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THE BIG IDEA

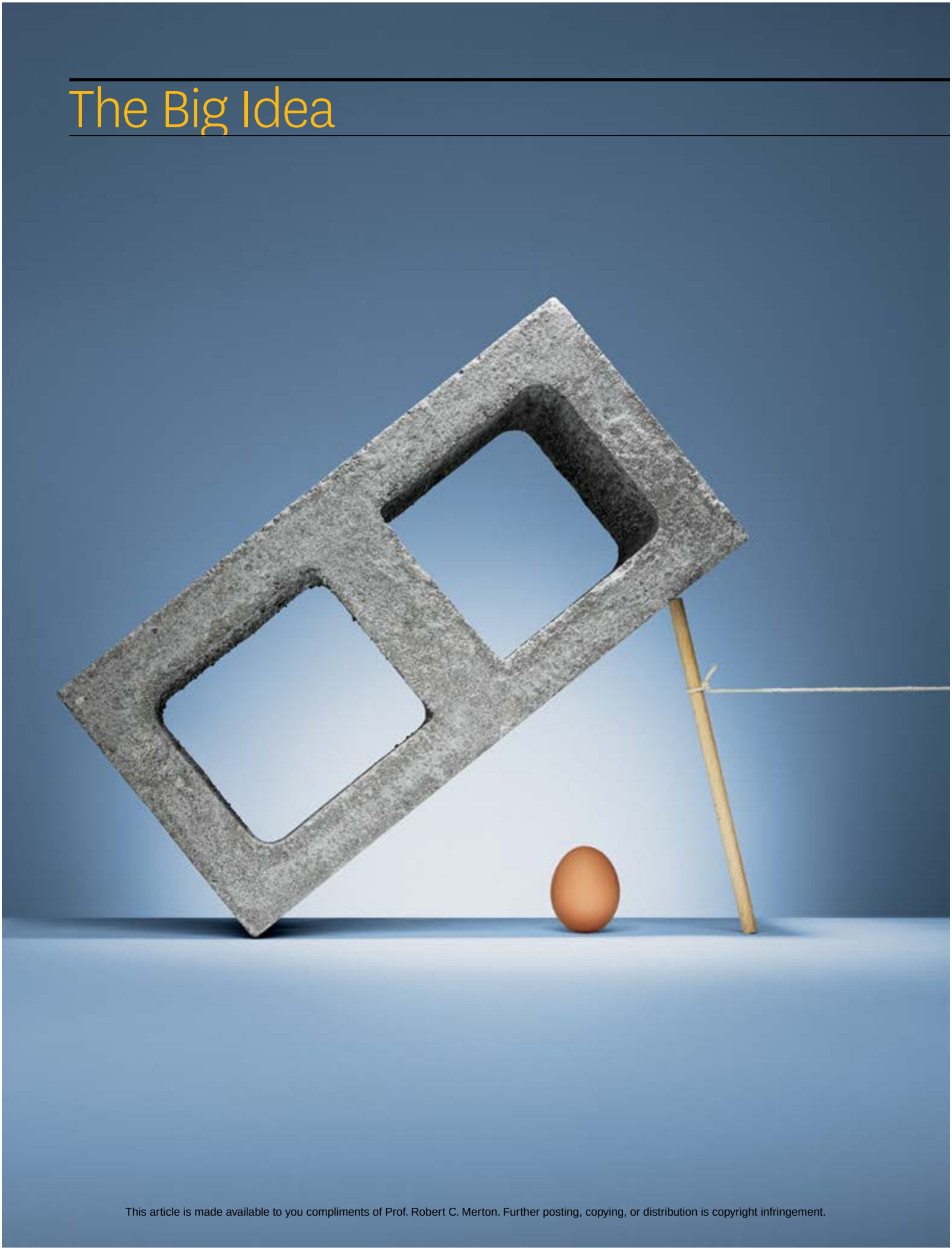
The Crisis in Retirement Planning

Our approach to saving is all wrong: We need to think about monthly income, not net worth.

by Robert C. Merton

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Robert C. Merton, a recipient of the 1997 Alfred Nobel Memorial Prize in Economic Sciences, is the School of Management Distinguished Professor of Finance at the MIT Sloan School of Management. He is also the resident scientist at Dimensional Fund Advisors, a Texas-based global asset management firm, and University Professor Emeritus at Harvard University.

