - Expected Outcome = the average or expected monthly benefit
    - Best Probable Outcome = there is a 1% chance the anticipated monthly benefit is this high
    - Standard Deviation = the level of variability in the average outcome
- Equity funds, on average, have a long-term return of around 8% (annually). Fixed-income funds, on average, have a long-term return of 3%.
- Recall that funds with greater risk (volatility) typically have higher returns.

	Type of Fund	Target Date		Target Allocation (equity/fixed-income)	Anticipated Retirement Benefit (Monthly Income, in today's dollars)*

			Gross Expense Ratio	Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund A	Target Date Fund	2052	0.20%	94% / 6%	79% / 21%	65% / 35%	$658	$3,065	$13,038	$1,986

				Floor/Cap Level			Anticipated Retirement Benefit (Monthly Income, in today's dollars)*			
	Type of Fund	Target Date	Implied Gross Expense Ratio	Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund B	Target Date RILA	2052	0.20%	-24.37% / 26.71%	-14.87% / 19.02%	-6.00% / 11.19%	$770	$2,372	$7,052	$1,084

				Buffer/Cap Level			Anticipated Retirement Benefit (Monthly Income, in today's dollars)*			
	Type of Fund	Target Date	Implied Gross Expense Ratio	Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund C	Target Date RILA	2052	0.20%	-0.33% / 33.82%	-5.33% / 17.29%	-10.00% / 12.34%	$617	$2,363	$7,152	$1,146

*Note. The numbers for the anticipated retirement benefit are estimates. These numbers assume you will be in retirement for 20 years, your wages will grow 3% annually while working, inflation will be 2% annually, and you will contribute 10% of your annual income to the account each year. The estimates include how much you have already accumulated in your retirement account, as answered earlier in the survey.

Recall This Information About Target Date Funds:
Target Date Funds seek high total return over time through a combination of capital appreciation and income. These funds are designed to provide a single diversified portfolio managed with a target retirement date in mind. The target date is the approximate date when investors expect to begin withdrawing money from the Fund. Each portfolio invests primarily in underlying equity and fixed-income index funds. Over time, the Fund's target allocations will gradually become more conservative.

Recall the following Information about Target Date RILAs:
Target Date RILAs provide access to equity markets and automatically adjust the level of risk exposure over time. The target date is the approximate date when you expect to begin withdrawing money. As you near your target date, the buffer becomes larger (or the floor

becomes smaller), thereby increasing your protection against negative outcomes. Additionally, the cap rate will be reduced accordingly as there will be less opportunity for large gains. The automatic adjustment in floors (or buffers) and cap rates creates a similar dynamic risk profile to Target Date Funds.

Floor: The floor offers a minimum guarantee on the return. The floor is the lowest return the RILA could earn. For example, suppose a RILA has a floor of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -10%, the return on the RILA would only be -5% since that is the lowest return the RILA can earn (or the maximum loss that could be obtained).

Buffer: The buffer limits the loss on the RILA when the return on the associated index is negative. That is, when the index associated with the RILA obtains a negative return, the return on the RILA is reduced by the buffer amount. For example, suppose a RILA has a buffer of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -8%, the return on the RILA would only be -3%. Since the RILA has a buffer which offers protection of -5%, the return on the RILA equals the return on the associated index reduced by this buffer amount.

Cap: The cap is the maximum return the RILA can earn. Suppose the cap on a RILA is 8%. If the actual return on the index the RILA is associated with is 12%, the RILA would only earn a return of 8% since that is the cap and the maximum return the RILA can earn.

You have a retirement plan offered to you by your employer. Which of the funds below would you like to choose to invest your retirement money into?
- o   Fund A
- o   Fund B
- o   Fund C

Confirm

Question 4–B

Based on the information you gave in the prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are three funds which you can select, all with target dates that appropriately correspond to your anticipated year of retirement. One fund is a Target Date Fund. The second fund is a Target Date RILA with a floor and the third fund is a Target Date RILA with a buffer.

The tables below show information for each fund.
- For the Target Date Fund:
  o The Expense Ratio indicates the annual fee that will be charged for managing the fund.
  o The three columns under the "Target Allocation" heading for the Target Date Fund indicate how the asset allocation for the fund changes over time. That is, it shows what portion of the fund is invested in riskier equity versus safer fixed-income securities for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is the anticipated fund allocation at your retirement age).
- For the Target Date RILAs:
  o The "Implied Gross Expense Ratio" indicates the cost for the investment implied by its cap rate. This number has been estimated to help you determine the implied cost of the product.
  o The floor is the guaranteed minimum return that can be earned.
  o The buffer is the amount that limits losses when the return on the associated index is negative. That is, the buffer is the amount that the negative return on the index is reduced by to determine the return earned on the RILA.
  o The cap is the maximum return that can be earned.
- The columns under the heading "Anticipated Retirement Benefit (Monthly Annuity)" indicate the anticipated **monthly** income you will receive in retirement if you invest in that target date fund for all your working years.
  o Worst Probable Outcome = there is a 1% chance the anticipated monthly benefit is this low
  o Expected Outcome = the average or expected monthly benefit
  o Best Probable Outcome = there is a 1% chance the anticipated monthly benefit is this high
  o Standard Deviation = the level of variability in the average outcome
- Equity funds, on average, have a long-term return of around 8% (annually). Fixed-income funds, on average, have a long-term return of 3%.
- Recall that funds with greater risk (volatility) typically have higher returns.

	Type of Fund	Target Date		Target Allocation (equity/fixed-income)	Anticipated Retirement Benefit (Monthly Income, in today's dollars)*

			Gross Expense Ratio	Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund A	Target Date Fund	2052	0.60%	94% / 6%	79% / 21%	65% / 35%	$629	$2,863	$12,057	$1,835

				Floor/Cap Level			Anticipated Retirement Benefit (Monthly Income, in today's dollars)*			
	Type of Fund	Target Date	Implied Gross Expense Ratio	Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund B	Target Date RILA	2052	0.20%	-24.37% / 26.71%	-14.87% / 19.02%	-6.00% / 11.19%	$770	$2,372	$7,052	$1,084

				Buffer/Cap Level			Anticipated Retirement Benefit (Monthly Income, in today's dollars)*			
	Type of Fund	Target Date	Implied Gross Expense Ratio	Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund C	Target Date RILA	2052	0.20%	-0.33% / 33.82%	-5.33% / 17.29%	-10.00% / 12.34%	$617	$2,363	$7,152	$1,146

*Note: The numbers for the anticipated retirement benefit are estimates. These numbers assume you will be in retirement for 20 years, your wages will grow 3% annually while working, inflation will be 2% annually, and you will contribute 10% of your annual income to the account each year. The estimates include how much you have already accumulated in your retirement account, as answered earlier in the survey.

Recall This Information About Target Date Funds:
Target Date Funds seek high total return over time through a combination of capital appreciation and income. These funds are designed to provide a single diversified portfolio managed with a target retirement date in mind. The target date is the approximate date when investors expect to begin withdrawing money from the Fund. Each portfolio invests primarily in underlying equity and fixed-income index funds. Over time, the Fund's target allocations will gradually become more conservative.

Recall the Following Information About Target Date RILAs:
Target Date RILAs provide access to equity markets and automatically adjust the level of risk exposure over time. The target date is the approximate date when you expect to begin withdrawing money. As you near your target date, the buffer becomes larger (or the floor

becomes smaller), thereby increasing your protection against negative outcomes. Additionally, the cap rate will be reduced accordingly as there will be less opportunity for large gains. The automatic adjustment in floors (or buffers) and cap rates creates a similar dynamic risk profile to Target Date Funds.

