Covering all the bases

Overcoming behavioral biases to help individuals achieve retirement security

A research report by the Deloitte Center for Financial Services
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Most people say they understand the need to plan ahead financially to achieve retirement security. But if that is indeed the case, why do so many individuals remain underfunded for their so-called “golden years” (figure 1)? One major obstacle may be behavioral bias. Individuals and financial institutions might overcome this hurdle through the application of behavioral economic principles—many of which have already had a positive impact by boosting participation and contributions in workplace retirement plans.

Initial research into retirement preparedness by the Deloitte Center for Financial Services (DCFS) found a number of practical barriers exist that often either prevent or at least discourage people from saving money for long-term needs. These include conflicting financial priorities, mistrust of financial services providers, and lack of understanding about the products designed to serve this market. A follow-up study last year by DCFS for Deloitte University Press validated that these barriers have an impact and offered suggestions on how to overcome them.

This paper focuses on additional, psychological factors that should be taken into account. It explores how behavioral economics concepts might be utilized in the consumer space to get more individual investors to deal proactively with retirement planning, following the effective application of that approach in employee benefit plans.

To understand why current product and service designs and strategies have not been universally effective, financial services providers and their intermediaries in the investment, insurance, and banking communities should closely examine the divergence between traditional economic theory and the less conventional behavioral economics approach.

Figure 1. How big is the retirement security gap?*

50% of 2,002 consumers surveyed by Deloitte do not feel secure about retirement—an assessment validated by a separate survey of 178 financial planners.

86% of Americans believe the nation faces a retirement crisis, including 57 percent who strongly agree with that prognosis.

$4.13T is the aggregate national retirement savings deficit for all US households where the head of the household is between 25 and 64 years old.

52% of households are “at risk” of not having enough savings to maintain their standard of living in retirement, according to the National Retirement Risk Index.

*For source information, see endnote 2.
The premise behind traditional economic theory is that people are consistently and completely rational and will make choices about what to consume, how much to save, and where to invest based on their own best interests. The theory also assumes that people have all the information they need to make these choices. However, a variety of studies have shown that people are not always rational and therefore often do not do what is likely to be in their financial best interests. Acknowledging this premise, academics and industry practitioners are considering other disciplines that may help refocus the lens they use to examine and address chronic shortfalls in US retirement savings.

One alternative may involve wider application of behavioral economics (BE). In contrast to the traditional economic theory outlined above, BE embraces the reality that individuals may not always act in their own economic best interest—especially not for the long term. BE offers psychological insights into why that might be (see figure 2), as well as options on how to prompt people to actually do what’s necessary for their own good, such as saving and investing adequately for retirement in time to make a difference.

While BE factors have often stood in the way of people accounting for their retirement needs, there is good news as well. These concepts have also been leveraged proactively in the institutional space—via workplace plans—to prompt more individuals to at least start preparing for retirement.

Proponents of BE and its importance in the retirement market are growing, thanks to using behavioral design in many 401(k) plans. Here, providers have worked with employers to implement relatively simple but effective auto-enrollment, auto-escalation, and auto-invest solutions. However, what may be preventing financial institutions from adapting BE-driven retirement solutions in the retail market is the scale and diversity of this segment, which calls for holistic yet customized solutions that cater to the varied needs of individual consumers.

Figure 2. Behavioral biases/elements that can affect retirement saving decisions

- **Inertia**: Behavior that prevents individuals from initiating action even though they know it may be in their best interest
- **Present bias**: Propensity to give priority to one’s present self while discounting future benefits
- **Passive decision making**: Following the path of least resistance, favoring options that are salient and/or easy to choose
- **Anchoring**: Tendency to base decisions on a set value (often irrelevant) while making decisions
- **Partitioning**: When individuals find it easier to commit smaller amounts at intervals versus a larger sum at one time
- **Peer pressure**: Social influence by a similar demographic that influences an individual’s behavior, either negatively or positively
- **Overconfidence**: Excessive belief in one’s own ability to make the right judgment and influence positive outcomes
- **Effort aversion**: Tendency to avoid exerting time or energy in taking action
- **Loss aversion**: Tendency to strongly prefer avoiding losses over acquiring gains
- **Endowment effect**: Tendency to avoid giving up what one has even when presented with better options

Keeping this in mind, we will address how financial services providers might apply some of the BE lessons learned in the institutional space to help reach the millions of individuals who either don’t have workplace plans as an option, or who need to save beyond what they put into their employer’s program to secure their financial future.