The Crisis in Retirement Planning

Our approach to saving is all wrong: We need to think about monthly income, not net worth.

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Corporate America really started to take notice of pensions in the wake of the dot-com crash, in 2000. Interest rates and stock prices both plummeted, which meant that the value of pension liabilities rose while the value of the assets held to meet them fell. A number of major firms in weak industries, notably steel and airlines, went bankrupt in large measure because of their inability to meet their obligations under defined-benefit pension plans.

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The result was an acceleration of America's shift away from defined-benefit (DB) pensions toward defined-contribution (DC) retirement plans, which transfer the investment risk from the company to the employee. Once an add-on to traditional retirement planning, DC plans—epitomized by the ubiquitous 401(k)—have now become the main vehicles for private retirement saving.

But although the move to defined-contribution plans arguably reduces the liabilities of business, it has, if anything, increased the likelihood of a major crisis down the line as the baby boomers retire. To begin with, putting relatively complex investment decisions in the hands of individuals with little or no financial expertise is problematic. Research demonstrates that decision making is pervaded with behavioral biases. (To some extent, biases can be compensated for by appropriately framing choices. For example, making enrollment in a 401(k) plan the default option—employees must opt out rather than opt in—has materially increased the rate of enrollment in the plans.)

More dangerous yet is the shift in focus away from retirement income to return on investment that has come with the introduction of saver-managed DC plans: Investment decisions are now focused on the value of the funds, the returns on investment they deliver, and how volatile those returns are. Yet the primary concern of the saver remains what it always has been: Will I have sufficient income in retirement to live comfortably? Clearly, the risk and return variables that now drive investment decisions are not being measured in units that correspond to savers' retirement goals and their likelihood of meeting them. Thus, it cannot be said that savers' funds are being well managed.

In the following pages I will explore the consequences of measuring and regulating pension fund performance like a conventional investment portfolio, explain how retirement plan sponsors (that is, employers) and investment managers can engage with savers to present them with meaningful choices, and discuss the implications for pension investments and regulation.

These recommendations apply most immediately to the United States and the United Kingdom, which have made the most dramatic shift among developed nations toward putting retirement risks and responsibilities in the hands of individuals. But the trend toward defined-contribution plans is ubiquitous in Asia, Europe, and Latin America. Thus the principles of providing for retirement income apply everywhere.

Assets Versus Income

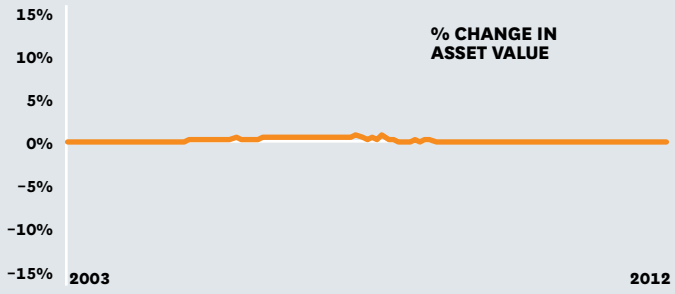
Traditional defined-benefit pension plans were conceived and managed to provide members with a guaranteed income. And because this objective filtered right through the scheme, members thought of their benefits in those terms. Ask someone what her pension is worth and she will reply with an income figure: "two-thirds of my final salary," for example. Similarly, we define Social Security benefits in terms of income.

The Real Meaning of Risk in Retirement

The seeds of the coming pension crisis lie in the fact that investment decisions are being made with a misguided view of risk. Case in point: When wealth maximization is the goal of retirement saving, the T-bill is seen as a risk-free investment. But when volatility is measured in terms that matter to retirees (how much a saver would receive annually if the investment were converted into an income stream), we clearly see that the T-bill is actually quite risky.