Floor: The floor offers a minimum guarantee on the return. The floor is the lowest return the RILA could earn. For example, suppose a RILA has a floor of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -10%, the return on the RILA would only be -5% since that is the lowest return the RILA can earn (or the maximum loss that could be obtained).

Buffer: The buffer limits the loss on the RILA when the return on the associated index is negative. That is, when the index associated with the RILA obtains a negative return, the return on the RILA is reduced by the buffer amount. For example, suppose a RILA has a buffer of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -8%, the return on the RILA would only be -3%. Since the RILA has a buffer which offers protection of -5%, the return on the RILA equals the return on the associated index reduced by this buffer amount.

Cap: The cap is the maximum return the RILA can earn. Suppose the cap on a RILA is 8%. If the actual return on the index the RILA is associated with is 12%, the RILA would only earn a return of 8% since that is the cap and maximum return the RILA can earn.

You have a retirement plan offered to you by your employer. Which of the funds below would you like to choose to invest your retirement money into?
- o   Fund A
- o   Fund B
- o   Fund C

Confirm

Question 4–C1

In the previous question, the gross expense ratio or implied gross ratio had been increased for the fund you had chosen earlier. As a result, you chose a different fund to invest your retirement funds.

What is the lowest gross expense ratio on your originally selected fund where you would not have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

Confirm

Question 4–C2

In the previous question, the gross expense ratio or implied gross expense ratio had been increased for the fund you had chosen earlier. You continued to choose the fund that you had originally selected.

What is the highest gross expense ratio on your originally selected fund where you would have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

To which fund would you have switched?
- o   Fund B
- o   Fund C

Confirm

Group 4 Questions (Distributional Info, Default)

Question 1–A

Based on the information you gave in the prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are a set of target date funds with target dates that appropriately correspond to your anticipated year of retirement.

The table below shows information for each fund.
- The "Gross Expense Ratio" indicates the annual fee that will be charged for managing the fund.
- The three columns under the "Target Allocation" heading indicate how the asset allocation for the fund changes over time. That is, they show what portion of the fund is invested in riskier equity versus safer fixed-income securities for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is the anticipated fund allocation at your retirement age).
- The columns under the heading "Anticipated Retirement Benefit (Monthly Annuity)" indicate the anticipated **monthly** income you will receive in retirement if you invest in that target date fund for all your working years.
  - Worst Probable Outcome = there is a 1% chance the anticipated monthly benefit is this low
  - Expected Outcome = the average or expected monthly benefit
  - Best Probable Outcome = there is a 1% chance the anticipated monthly benefit is this high
  - Standard Deviation = the level of variability in the average outcome
- Recall that equity funds, on average, have a long-term return of around 8% (annually). Fixed-income funds, on average, have a long-term return of around 3% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

Your employer has already chosen the following target date fund to invest retirement money for employees who do not actively choose an investment:

	Type of Fund	Target Date	Gross Expense Ratio	Target Allocation (equity/fixed-income)			Anticipated Retirement Benefit (Monthly Income, in today's dollars)*			
				Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund A	Target Date Fund	2052	0.20%	94% / 6%	79% / 21%	65% / 35%	$658	$3,065	$13,038	$1,986

You also have the choice to invest in one of the following funds if you would like:

	Type of Fund	Target Date	Gross Expense Ratio	Target Allocation (equity/fixed-income)			Anticipated Retirement Benefit (Monthly Income, in today's dollars)*			
				Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund B	Target Date Fund	2052	0.20%	84% / 16%	69% / 31%	55% / 45%	$724	$2,682	$9,480	$1,447
Fund C	Target Date Fund	2052	0.20%	74% / 26%	59% / 41%	45% / 55%	$792	$2,351	$6,877	$1,035

Note. The numbers for the anticipated retirement benefit are estimates. These numbers assume you will be in retirement for 20 years, your wages will grow 3% annually while working, inflation will be 2% annually, and you will contribute 10% of your annual income to the account each year. The estimates include how much you have already accumulated in your retirement account, as answered earlier in the survey.

Recall This Information About Target Date Funds:
Target Date Funds seek high total return over time through a combination of capital appreciation and income. These funds are designed to provide a single diversified portfolio managed with a target retirement date in mind. The target date is the approximate date when investors expect to begin withdrawing money from the Fund. Each portfolio invests primarily in underlying equity and fixed-income index funds. Over time, the Fund's target allocations will gradually become more conservative.

You have a retirement plan offered to you by your employer. Which of the funds would you like to choose to invest your retirement money into?
- o   Fund A
- o   Fund B
- o   Fund C

Confirm

Question 1–B

Based on the information you gave in the prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are a set of target date funds with target dates that appropriately correspond to your anticipated year of retirement.

The table below shows information for each fund.
- The "Gross Expense Ratio" indicates the annual fee that will be charged for managing the fund.
- The three columns under the "Target Allocation" heading indicate how the asset allocation for the fund changes over time. That is, it shows what portion of the fund is invested in riskier equity versus safer-fixed income securities for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is the anticipated fund allocation at your retirement age).
- The columns under the heading "Anticipated Retirement Benefit (Monthly Annuity)" indicate the anticipated **monthly** income you will receive in retirement if you invest in that target date fund for all your working years.
    o Worst Probable Outcome = there is a 1% chance the anticipated monthly benefit is this low
    o Expected Outcome = the average or expected monthly benefit
    o Best Probable Outcome = there is a 1% chance the anticipated monthly benefit is this high
    o Standard Deviation = the level of variability in the average outcome
- Recall that equity funds, on average, have a long-term return of around 8% (annually). Fixed-income funds, on average, have a long-term return of around 3% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

Your employer has already chosen the following target date fund to invest retirement money for employees who do not actively choose an investment:

	Type of Fund	Target Date	Gross Expense Ratio	Target Allocation (equity/fixed-income)			Anticipated Retirement Benefit (Monthly Income, in today's dollars)*			
				Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund A	Target Date Fund	2052	0.60%	94% / 6%	79% / 21%	65% / 35%	$629	$2,863	$12,057	$1,835

You also have the choice to invest in one of the following funds if you would like:

	Type of Fund	Target Date		Target Allocation (equity/fixed-income)	Anticipated Retirement Benefit (Monthly Income, in today's dollars)*

			Gross Expense Ratio	Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund B	Target Date Fund	2052	0.20%	84% / 16%	69% / 31%	55% / 45%	$724	$2,682	$9,480	$1,447
Fund C	Target Date Fund	2052	0.20%	74% / 26%	59% / 41%	45% / 55%	$792	$2,351	$6,877	$1,035

Note. The numbers for the anticipated retirement benefit are estimates. These numbers assume you will be in retirement for 20 years, your wages will grow 3% annually while working, inflation will be 2% annually, and you will contribute 10% of your annual income to the account each year. The estimates include how much you have already accumulated in your retirement account, as answered earlier in the survey.

Recall this Information about Target Date Funds:
Recall Target Date Funds seek high total return over time through a combination of capital appreciation and income. These funds are designed to provide a single diversified portfolio managed with a target retirement date in mind. The target date is the approximate date when investors expect to begin withdrawing money from the Fund. Each portfolio invests primarily in underlying equity and fixed-income index funds. Over time, the Fund's target allocations will gradually become more conservative.