Moreover, we will explore how several BE-focused strategies might be designed to prevail on even those least likely to save for retirement to take initial steps down that path.
We will examine BE concepts in the context of the three fundamental steps in the retirement planning process:

1. Opening an account
2. Electing an initial contribution amount and adjusting this rate over time
3. Managing retirement investments to produce an adequate retirement nest egg (figure 3)

The goal is to spur more financial institutions to take behavioral biases into account in the design of retirement products and programs, ultimately prompting more consumers to engage with them and their intermediaries on this critical need.

Figure 3. Various BE concepts related to the retirement planning process

<table>
<thead>
<tr>
<th>Related behavioral elements</th>
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<tbody>
<tr>
<td>Inertia</td>
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<td>Passive decision making</td>
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<tr>
<td>Present bias</td>
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<tr>
<td>Partitioning</td>
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<tr>
<td>Overconfidence</td>
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<tr>
<td>Loss aversion</td>
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Graphic: Deloitte University Press  | DUPress.com

A DELOITTE SERIES ON BEHAVIORAL ECONOMICS

Behavioral economics is the examination of how psychological, social, and emotional factors often conflict with and override economic incentives when individuals or groups make decisions. This article is part of a series that examines the influence and consequences of behavioral principles on the choices people make related to their life and work. Collectively, these articles, interviews, and reports illustrate how understanding biases and cognitive limitations is a first step to developing countermeasures that limit their impact on an organization. For more information visit http://dupress.com/collection/behavioral-insights/.
Initiate the process: Step up to the plate

Financial institutions face a fundamental challenge in getting individuals to establish a retirement account. Lack of time or conflicting financial priorities are most often cited as significant barriers. Underlying these barriers are often behavioral elements that impede the ability of many people to make the most effective decisions at the right time.

For example, the propensity to give priority to instant rewards (present bias) versus saving to meet future financial needs has been shown to hinder initiation of retirement accounts. Moreover, the complexity of the process may inhibit all but the most financially savvy from jumping in, triggering another BE principle—innertia—among the less-informed masses.

Therefore, when confronting the individual market retirement challenge, two key elements to achieving mass buy-in among consumers may be effortless accessibility and automation.

Taking a page from the 401(k) playbook: Strategically placed defaults can prevail over BE biases

Lessons from academic studies influenced a substantial redesign of many 401(k) workplace plans to help circumvent several behavioral influences that hindered participation in the past. For example, a feature was added that automatically enrolls new employees into plans (with the option to opt-out) at a predefined default contribution rate—typically 3 percent—to overcome the inertia that often prevents employees from opening an account.

Automatic enrollment leverages the BE concept of passive decision making, in which individuals find the easiest path to take is to do nothing at all. The results of implementing these features were quite significant (see figure 4).

While this is positive news for employees with access to such plans, close to one-half of all Americans work at companies that do not offer a 401(k) option. To address this shortfall, several states—including California, Illinois, and Maryland—have already approved or are considering legislation that would set up individual state-based automatic IRAs or similar plans. Moreover, the US Department of

Figure 4. Enhanced 401(k) design results

Average participation using auto-enrollment is 82 percent, compared to 55 percent for plans without the feature.

For younger workers, the gap is even greater: 76 percent participation with auto-enrollment among 20–24-year-olds versus only 20 percent without it.
More than one-half of Millennials and one-third of Gen X respondents surveyed by Deloitte say they intend to put a retirement plan together, but haven’t taken the time to do so.

Labor proposed a rule to make state-sponsored plans exempt from the liability considerations imposed by the Employee Retirement Income Security Act (ERISA). Unfortunately, this could place privately initiated, employer sponsored, auto-enrollment group IRA plans at something of a disadvantage by saddling participating employers with potential liabilities, which likely explains in part why more such private IRA plans aren’t already in place. But even without a purely level playing field, there are still various innovative opportunities available that employ similar BE elements to help penetrate the vast, untapped individual market.

For example, institutions can employ the concept of passive decision making to help break the inertia that often paralyzes many US consumers from initiating a retirement account by capitalizing on specific life-event triggers, such as starting a first job or transferring from one job to another. Either of these employment-change events will potentially activate the initiation of direct payroll deposit. Indeed, US workers had an average job tenure of 4.6 years in 2012 (latest available figure), while a 2012 PayScale report revealed the median tenure for a Millennial employee was just two years, highlighting the potential leverage offered by this access point. Since nearly 75 percent of employed consumers receive their salary through direct deposit via Automated Clearinghouse (ACH), financial institutions could seize this opportunity to connect with this segment and encourage delegation of a portion of their paycheck toward retirement savings.