You have a retirement plan offered to you by your employer. Which of the funds would you like to choose to invest your retirement money into?

o Fund A
o Fund B
o Fund C

Confirm

Question 1–C1 (for those subjects who switched choices between 1–A and 1–B)

In the previous question, the gross expense ratio had been increased for the fund you had chosen earlier. As a result, you chose a different fund to invest your retirement funds.

What is the lowest gross expense ratio on your originally selected fund where you would not have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

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Question 1–C2 (for those subjects who did not switch choices between 1–A and 1–B)

In the previous question, the gross expense ratio had been increased for the fund you had chosen earlier. You continued to choose the fund that you had originally selected.

What is the highest gross expense ratio on your originally selected fund where you would have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

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To which fund would you have switched?
- o   Fund B
- o   Fund C

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Question 2–A

Based on the information you gave in prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are a set of Target Date RILAs with target dates that appropriately correspond to your anticipated year of retirement. The Target Date RILAs shown below all have floors.

The table below shows information for each investment.
- The "Implied Gross Expense Ratio" indicates the cost for the investment implied by its cap rate. This number has been estimated to help you determine the implied cost of the product.
- The three columns under the "Floor/Cap Level" heading indicate how the floor and cap levels for the RILA change over time. That is, they show what the floor and cap will be for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is at your retirement age.)
- Recall that for RILAs with a floor:
    o The floor is the guaranteed minimum return that can be earned.
    o The cap is the maximum return that can be earned.
- The columns under the heading "Anticipated Retirement Benefit (Monthly Annuity)" indicate the anticipated **monthly** income you will receive in retirement if you invest in that target date fund for all your working years.
    o Worst Probable Outcome = there is a 1% chance the anticipated monthly benefit is this low
    o Expected Outcome = the average or expected monthly benefit
    o Best Probable Outcome = there is a 1% chance the anticipated monthly benefit is this high
    o Standard Deviation = the level of variability in the average outcome
- Recall that equity funds, on average, have a long-term return of around 8% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

Your employer has already chosen the following Target Date RILA to invest retirement money for employees who do not actively choose an investment:

	Type of Fund	Target Date	Implied Gross Expense Ratio	Floor/Cap Level			Anticipated Retirement Benefit (Monthly Income, in today's dollars)*			
				Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund A	Target Date RILA	2052	0.20%	-24.37% / 26.71%	-14.87% / 19.02%	-6.00% / 11.19%	$770	$2,372	$7,052	$1,084

You also have the choice to invest in one of the following investments if you would like:

	Type of Fund	Target Date	Implied Gross Expense Ratio	Floor/Cap Level			Anticipated Retirement Benefit (Monthly Income, in today's dollars)*			
				Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund B	Target Date RILA	2052	0.20%	-20.87% / 23.96%	-11.37% / 16.01%	-2.50% / 7.93%	$836	$2,084	$5,208	$774
Fund C	Target Date RILA	2052	0.20%	-18.87% / 22.38%	-9.37% / 14.21%	-0.50% / 6.06%	$875	$1,920	$4,292	$614

Note. The numbers for the anticipated retirement benefit are estimates. These numbers assume you will be in retirement for 20 years, your wages will grow 3% annually while working, inflation will be 2% annually, and you will contribute 10% of your annual income to the account each year. The estimates include how much you have already accumulated in your retirement account, as answered earlier in the survey.

Recall This Information About Target Date RILAs With Floors:
The floor offers a minimum guarantee on the return. The floor is the lowest return the RILA could earn. For example, suppose a RILA has a floor of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -10%, the return on the RILA would only be -5% since that is the lowest return the RILA can earn (or the maximum loss that could be obtained).

As mentioned earlier RILAs also have a cap, which is the maximum return the RILA can earn. Suppose the cap on a RILA is 8%. If the actual return on the index the RILA is associated with is 12%, the RILA would only earn a return of 8% since that is the cap and the maximum return the RILA can earn.

Target Date RILAs provide access to equity markets and automatically adjust the level of risk exposure over time. The target date is the approximate date when you expect to begin withdrawing money. As you near your target date, the buffer becomes larger (or the floor becomes smaller), thereby increasing your protection against negative outcomes. Additionally, the cap rate will be reduced accordingly as there will be less opportunity for large gains. The automatic adjustment in floors (or buffers) and cap rates creates a similar dynamic risk profile to Target Date Funds.

You have a retirement plan offered to you by your employer. Which of the funds below would you like to choose to invest your retirement money into?
- o Fund A
- o Fund B
- o Fund C

Confirm

Question 2–B

Based on the information you gave in prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are a set of Target Date RILAs with target dates that appropriately correspond to your anticipated year of retirement. The Target Date RILAs shown below all have floors.

The table below shows information for each investment.
- – The "Implied Gross Expense Ratio" indicates the cost for the investment implied by its cap rate. This number has been estimated to help you determine the implied cost of the product.
- – The three columns under the "Floor/Cap Level" heading indicate how the floor and cap levels for the RILA changes over time. That is, it shows what the floor and cap will be for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is at your retirement age).
- – Recall that for RILAs with a floor:
  - o The floor is the guaranteed minimum return that can be earned.
  - o The cap is the maximum return that can be earned.
- – The columns under the heading "Anticipated Retirement Benefit (Monthly Annuity)" indicate the anticipated **monthly** income you will receive in retirement if you invest in that target date fund for all your working years.
  - o Worst Probable Outcome = there is a 1% chance the anticipated monthly benefit is this low
  - o Expected Outcome = the average or expected monthly benefit
  - o Best Probable Outcome = there is a 1% chance the anticipated monthly benefit is this high
  - o Standard Deviation = the level of variability in the average outcome
- – Recall that equity funds, on average, have a long-term return of around 8% (annually).
- – Recall that funds with greater risk (volatility) typically have higher returns.

Your employer has already chosen the following Target Date RILA to invest retirement money for employees who do not actively choose an investment:

| | Type of Fund | Target Date | Implied Gross Expense Ratio | Floor/Cap Level | | | Anticipated Retirement Benefit (Monthly Income, in today's dollars)* | | | |
				Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund A	Target Date RILA	2052	0.60%	-24.37% / 22.90%	-14.87% / 16.92%	-6.00% / 9.93%	$741	$2,138	$5,970	$913

You also have the choice to invest in one of the following investments if you would like:

	Type of Fund	Target Date	Implied Gross Expense Ratio	Floor/Cap Level			Anticipated Retirement Benefit (Monthly Income, in today's dollars)*			
				Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund B	Target Date RILA	2052	0.20%	-20.87% / 23.96%	-11.37% / 16.01%	-2.50% / 7.93%	$836	$2,084	$5,208	$774
Fund C	Target Date RILA	2052	0.20%	-18.87% / 22.38%	-9.37% / 14.21%	-0.50% / 6.06%	$875	$1,920	$4,292	$614

Note. The numbers for the anticipated retirement benefit are estimates. These numbers assume you will be in retirement for 20 years, your wages will grow 3% annually while working, inflation will be 2% annually, and you will contribute 10% of your annual income to the account each year. The estimates include how much you have already accumulated in your retirement account, as answered earlier in the survey.

Recall This Information About Target Date RILAs With Floors:
The floor offers a minimum guarantee on the return. The floor is the lowest return the RILA could earn. For example, suppose a RILA has a floor of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -10%, the return on the RILA would only be -5% since that is the lowest return the RILA can earn (or the maximum loss that could be obtained).

As mentioned earlier RILAs also have a cap, which is the maximum return the RILA can earn. Suppose the cap on a RILA is 8%. If the actual return on the index the RILA is associated with is 12%, the RILA would only earn a return of 8% since that is the cap and the maximum return the RILA can earn.

Target Date RILAs provide access to equity markets and automatically adjust the level of risk exposure over time. The target date is the approximate date when you expect to begin withdrawing money. As you near your target date, the buffer becomes larger (or the floor becomes smaller), thereby increasing your protection against negative outcomes. Additionally, the cap rate will be reduced accordingly as there will be less opportunity for large gains. The automatic adjustment in floors (or buffers) and cap rates creates a similar dynamic risk profile to Target Date Funds.

You have a retirement plan offered to you by your employer. Which of the funds below would you like to choose to invest your retirement money into?
- o Fund A
- o Fund B
- o Fund C

Confirm

Question 2–C1 (for those subjects who switched choices between 2–A and 2–B)

In the previous question, the implied gross expense ratio had been increased for the fund you had chosen earlier. As a result, you chose a different fund to invest your retirement funds.

What is the lowest gross expense ratio on your originally selected fund where you would not have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

Confirm

Question 2–C2 (for those subjects who did not switch choices between 2–A and 2–B)

In the previous question, the implied gross expense ratio had been increased for the fund you had chosen earlier. You continued to choose the fund that you had originally selected.

What is the highest gross expense ratio on your originally selected fund where you would have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

To which fund would you have switched?
- o   Fund B
- o   Fund C

Confirm

Question 3–A

Based on the information you gave in prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are a set of Target Date RILAs with target dates that appropriately correspond to your anticipated year of retirement. The Target Date RILAs shown below all have buffers.

The table below shows information for each investment.
- The "Implied Gross Expense Ratio" indicates the cost for the investment implied by its cap rate. This number has been estimated to help you determine the implied cost of the product.
- The three columns under the "Buffer/Cap Level" heading indicate how the buffer and cap levels for the RILA change over time. That is, they show what the buffer and cap will be for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is at your retirement age).
- Recall that for RILAs with a buffer:
    - The buffer is the amount that limits losses when the return on the associated index is negative. That is, the buffer is the amount that the negative return on the index is reduced by to determine the return earned on the RILA.
    - The cap is the maximum return that can be earned.
- The columns under the heading "Anticipated Retirement Benefit (Monthly Annuity)" indicate the anticipated **monthly** income you will receive in retirement if you invest in that target date fund for all your working years.
    - Worst Probable Outcome = there is a 1% chance the anticipated monthly benefit is this low
    - Expected Outcome = the average or expected monthly benefit
    - Best Probable Outcome = there is a 1% chance the anticipated monthly benefit is this high
    - Standard Deviation = the level of variability in the average outcome
- Recall that equity funds, on average, have a long-term return of around 8% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

Your employer has already chosen the following Target Date RILA to invest retirement money for employees who do not actively choose an investment:

	Type of Fund	Target Date	Implied Gross Expense Ratio	Buffer/Cap Level			Anticipated Retirement Benefit (Monthly Income, in today's dollars)*			
				Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund A	Target Date RILA	2052	0.20%	-0.33% / 33.82%	-5.33% / 17.29%	-10.00% / 12.34%	$617	$2,363	$7,152	$1,146

You also have the choice to invest in one of the following investments if you would like:

	Type of Fund	Target Date	Implied Gross Expense Ratio	Buffer/Cap Level			Anticipated Retirement Benefit (Monthly Income, in today's dollars)*			
				Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund B	Target Date RILA	2052	0.20%	-2.83% / 22.18%	-7.83% / 14.19%	-12.50% / 10.75%	$652	$2,071	$5,151	$821
Fund C	Target Date RILA	2052	0.20%	-5.33% / 17.29%	-10.33% / 12.09%	-15.00% / 9.51%	$688	$1,878	$4,015	$622

Note. The numbers for the anticipated retirement benefit are estimates. These numbers assume you will be in retirement for 20 years, your wages will grow 3% annually while working, inflation will be 2% annually, and you will contribute 10% of your annual income to the account each year. The estimates include how much you have already accumulated in your retirement account, as answered earlier in the survey.

Recall the Following Information About Target Date RILAs With a Buffer:
The buffer limits the loss on the RILA when the return on the associated index is negative. That is, when the index associated with the RILA obtains a negative return, the return on the RILA is reduced by the buffer amount. For example, suppose a RILA has a buffer of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -8%, the return on the RILA would only be -3%. Since the RILA has a buffer which offers protection of -5%, the return on the RILA equals the return on the associated index reduced by this buffer amount.

Please note that if the buffer amount covers more than the negative return on the associated index, the return on the RILA will be zero. Buffers will not allow for positive returns on the RILA if the associated index had a negative return.

As mentioned earlier RILAs also have a cap, which is the maximum return the RILA can earn. Suppose the cap on a RILA is 8%. If the actual return on the index the RILA is associated with is 12%, the RILA would only earn a return of 8% since that is the cap and maximum return the RILA can earn.

Target Date RILAs provide access to equity markets and automatically adjust the level of risk exposure over time. The target date is the approximate date when you expect to begin withdrawing money. As you near your target date, the buffer becomes larger (or the floor becomes smaller), thereby increasing your protection against negative outcomes. Additionally, the cap rate will be reduced accordingly as there will be less opportunity for large gains. The automatic adjustment in floors (or buffers) and cap rates creates a similar dynamic risk profile to Target Date Funds.

You have a retirement plan offered to you by your employer. Which of the funds below would you like to choose to invest your retirement money into?
- o Fund A
- o Fund B
- o Fund C

Confirm

Question 3–B

Based on the information you gave in prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are a set of Target Date RILAs with target dates that appropriately correspond to your anticipated year of retirement. The Target Date RILAs shown below all have buffers.

The table below shows information for each investment.
- The "Implied Gross Expense Ratio" indicates the cost for the investment implied by its cap rate. This number has been estimated to help you determine the implied cost of the product.
- The three columns under the "Buffer/Cap Level" heading indicate how the buffer and cap levels for the RILA change over time. That is, they show what the buffer and cap will be for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is at your retirement age).
- Recall that for RILAs with a buffer:
  - The buffer is the amount that limits losses when the return on the associated index is negative. That is, the buffer is the amount that the negative return on the index is reduced by to determine the return earned on the RILA.
  - The cap is the maximum return that can be earned.
- The columns under the heading "Anticipated Retirement Benefit (Monthly Annuity)" indicate the anticipated **monthly** income you will receive in retirement if you invest in that target date fund for all your working years.
  - Worst Probable Outcome = there is a 1% chance the anticipated monthly benefit is this low
  - Expected Outcome = the average or expected monthly benefit
  - Best Probable Outcome = there is a 1% chance the anticipated monthly benefit is this high
  - Standard Deviation = the level of variability in the average outcome
- Recall that equity funds, on average, have a long-term return of around 8% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

Your employer has already chosen the following Target Date RILA to invest retirement money for employees who do not actively choose an investment:

| | Type of Fund | Target Date | Implied Gross Expense Ratio | Buffer / Cap Level | | | Anticipated Retirement Benefit (Monthly Income, in today's dollars)* | | | |
				Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund A	Target Date RILA	2052	0.60%	-0.33% / 27.24%	-5.33% / 15.43%	-10.00% / 11.02%	$591	$2,132	$6,062	$973

You also have the choice to invest in one of the following investments if you would like:

	Type of Fund	Target Date	Implied Gross Expense Ratio	Buffer / Cap Level			Anticipated Retirement Benefit (Monthly Income, in today's dollars)*			
				Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund B	Target Date RILA	2052	0.20%	-2.83% / 22.18%	-7.83% / 14.19%	-12.50% / 10.75%	$652	$2,071	$5,151	$821
Fund C	Target Date RILA	2052	0.20%	-5.33% / 17.29%	-10.33% / 12.09%	-15.00% / 9.51%	$688	$1,878	$4,015	$622

*Note. The numbers for the anticipated retirement benefit are estimates. These numbers assume you will be in retirement for 20 years, your wages will grow 3% annually while working, inflation will be 2% annually, and you will contribute 10% of your annual income to the account each year. The estimates include how much you have already accumulated in your retirement account, as answered earlier in the survey.