Notably, ACH offers a feature that splits a direct deposit into consumer-designated accounts. The process can include easy enrollment into a retirement account, which can potentially be pre-populated with personal data from the information used to kick-off the direct deposit feature, an e-signature element for further convenience, and a limited investment menu to minimize complexity. By directing consumers to a path of least resistance, such a process could break the inertia or effort aversion that very often prevents people from choosing a path to a secure retirement.

Although financial institutions would be unable to auto-enroll those initiating direct paycheck deposits into retirement plans, they could conceivably tap into this large segment by aligning with employers via user-friendly electronic default elements explicitly linked to the direct deposit initiation. This process would remove much of the friction that tends to discourage account establishment, encouraging a nearly effortless initiation of a retirement-focused vehicle.

“Rounding up” to initiate effortless micro-savings accounts

A tug of war between multiple financial needs, particularly among Millennial and Gen X individuals, often provokes a present bias that inhibits the initiation of long-term savings. For these younger segments, this behavioral impediment can make retirement savings seem less urgent compared to other shorter-term financial priorities, such as paying off mortgages or student loans.

Indeed, more than one-half of Millennials and one-third of Gen X respondents surveyed...
Overcoming behavioral biases to help individuals achieve retirement security

by Deloitte say they intend to put a retirement plan together, but haven’t taken the time to do so. Financial institutions may surmount this segment’s savings paralysis by employing BE techniques in an effort to make reallocating discretionary income less daunting, particularly in the near term. As individuals tend to more easily commit smaller amounts to savings at intervals rather than one large sum at once (partitioning), automated micro-sized savings vehicles will likely encourage increased participation.

The mobile app Acorns, for example, allows users to link their credit and/or debit card(s) to their Acorns account. The app then rounds every purchase made through the card(s), up to the next dollar. It ultimately invests the change in a diversified portfolio of index funds, which are selected by Harry Markowitz, a Nobel prize-winning economist, who invented Modern Portfolio Theory (MPT). According to Acorns, three-quarters of its investors are under 35. In an eight-month period ended in March 2015, the company engaged with 650,000 members, opening more than 300,000 investment accounts linked to over 1 million credit and debit cards.

Building off the user success of a mobile “rounding up” app, more financial institutions may consider a similar feature linked to checking accounts and debit cards. At Bank of America, for example, direct payment of bills include a feature that pays the charge, rounds up to the nearest dollar for each payment, then automatically transfers the difference into a savings account. The “forced savings” element of this product will potentially counteract the present bias of those who tend to spend the money left in their checking account after bills are paid instead of committing it to an IRA retirement account.

Empowering lower-income demographics with microsavings accounts

While products such as direct deposit, split features, and “round up” tools may potentially prompt many individual consumers to invest earlier and more aggressively for retirement, they are not catch-all solutions. Lower economic groups at risk of exclusion due to challenges—including a shortage of discretionary

A MANAGERIAL FRAMEWORK

With more than 80 different concepts associated with the field of behavioral economics, a case could be made that it suffers from one of its own cognitive biases, choice overload. Such a dizzying array of choices may make it difficult for a practitioner to instinctively know how to properly apply behavioral sciences to a specific business problem. In an effort to make the discipline more accessible, we offer a behavioral framework that both places the business objective at the forefront and condenses the behavioral literature into five choice dimensions: outcomes valuations, calculation biases, timing elements, environmental influences, and choice architecture.

income, lack of access to credit cards or direct payroll deposit options, and retirement product and service affordability concerns—will likely need innovative alternatives targeted directly to them.

Indeed, nearly one-half of those surveyed by Deloitte with annual household income of less than $75,000 said they do not have enough disposable income to commit to retirement savings. Microsavings accounts may be one way to cast the net wide enough to at least get this segment started on a retirement plan.

Financial institutions may consider designing a retirement-savings account or a no-frills, long-term, small-investment account for this segment. Ideally, the account will be initiated with a lock-in period, in which the consumer may be required to deposit a specified amount periodically (weekly or monthly) with no upside limit. Compulsory deposits that leverage the concept of partitioning will potentially break savings inertia as well as present bias and help individuals build up enough funds to eventually start a formal retirement savings account. For example, these savings could be automatically reinvested in a low-cost index fund to commit them to a long-term retirement financing program.