Recall the Following Information About Target Date RILAs With a Buffer:
The buffer limits the loss on the RILA when the return on the associated index is negative. That is, when the index associated with the RILA obtains a negative return, the return on the RILA is reduced by the buffer amount. For example, suppose a RILA has a buffer of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -8%, the return on the RILA would only be -3%. Since the RILA has a buffer which offers protection of -5%, the return on the RILA equals the return on the associated index reduced by this buffer amount.

Please note that if the buffer amount covers more than the negative return on the associated index, the return on the RILA will be zero. Buffers will not allow for positive returns on the RILA if the associated index had a negative return.

As mentioned earlier RILAs also have a cap, which is the maximum return the RILA can earn. Suppose the cap on a RILA is 8%. If the actual return on the index the RILA is associated with is 12%, the RILA would only earn a return of 8% since that is the cap and maximum return the RILA can earn.

Target Date RILAs provide access to equity markets and automatically adjust the level of risk exposure over time. The target date is the approximate date when you expect to begin withdrawing money. As you near your target date, the buffer becomes larger (or the floor becomes smaller), thereby increasing your protection against negative outcomes. Additionally, the cap rate will be reduced accordingly as there will be less opportunity for large gains. The automatic adjustment in floors (or buffers) and cap rates creates a similar dynamic risk profile to Target Date Funds.

You have a retirement plan offered to you by your employer. Which of the funds below would you like to choose to invest your retirement money into?
- o Fund A
- o Fund B
- o Fund C

Confirm

Question 3–C1 (for those subjects who switched choices between 3–A and 3–B)

In the previous question, the implied gross expense ratio had been increased for the fund you had chosen earlier. As a result, you chose a different fund to invest your retirement funds.

What is the lowest gross expense ratio on your originally selected fund where you would not have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

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Question 3–C2 (for those subjects who did not switch choices between 3–A and 3–B)

In the previous question, the implied gross expense ratio had been increased for the fund you had chosen earlier. You continued to choose the fund that you had originally selected.

What is the highest gross expense ratio on your originally selected fund where you would have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

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To which fund would you have switched?
- o   Fund B
- o   Fund C

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Question 4–A

Based on the information you gave in the prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are three funds which you can select, all with target dates that appropriately correspond to your anticipated year of retirement. One fund is a Target Date Fund. The second fund is a Target Date RILA with a floor, and the third fund is a Target Date RILA with a buffer.

The tables below show information for each fund.
- For the Target Date Fund:
  - The Expense Ratio indicates the annual fee that will be charged for managing the fund.
  - The three columns under the "Target Allocation" heading for the Target Date Fund indicate how the asset allocation for the fund changes over time. That is, they show what portion of the fund is invested in riskier equity versus safer fixed-income securities for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is the anticipated fund allocation at your retirement age).
- For the Target Date RILAs:
  - The "Implied Gross Expense Ratio" indicates the cost for the investment implied by its cap rate. This number has been estimated to help you determine the implied cost of the product.
  - The floor is the guaranteed minimum return that can be earned.
  - The buffer is the amount that limits losses when the return on the associated index is negative. That is, the buffer is the amount that the negative return on the index is reduced by to determine the return earned on the RILA.
  - The cap is the maximum return that can be earned.
- The columns under the heading "Anticipated Retirement Benefit (Monthly Annuity)" indicate the anticipated **monthly** income you will receive in retirement if you invest in that target date fund for all your working years.
  - Worst Probable Outcome = there is a 1% chance the anticipated monthly benefit is this low
  - Expected Outcome = the average or expected monthly benefit
  - Best Probable Outcome = there is a 1% chance the anticipated monthly benefit is this high
  - Standard Deviation = the level of variability in the average outcome
- Equity funds, on average, have a long-term return of around 8% (annually). Fixed-income funds, on average, have a long-term return of around 3% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

Your employer has already chosen the following target date fund to invest retirement money for employees who do not actively choose an investment:

	Type of Fund	Target Date	Gross Expense Ratio	Target Allocation (equity/fixed-income)			Anticipated Retirement Benefit (Monthly Income, in today's dollars)*			
				Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund A	Target Date Fund	2052	0.20%	94% / 6%	79% / 21%	65% / 35%	$658	$3,065	$13,038	$1,986

You also have the choice to invest in one of the following investments if you would like:

	Type of Fund	Target Date	Implied Gross Expense Ratio	Floor/Cap Level			Anticipated Retirement Benefit (Monthly Income, in today's dollars)*			
				Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund B	Target Date RILA	2052	0.20%	-24.37% / 26.71%	-14.87% / 19.02%	-6.00% / 11.19%	$770	$2,372	$7,052	$1,084

	Type of Fund	Target Date	Implied Gross Expense Ratio	Buffer/Cap Level			Anticipated Retirement Benefit (Monthly Income, in today's dollars)*			
				Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund C	Target Date RILA	2052	0.20%	-0.33% / 33.82%	-5.33% / 17.29%	-10.00% / 12.34%	$617	$2,363	$7,152	$1,146

Note. The numbers for the anticipated retirement benefit are estimates. These numbers assume you will be in retirement for 20 years, your wages will grow 3% annually while working, inflation will be 2% annually, and you will contribute 10% of your annual income to the account each year. The estimates include how much you have already accumulated in your retirement account, as answered earlier in the survey.

Recall This Information About Target Date Funds:
Target Date Funds seek high total return over time through a combination of capital appreciation and income. These funds are designed to provide a single diversified portfolio managed with a target retirement date in mind. The target date is the approximate date when investors expect to begin withdrawing money from the Fund. Each portfolio invests primarily in underlying equity and fixed-income index funds. Over time, the Fund's target allocations will gradually become more conservative.

Recall the Following Information About Target Date RILAs:

Target Date RILAs provide access to equity markets and automatically adjust the level of risk exposure over time. The target date is the approximate date when you expect to begin withdrawing money. As you near your target date, the buffer becomes larger (or the floor becomes smaller), thereby increasing your protection against negative outcomes. Additionally, the cap rate will be reduced accordingly as there will be less opportunity for large gains. The automatic adjustment in floors (or buffers) and cap rates creates a similar dynamic risk profile to Target Date Funds.

Floor: The floor offers a minimum guarantee on the return. The floor is the lowest return the RILA could earn. For example, suppose a RILA has a floor of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -10%, the return on the RILA would only be -5% since that is the lowest return the RILA can earn (or the maximum loss that could be obtained).

Buffer: The buffer limits the loss on the RILA when the return on the associated index is negative. That is, when the index associated with the RILA obtains a negative return, the return on the RILA is reduced by the buffer amount. For example, suppose a RILA has a buffer of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -8%, the return on the RILA would only be -3%. Since the RILA has a buffer which offers protection of -5%, the return on the RILA equals the return on the associated index reduced by this buffer amount.

Cap: The cap is the maximum return the RILA can earn. Suppose the cap on a RILA is 8%. If the actual return on the index the RILA is associated with is 12%, the RILA would only earn a return of 8% since that is the cap and maximum return the RILA can earn.

You have a retirement plan offered to you by your employer. Which of the funds below would you like to choose to invest your retirement money into?
- o   Fund A
- o   Fund B
- o   Fund C

Confirm

Question 4–B

Based on the information you gave in the prior questions you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are three funds which you can select, all with target dates that appropriately correspond to your anticipated year of retirement. One fund is a Target Date Fund. The second fund is a Target Date RILA with a floor, and the third fund is a Target Date RILA with a buffer.

The tables below show information for each fund.
- For the Target Date Fund:
    o The Expense Ratio indicates the annual fee that will be charged for managing the fund.
    o The three columns under the "Target Allocation" heading for the Target Date Fund indicate how the asset allocation for the fund changes over time. That is, they show what portion of the fund is invested in riskier equity versus safer fixed-income securities for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is the anticipated fund allocation at your retirement age).
- For the Target Date RILAs:
    o The "Implied Gross Expense Ratio" indicates the cost for the investment implied by its cap rate. This number has been estimated to help you determine the implied cost of the product.
    o The floor is the guaranteed minimum return that can be earned.
    o The buffer is the amount that limits losses when the return on the associated index is negative. That is, the buffer is the amount that the negative return on the index is reduced by to determine the return earned on the RILA.
    o The cap is the maximum return that can be earned.
- The columns under the heading "Anticipated Retirement Benefit (Monthly Annuity)" indicate the anticipated **monthly** income you will receive in retirement if you invest in that target date fund for all your working years.
    o Worst Probable Outcome = there is a 1% chance the anticipated monthly benefit is this low
    o Expected Outcome = the average or expected monthly benefit
    o Best Probable Outcome = there is a 1% chance the anticipated monthly benefit is this high
    o Standard Deviation = the level of variability in the average outcome
- Equity funds, on average, have a long-term return of around 8% (annually). Fixed-income funds, on average, have a long-term return of around 3% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

Your employer has already chosen the following target date fund to invest retirement money for employees who do not actively choose an investment:

	Type of Fund	Target Date	Gross Expense Ratio	Target Allocation (equity/fixed-income)			Anticipated Retirement Benefit (Monthly Income, in today's dollars)*			
				Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund A	Target Date Fund	2052	0.60%	94% / 6%	79% / 21%	65% / 35%	$629	$2,863	$12,057	$1,835

You also have the choice to invest in one of the following investments if you would like:

	Type of Fund	Target Date	Implied Gross Expense Ratio	Floor/Cap Level			Anticipated Retirement Benefit (Monthly Income, in today's dollars)*			
				Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund B	Target Date RILA	2052	0.20%	-24.37% / 26.71%	-14.87% / 19.02%	-6.00% / 11.19%	$770	$2,372	$7,052	$1,084

	Type of Fund	Target Date	Implied Gross Expense Ratio	Buffer/Cap Level			Anticipated Retirement Benefit (Monthly Income, in today's dollars)*			
				Current	Middle	Final (at retirement age)	Worst Probable Outcome	Expected Outcome	Best Probable Outcome	Standard Deviation
Fund C	Target Date RILA	2052	0.20%	-0.33% / 33.82%	-5.33% / 17.29%	-10.00% / 12.34%	$617	$2,363	$7,152	$1,146

*Note. The numbers for the anticipated retirement benefit are estimates. These numbers assume you will be in retirement for 20 years, your wages will grow 3% annually while working, inflation will be 2% annually, and you will contribute 10% of your annual income to the account each year. The estimates include how much you have already accumulated in your retirement account, as answered earlier in the survey.

Recall This Information About Target Date Funds:
Target Date Funds seek high total return over time through a combination of capital appreciation and income. These funds are designed to provide a single diversified portfolio managed with a target retirement date in mind. The target date is the approximate date when investors expect to begin withdrawing money from the Fund. Each portfolio invests primarily in underlying equity and fixed-income index funds. Over time, the Fund's target allocations will gradually become more conservative.

Recall the Following Information About Target Date RILAs:

Target Date RILAs provide access to equity markets and automatically adjust the level of risk exposure over time. The target date is the approximate date when you expect to begin withdrawing money. As you near your target date, the buffer becomes larger (or the floor becomes smaller), thereby increasing your protection against negative outcomes. Additionally, the cap rate will be reduced accordingly as there will be less opportunity for large gains. The automatic adjustment in floors (or buffers) and cap rates creates a similar dynamic risk profile to Target Date Funds.

Floor: The floor offers a minimum guarantee on the return. The floor is the lowest return the RILA could earn. For example, suppose a RILA has a floor of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -10%, the return on the RILA would only be -5% since that is the lowest return the RILA can earn (or the maximum loss that could be obtained).

Buffer: The buffer limits the loss on the RILA when the return on the associated index is negative. That is, when the index associated with the RILA obtains a negative return, the return on the RILA is reduced by the buffer amount. For example, suppose a RILA has a buffer of -5% and this RILA is associated with the return earned on the S&P 500 index. If the actual return on the S&P 500 index is -8%, the return on the RILA would only be -3%. Since the RILA has a buffer which offers protection of -5%, the return on the RILA equals the return on the associated index reduced by this buffer amount.

Cap: The cap is the maximum return the RILA can earn. Suppose the cap on a RILA is 8%. If the actual return on the index the RILA is associated with is 12%, the RILA would only earn a return of 8% since that is the cap and maximum return the RILA can earn.

You have a retirement plan offered to you by your employer. Which of the funds below would you like to choose to invest your retirement money into?
- o   Fund A
- o   Fund B
- o   Fund C

Confirm

Question 4–C1

In the previous question, the gross expense ratio or implied gross ratio had been increased for the fund you had chosen earlier. As a result, you chose a different fund to invest your retirement funds.

What is the lowest gross expense ratio on your originally selected fund where you would not have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

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Question 4–C2

In the previous question, the gross expense ratio or implied gross expense ratio had been increased for the fund you had chosen earlier. You continued to choose the fund that you had originally selected.

What is the highest gross expense ratio on your originally selected fund where you would have switched your fund choice? Please enter this number in the text box below. For example, if your answer is 1%, enter "1%".

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To which fund would you have switched?
  o Fund B
  o Fund C

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Financial Literacy Question 1

Based on the information you gave in the prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are a set of target date funds with target dates that appropriately correspond to your anticipated year of retirement.

The table below shows information for each fund.
- The "Gross Expense Ratio" indicates the annual fee that will be charged for managing the fund.
- The three columns under the "Target Allocation" heading indicate how the asset allocation for the fund changes over time. That is, they show what portion of the fund is invested in riskier equity versus safer fixed-income securities for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is the anticipated fund allocation at your retirement age).
- Recall that equity funds, on average, have a long-term return of around 8% (annually). Fixed-income funds, on average, have a long-term return of around 3% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

	Type of Fund	Target Date	Gross Expense Ratio	Target Allocation (equity/fixed-income)		
				Current	Middle	Final (at retirement age)
Fund A	Target Date Fund	2052	0.20%	94% / 6%	79% / 21%	65% / 35%
Fund B	Target Date Fund	2052	0.20%	84% / 16%	69% / 31%	55% / 45%
Fund C	Target Date Fund	2052	0.20%	74% / 26%	59% / 41%	45% / 55%

You have a retirement plan offered to you by your employer. Which of the funds do you think is the **_riskiest_**?