Figure 5 provides a visual framework of how practitioners might mitigate the impact of loss aversion, inertia, and present bias to gently nudge people into higher rates of retirement account enrollment (see the sidebar “A managerial framework” for more information).
Next up: Load the bases

Even after a retirement-focused account is opened, critical decisions such as how much and where to invest, setting longer-term financial security goals, and making course corrections along the way are also often negatively impacted by behavioral biases. Indeed, that tenacious impediment, present bias, which keeps many from initiating the savings process, may also cause individuals to make faulty choices and/or deviate from their plans despite having opened an account, ultimately leaving them underprepared for retirement.

Helping individuals visualize future self to prompt higher retirement savings

People who view age-progressed photos of themselves often consider allocating more money to retirement accounts, according to Stanford University research. In four separate studies, participants were asked to confront realistic computer renderings of their future selves, using computer-based interactive tools. The study concluded that those who came face-to-face with their virtual future selves exhibited an increased tendency to prioritize later monetary rewards over immediate ones.23

Capitalizing on this information, Bank of America developed a face retirement tool that lets users visualize how they will look as their future selves. The app flickers pictures between past and present, while messages about the increase in cost of living when an individual reaches a given age flash alongside. The company’s retirement saving products are advertised on the app as well.24

Equipping investment advisors with portable tools (to be used at any location) to support age advancement infrastructure may increase the initial investment as well as future deposit rates. These tools will likely be most beneficial when used to initiate conversations about the savings and investment levels needed to achieve retirement security, as they create a vision in the consumer’s mind of his or her own future.

Taking this one step further, financial institutions may even consider embedding gamification elements into the tools—including interactive features that take investors on a virtual tour of their retirement savings journey. Here, investors can visualize themselves at various life stages and are offered projected outcomes of retirement investment rates at each juncture. Financial institutions could help create scenarios in which individuals can view themselves as secure and successful retirees, and then backtrack from the optimistic picture to see how they might need to modify their investment levels to make that picture a reality. Such strategies could potentially eliminate or diminish the effect of present bias and thereby convince more individuals to increase the amount of assets they allocate to retirement portfolios.

Promoting social influence in retirement investment decisions

The power of peer pressure is a motivating influence exploited by various industries. Fitness wearables harness it to galvanize individuals to do as much or more exercise than the peers with whom they compete.25 Weight Watchers uses live check-ins to inspire adherence to weight loss goals.26 In fact, research done in several industries points to an individual’s tendency to be influenced by peer behavior above most other factors.

For example, researchers asked four separate groups of utility consumers to cut energy consumption: one for the good of the planet,
a second for the well-being of future generations, a third for financial savings, and a fourth because their neighbors were doing it. The only group that elicited any drop in consumption (at 10 percent) was the fourth—the peer comparison group.27

Disclosing peer data may be similarly effective in modifying consumer financial habits. A study of individual equity investment decisions within 401(k) programs suggests that people are highly influenced by their coworkers (highlighting a positive influence of peer pressure) and are likely to adjust the level of risk in their equity portfolio to largely conform to the peer group to which they belong. And they are more likely to increase equity investments when their returns are lower than those of their peers, but may not do so otherwise.28

Comparison tools developed by retirement plan administrator Empower Retirement actually allow participants to see the average percentage of salary that peers in the same age bracket invest in their retirement account. Moreover, users can see how they stack up against the top 10 percent of their peers. In a study of 30,000 employees conducted by Empower, 5,000 respondents (about 17 percent) modified their savings rate upward after using the tool to match their peers’ average savings.29

Given the positive results of various industries, financial institutions should consider leveraging peer comparison data to drive higher initial retirement deposits as well as more periodic rate increases. There could even be a gamification element embedded in such a strategy to further evoke the peer influence element.

Taking another page from the effectiveness of 401(k) plan redesign: Auto-escalation

Over and above the auto-enrollment element, 401(k) plans have also been enhanced by the introduction of an auto-escalation feature, in which contribution rates go up by, say, one or two percentage points in a specific periodic time frame, with a predefined maximum and an opt-out feature. Similar to the auto-enrollment element, this feature recognizes and accommodates passive decision making, leading individuals to the path of least resistance (see figure 6).30

The features were devised by academicians Richard Thaler and Shlomo Benartzi to help overcome anchoring, a tendency to base a decision on a set value and stick to it. Anchoring often inhibits many employees from increasing their 401(k) retirement contributions to levels that could generate desired retirement assets. A 3 percent default rate set by auto-enrolling 401(k) plans was designed to get employees started, with the assumption that they would raise their contribution rates to help build adequate retirement nest eggs. However, once anchored by the initial low contribution rates, most chose to either stick to the default

People are highly influenced by their coworkers (highlighting a positive influence of peer pressure) and are likely to adjust the level of risk in their equity portfolio to largely conform to the peer group to which they belong.
level or raise it to a percentage that was less than adequate.