- o Fund A
- o Fund B
- o Fund C

Confirm

Financial Literacy Question 2

Based on the information you gave in prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are a set of Target Date RILAs with target dates that appropriately correspond to your anticipated year of retirement. The Target Date RILAs shown below all have floors.

The table below shows information for each investment.
- The "Implied Gross Expense Ratio" indicates the cost for the investment implied by its cap rate. This number has been estimated to help you determine the implied cost of the product.
- The three columns under the "Floor/Cap Level" heading indicate how the floor and cap levels for the RILA changes over time. That is, it shows what the floor and cap will be for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is at your retirement age).
- Recall that for RILAs with a floor:
  o The floor is the guaranteed minimum return that can be earned.
  o The cap is the maximum return that can be earned.
- Recall that equity funds, on average, have a long-term return of around 8% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

	Type of Fund	Target Date	Implied Gross Expense Ratio	Floor/Cap Level		
				Current	Middle	Final (at retirement age)
Fund A	Target Date RILA	2052	0.20%	-24.37% / 26.71%	-14.87% / 19.02%	-6.00% / 11.19%
Fund B	Target Date RILA	2052	0.20%	-20.87% / 23.96%	-11.37% / 16.01%	-2.50% / 7.93%
Fund C	Target Date RILA	2052	0.20%	-18.87% / 22.38%	-9.37% / 14.21%	-0.50% / 6.06%

You have a retirement plan offered to you by your employer. Which of the funds do you think is the ***riskiest***?

  o Fund A
  o Fund B
  o Fund C

Confirm

Financial Literacy Question 3

Based on the information you gave in prior questions, you anticipate you will retire in the year 2052.

You have a retirement plan offered to you by your employer. Below are a set of Target Date RILAs with target dates that appropriately correspond to your anticipated year of retirement. The Target Date RILAs shown below all have buffers.

The table below shows information for each investment.
- The "Implied Gross Expense Ratio" indicates the cost for the investment implied by its cap rate. This number has been estimated to help you determine the implied cost of the product.
- The three columns under the "Buffer/Cap Level" heading indicate how the buffer and cap levels for the RILA change over time. That is, they show what the buffer and cap will be for three different points in time: current, middle (which is midway between now and your retirement age), and final (which is at your retirement age).
- Recall that for RILAs with a buffer:
  o The buffer is the amount that limits losses when the return on the associated index is negative. That is, the buffer is the amount that the negative return on the index is reduced by to determine the return earned on the RILA.
  o The cap is the maximum return that can be earned.
- Recall that equity funds, on average, have a long-term return of around 8% (annually).
- Recall that funds with greater risk (volatility) typically have higher returns.

	Type of Fund	Target Date	Implied Gross Expense Ratio	Buffer/Cap Level		
				Current	Middle	Final (at retirement age)
Fund A	Target Date RILA	2052	0.20%	-0.33% / 33.82%	-5.33% / 17.29%	-10.00% / 12.34%
Fund B	Target Date RILA	2052	0.20%	-2.83% / 22.18%	-7.83% / 14.19%	-12.50% / 10.75%
Fund C	Target Date RILA	2052	0.20%	-5.33% / 17.29%	-10.33% / 12.09%	-15.00% / 9.51%

You have a retirement plan offered to you by your employer. Which of the funds do you think is the *riskiest*?

o Fund A
o Fund B
o Fund C

Confirm

<u>Background Questions</u>

- What is your gender?
    o Male
    o Female
    o Nonbinary

- What is your race/ethnicity?
    o African-American
    o Asian
    o Caucasian—not Hispanic
    o Hispanic
    o Multiracial
    o Native Hawaiian or other Pacific Islander
    o American Indian or Alaska Native

- What is your current marital status?
    o Never been married
    o Married
    o Separated
    o Divorced
    o Widow or widower

- What is the highest level of education you have completed?
    o Did not complete high school
    o High school graduate or GED
    o Some college, no degree
    o Associate degree
    o Bachelor's degree
    o Master's degree
    o Doctoral degree

- Which of the following best describes your role at the University of Pennsylvania?
    o Undergraduate student
    o Master's student
    o Doctoral student
    o Staff
    o Faculty
    o Other

- Have you ever held a job where your employer offered a retirement benefit package that required you to make retirement investment decisions?
    - o   Yes
    - o   No

- Have you ever made retirement investment decisions more generally, either for yourself or another individual?
    - o   Yes
    - o   No

- How sure do you feel about your ability to manage your own finances?
    - o   1. Not sure at all—I wish I knew a lot more about money management
    - o   2. Not too sure—I wish I knew more about money management
    - o   3. Somewhat sure—I understand most of what I will need to know
    - o   4. Very sure—I understand money management very well

- Which of the following statements comes closest to describing the amount of financial risk that you are willing to take when you save or make investments?
    - o   I am not willing to take any financial risk
    - o   I take average financial risks expecting to earn average returns
    - o   I take above average financial risks expecting to earn above average returns
    - o   I take substantial financial risks expecting to earn substantial returns

- In addition to whatever you own, suppose you have been given $1,000. Please choose between the following options:
    - o   A sure gain of $500
    - o   Gaining $1,000 with probability 50% and gaining $0 with probability 50%

- In addition to whatever you own, suppose you have been given $2,000. Please choose between the following options:
    - o   A sure loss of $500
    - o   Losing $1000 with probability 50% and losing $0 with probability 50%

- You have a choice between the following scenarios. Which do you choose?
    - o   A sure gain of $3000
    - o   Gaining $4000 with probability 80% and gaining $0 with probability 20%

- You have a choice between the following scenarios. Which do you choose?
    - o   A sure loss of $3,000
    - o   Losing $4,000 with probability 80% and losing $0 with probability 20%

- There are 10 choices given in rows in the table below. For each row, please choose which option you prefer: Option A or Option B.

	Option A	Option B	Which Option Do You Prefer? Please click the dot for the associated choice.	
			A	B
1	10% chance of $2,000 and 90% chance of $1,600	10% chance of $3,850 and 90% chance of $100	O	O
2	20% chance of $2,000 and 80% chance of $1,600	20% chance of $3,850 and 80% chance of $100	O	O
3	30% chance of $2,000 and 70% chance of $1,600	30% chance of $3,850 and 70% chance of $100	O	O
4	40% chance of $2,000 and 60% chance of $1,600	40% chance of $3,850 and 60% chance of $100	O	O
5	50% chance of $2,000 and 50% chance of $1,600	50% chance of $3,850 and 50% chance of $100	O	O
6	60% chance of $2,000 and 40% chance of $1,600	60% chance of $3,850 and 40% chance of $100	O	O
7	70% chance of $2,000 and 30% chance of $1,600	70% chance of $3,850 and 30% chance of $100	O	O
8	80% chance of $2,000 and 20% chance of $1,600	80% chance of $3,850 and 20% chance of $100	O	O
9	90% chance of $2,000 and 10% chance of $1,600	90% chance of $3,850 and 10% chance of $100	O	O
10	100% chance of $2,000 and 0% chance of $1,600	100% chance of $3,850 and 0% chance of $100	O	O

- Suppose you had $100 in a savings account and the interest rate was 2% per year. After five years, how much do you think you would have in the account if you left the money to grow?
  - o More than $102
  - o Exactly $102
  - o Less than $102
  - o Do not know

- Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After one year, how much would you be able to buy with the money in this account?
  - o More than today
  - o Exactly the same
  - o Less than today
  - o Do not know

- You purchase an item that costs $1,000. To pay for this item, you are given the following two options: (a) Pay 12 monthly installments of $100 each, (b) Borrow at a 20% annual interest rate and pay back $1200 a year from now. Which is the cheaper offer?
  - o Option (a)
  - o Option (b)
  - o They are the same
  - o Do not know

- What do you think is the percent chance that **12 months from now** the average interest rate on savings accounts will be <u>higher</u> than it is now?
  - o Less than 15% chance
  - o 15% to 30% chance
  - o 30% to 45% chance
  - o 45% to 65% chance
  - o 65% to 80% chance
  - o More than 80% chance

- What do you think is the percent chance that **12 months from now,** on average, stock prices in the U.S. will be <u>higher</u> than they are now?
  - o Less than 15% chance
  - o 15% to 30% chance
  - o 30% to 45% chance
  - o 45% to 65% chance
  - o 65% to 80% chance
  - o More than 80% chance

- Over the next 12 months, do you think that there will be inflation or deflation? (Note: deflation is the opposite of inflation)
    - o   Inflation
    - o   Deflation (the opposite of inflation)

- Over the next 12 months, what is the rate of inflation (or deflation) that you expect? Please answer in the text box below. For instance, if you think it will be x%, enter x in the box below.

    ┌─────────────────────┐
    │   │
    │   │
    └─────────────────────┘

- How sure do you feel about your ability to answer questions about Registered Index-Linked Annuities (RILAs)?
    - o   1. Not sure at all—I wish I knew a lot more about RILAs
    - o   2. Not too sure—I wish I knew more about RILAs
    - o   3. Neutral—I am neither unsure or sure about my ability to answer questions on RILAs
    - o   4. Somewhat sure—I understand most of what I need to know about RILAs
    - o   5. Very sure—I understand RILAs very well

Thank you!

This study is concerned with the ability to make decisions regarding retirement investments. The study investigates how different levels of information and default choices affect retirement investment decision making. The study also investigates how individuals understand registered index-linked annuities relative to target date mutual funds.

How was this tested?
In this study, you played the role of a company employee, and you were asked to select an investment for your retirement account. You were asked to choose among a choice of investments, each involving risk. All participants performed the same task. In performing the tasks, one group was given the same level of information given to employees today when making retirement investments. This group was told one choice was the default investment chosen by the employer. A second group performed the task with the same information as the first group but were not told that one fund was preselected as a default investment. A third group was given the same information as the first group, but were also given, for each fund choice offered, an estimate of what their retirement benefit would be if they chose that fund and remain invested in it from now until their desired retirement age. A fourth group was given the same information as the second group and were also given the additional information about the projected retirement benefit that the third group received.

Hypotheses and main questions
We expect that being given additional information about investment choices, in terms of how those choices would affect the resulting retirement benefit, will help individuals make better investment decisions. Within some of the choices offered, one choice dominated another one. We expect that participants are less likely to choose the dominated choice when given more information about the funds.

We should also find that being told which fund was preselected by the employer as the default investment will have an impact on investment choices. That is, we expect to find that participants are more likely to choose the default fund when they are informed there is a default.

The transparency of RILAs means they should be easier to compare to one another relative to a set of target date funds, which have been shown in the literature to lack transparency. We expect that subjects will be better at identifying the optimal investment choice among RILAs. We expect to find that subjects will be more likely to choose a suboptimal fund among a menu of target date funds. The menu set that includes both RILAs and target date funds will help us better understand how having both options available impacts investment choice. It is unclear how individuals would respond to an insurance-related investment product, such as RILAs, so the choice made in this part of the experiment will provide some evidence on this question.

Why is this important to study?
The factors that affect an individual's retirement investment choice are relevant to sound retirement planning. Questions about how and why people choose to invest in certain assets and accrue certain levels of risk are very much open to psychological research.

What if I want to know more?
If you are interested in learning more about registered index-linked annuities, please consult:

Moenig, T. (2022). It's RILA time: An introduction to registered index-linked annuities. *Journal of Risk and Insurance*, *89*(2), 339–369.

If you would like to receive a report on this research when it is completed (or a summary of the findings), please contact Jacqueline Volkman-Wise at jvwise@wharton.upenn.edu.

If you have concerns about your rights as a participant in this experiment, please contact the Institutional Review Board at (215) 898-2614.

Thank you again for your participation!

About the authors

Dr. Cameron Ellis is the Hentges Fellow in Finance and an Assistant Professor in the Tippie College of Business at the University of Iowa. His research interests lie at the intersection of insurance economics, household finance, and public policy analysis. He earned a Ph.D. in Economics from the University of Georgia.

Thorsten Moenig is an Associate Professor in the Department of Risk, Actuarial Science & Legal Studies in the Fox School of Business at Temple University, and the director of the Actuarial Science Masters' program. His current research focuses on personal retirement savings products (such as variable annuities and RILAs), how insurers can value and hedge the embedded guarantees, and how these products should optimally be designed in view of policyholder behavior and market imperfections. More broadly, he is interested in topics across actuarial science, insurance economics, applied game theory, and behavioral economics. Dr. Moenig has published his research in Insurance: Mathematics and Economics, the Journal of Risk and Insurance, the North American Actuarial Journal, and the Review of Finance. He is a recipient of the 2017 Redington Prize from the Society of Actuaries and serves on the Editorial Board of the Journal of Risk and Insurance.

Dr. Moenig holds a Master's degree in Actuarial Science from the University of Connecticut and a Ph.D. in Risk Management and Insurance from Georgia State University. He is an Associate of the Society of Actuaries (ASA). He is the recipient of two Outstanding Teacher Awards by the Sigma chapter of Gamma Iota Sigma.

Jacqueline Volkman-Wise is currently an Associate Professor of Finance at The Erivan K. Haub School of Business at Saint Joseph's University. Her research focuses on behavioral finance/insurance, insurance economics, and retirement planning. She has investigated how behavioral attributes affect insurance demand, mitigation efforts for catastrophes, and portfolio allocation decisions within retirement plans. Jackie has published in the top journals for insurance and risk management including the *Journal of Risk and Insurance*, the *Journal of Risk and Uncertainty*, *Insurance Mathematics and Economics*, and *Geneva Risk and Insurance Review*. Jackie earned her Ph.D. and M.A. in Insurance and Risk Management from The Wharton School of the University of Pennsylvania and her B.S. in Mathematics and Economics from Penn State University.

In addition to her research activities, Jackie is actively involved in various academic professional associations, has served as a Board Member and President for the Western Risk and Insurance Association, and has presented to industry groups such as CFO Alliance and the Pennsylvania Institute of Certified Public Accountants. She currently teaches Corporate Risk Management, Insurance Operations, and Personal Financial Planning at Saint Joseph's University. Prior to joining SJU, Jackie was an Assistant Professor at Temple University where she taught Honors Introduction to Risk Management and Retirement Plans. Jackie has also served on the faculty at Fordham University where she taught Honors Financial Management, Financial Management, and Securities & Investment Analysis. While at Fordham University, Jackie participated in global study tours to China, Argentina, and Chile with her students as part of the Global Business Honors Program. She has received five teaching awards during her career, including Outstanding Business Honors Professor, Outstanding Professor for Insurance and Risk Management from GIS Sigma Chapter, and the Dean's Award for Curis Personalis.

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