Spring boarding off the effectiveness of the redesigned 401(k) plan feature designed by Thaler and Benartzi to overcome anchoring, financial institutions may consider including an auto-escalation feature in new individual account processes. While auto-enrollment can be effective in overcoming the behavioral biases that impede initial action, without intervention, individuals often get anchored at an inadequate savings rate, which auto-escalation can help rectify. Taking this even further, an auto-increase element can be included that earmarks a percentage of annual raises and/or bonuses, and automatically allocates it for 401(k) contributions. (See figure 7 for a visual representation.)

Last but not least: Game-winning investment strategies

Using simulator tools to reduce the complexity of asset allocation

Choosing an optimal portfolio is also frequently impacted by behavioral biases. Indeed, such influences may cause individuals to make faulty asset investment choices, leaving them underprepared for retirement.

One such impediment, overconfidence, is often detected in the do-it-yourself investment segment. More than 50 percent of individuals surveyed by Deloitte say they are comfortable managing their retirement plan on their own, and nearly one-quarter do not believe they need professional retirement-related advice.¹¹
In trying to achieve an ideal asset allocation, such self-reliant individuals may believe they will avert losses (loss aversion), but on the contrary, acting without professional guidance may lead them to take excessive risks and experience higher losses when all is said and done, or be overly conservative in their investments when they are younger and thereby fail to generate sufficient growth to finance their retirement. That may help explain why only one-third of this segment feels financially secure about their retirement nest egg.32

Others become impaired with the endowment effect, which is the tendency to keep what they have—in this case, their retirement investment allocations—even if they are presented with potentially better options.

To address this paradox, financial institutions may have an opportunity to combine behavioral thinking with technology-driven tools that can help clients make more informed choices in optimizing their retirement investments. For example, following the initiation of a retirement account linked to direct payroll deposit, an individual’s contribution can potentially be invested in a tax-favored, diversified, low-cost fund. This could help individuals overcome inhibitions, such as their inability to process complex investment information, or their lack of sufficient time or level of savings to go through a complicated asset-allocation planning process.

For the 80 percent of those surveyed by Deloitte who prefer more control over asset allocation, providers may consider using a robo-advisor—an automated money management tool. The robo-advisor helps individuals to self-identify their investor personality and risk appetite. The algorithm then suggests an optimal investment portfolio based on these results, with some flexibility to choose investment options and modify asset allocations. Advocates of robo-advisors assert that in the absence of an experienced professional financial advisor, algorithms can usually manage money better and at a lower cost than can emotional, irrational human beings looking after their own finances. This may be particularly true for uninformed investors.

While it may be difficult (and, in many cases, not advisable) to completely eliminate human intervention, such tools are likely to improve the effectiveness of the investing process, especially among less sophisticated consumers. They also can substantially reduce the cost of providing guidance to those either unable or unwilling to pay a commission or fee for advice from a live professional. Indeed, 94 percent of lower-income respondents to Deloitte’s survey said they would seek the help of a financial professional for retirement savings and income needs if offered more affordable fees for advice. Therefore, for this segment, a less expensive option may be the robo-advisor.

Notably, nearly 60 percent of those surveyed that have used an automated online financial advice model found it either somewhat or very useful.33

While it may be difficult (and, in many cases, not advisable) to completely eliminate human intervention ... tools are likely to improve the effectiveness of the investing process, especially among less sophisticated consumers.
they developed a tool that can help individuals make better long-term investment choices to achieve specific financial goals. To test it, the researchers initiated a study in which participants were asked to make 34 yearly asset allocation decisions to achieve a goal of $1.5 million in retirement savings. The study used three approaches, two of which were designed to overcome the impact of behavioral hurdles by:

1. Minimizing the endowment effect
2. Minimizing loss aversion tendency
3. Utilizing a control condition that is identical to most retirement-saving interfaces available in the market

Of the three approaches, minimizing the endowment effect had the most impact, followed by minimizing loss aversion. The third approach that mimicked typical retirement tools was the least effective. The study emphasizes the finding that tools—if designed with a focus on minimizing the effects of biases—can help individuals improve their financial choices for retirement.

Investment decisions are often made to minimize risk rather than maximize return, which can make people risk-averse and prompt them to stick with suboptimal asset allocation, working contrary to their future saving expectations. Simulation tools run by computer algorithms may potentially help individuals focus on goals and encourage long-term thinking by enabling them to visualize the implications of their decisions on the final outcome. (See figure 8 for a visual representation.)

Figure 8. The BE framework for reducing asset allocation complexity

<table>
<thead>
<tr>
<th>Business objective</th>
<th>Reduce asset allocation complexity</th>
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<tbody>
<tr>
<td>Choice dimension</td>
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<tr>
<td>Calculation bias: How individuals process uncertainty</td>
<td>Mitigate overconfidence bias</td>
</tr>
<tr>
<td>Outcomes valuation: How we value outcomes</td>
<td>Mitigate the endowment effect (loss aversion)</td>
</tr>
<tr>
<td>Implement behavioral concept</td>
<td>Provide robo-advisors for less sophisticated investors</td>
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<tr>
<td></td>
<td>Automatically deposit funds into tax-favored, diversified, low-cost vehicles</td>
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Graphic: Deloitte University Press | DUPress.com
Concluding Remarks: The post-game recap

Given the decline in the number of employer-sponsored defined benefit pension plans, and the fact that Social Security was not designed to serve as the sole source of an individual’s retirement savings and income, a vast segment of the US population remains inadequately invested to achieve retirement financial security.

The financial services industry has stepped in over the years with a variety of products and services to help people buttress their retirement savings and establish income-generating investments. Yet current strategies to engage with prospects have left a large segment of the market underserved and feeling insecure about their retirement.

This highlights a pressing need for the financial services industry to breach the remaining barriers—both practical and psychological—that may be inhibiting a large segment of the population from adequately preparing for a financially secure retirement. Finding solutions to overcome such barriers will be critical to shoring up the long-term financial health of the US population.

The application of BE in product design has already begun to break the inertia experienced by employer-sponsored 401(k) plans, leading to higher participation and contribution rates. Therefore, to effectively penetrate the vast individual market, including many of those who have no access to workplace plans, financial institutions will need to fully address consumer biases and cognitive limitations when developing countermeasures to overcome retirement investment inertia.

Further, financial services providers will need to consider the behavioral biases of the population that already has a 401(k) or IRA, and who believe having one such product will sufficiently prepare them for retirement, because for many that will likely not be the case. For this segment, the financial services industry can further capitalize on behavioral biases to get them thinking of retirement planning as a holistic process that will likely require multiple products and/or accounts to produce sufficient savings and income.

Indeed, products, tools, and communications designed to break through these barriers by prevailing over negative BE influences (figure 9) with more positive ones will potentially engender far better outcomes for all stakeholders in the individual retirement savings market.
Overcoming behavioral biases to help individuals achieve retirement security

Table 1. Call to action

<table>
<thead>
<tr>
<th>Call to action</th>
<th>Products, tools, and communications</th>
<th>Related behavioral elements</th>
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</table>
| **1. Initiate the process: Establish an account** | • Align with life events and strategically place defaults  
• “Round-up” for effortless microsavings  
• Empower lower income demographics with microsavings accounts | ![Inertia](image1)  
![Passive decision making](image2)  
![Present bias](image3)  
![Partitioning](image4)  
![Anchoring](image5)  
![Loss aversion](image6)  
![Effort aversion](image7) |
| **2. Influence adequate funding** | • Help individuals visualize future selves  
• Leverage social influence  
• Automatic escalation | ![Present bias](image8)  
![Peer pressure](image9)  
![Passive decision making](image10)  
![Anchoring](image11) |
| **3. Eliminate complexity and streamline investing** | • Automatically invest assets into a tax-deferred low-cost fund  
• Design simulator tools that guide individuals to optimal portfolio allocations (for example, robo-advisors) | ![Overconfidence](image12)  
![Loss aversion](image13)  
![Endowment effect](image14) |

2. Figure 1 sources from left to right:


7. Knowl, "The role of behavioral economics and behavioral decision making in Americans' retirement savings decisions."


10. Thaler, "Shifting our retirement savings into automatic."


17. Ibid.


20. Ibid.


32. Ibid.

33. Ibid.


35. Ibid.

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