Investing in T-bills will keep your principal safe...

Consider an individual who invests retirement savings of $1 million in T-bills. As the chart below shows, the change in asset value over time is close to zero, so the saver has minimal risk of losing any of the invested principal.



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Idea in Brief

THE RISK PROBLEM
The move to saver-managed defined-contribution pension plans—most notably 401(k)s—has increased the likelihood of a pension crisis down the line as the baby boomers retire.

WHY IT'S HAPPENING
Pension savings are invested so as to maximize capital value at the time of retirement, an objective imposed by regulation. But the goal of most savers is to achieve a reasonable level of retirement income. This mismatch almost guarantees that savings are badly managed, because an investment that is risk-free from an asset value standpoint may be very risky in income terms. At the same time, the defined-contribution process requires savers who often have little or no financial expertise to make complicated decisions about risk.

THE SOLUTION
Investment practice and regulation need to be changed to prioritize income security over capital gain, and communication needs to focus on variables the saver understands and give a clearer idea of the likelihood of reaching a given income target rather than emphasize investment returns.

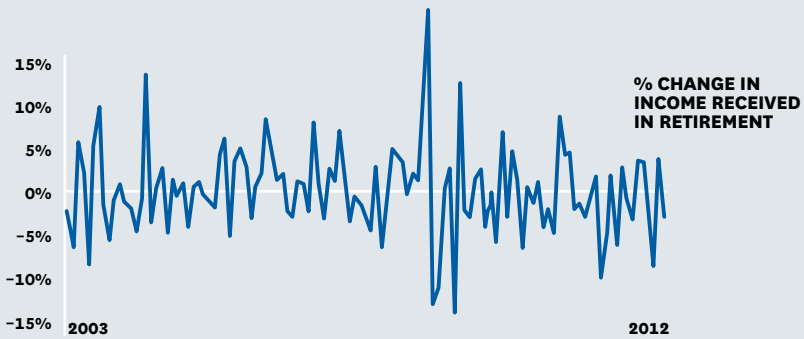
The language of defined-contribution investment is very different. Most DC schemes are designed and operated as investment accounts, and communication with savers is framed entirely in terms of assets and returns. Asset value is the metric, growth is the priority, and risk is measured by the volatility of asset values. DC plans' annual statements highlight investment returns and account value. Ask someone what his 401(k) is worth and you'll hear a cash amount and perhaps a lament about the value lost in the financial crisis.

The trouble is that investment value and asset volatility are simply the wrong measures if your goal is to obtain a particular future income. Communicating with savers in those terms, therefore, is unhelpful—even misleading. To see why, imagine that you are a 45-year-old individual looking to ensure a specific level of retirement income to kick in at age 65. Let's assume for simplicity's sake that we know for certain you will live to age 85. The safe, risk-free asset today that guarantees your objective is an inflation-protected annuity that makes no payouts for 20 years and then pays the same amount (adjusted for inflation) each year for 20 years. If you had enough money in your retirement account and wanted to lock in that income, the obvious decision is to buy the annuity.

But under conventional investment metrics, your annuity would almost certainly look too risky. As interest rates move up and down, the market value of annuities, and other long-maturity fixed-income securities such as U.S. Treasury bonds, fluctuates enormously. In 2012, for instance, there was a 30% range between the highest and lowest market value of the annuity for the 45-year-old over the 12 months. However, the income that the annuity will provide in retirement does not change at all. Clearly, there is a big disconnect about what is and is not risky when it comes to the way we express the value of pension savings.

...but the income you can buy with the principal is highly volatile.

But consider the same individual who wants to convert the T-bills into an income stream to live off in retirement. The return (change in how much annual income the saver receives) depends enormously on exactly when he makes the conversion.



The graph shows the percent change in the amount of inflation-protected income that could be purchased with the T-bill portfolio at a given time (for example, by converting it into a deferred inflation-proof annuity).

This simulation is done by totaling the current market value of a portfolio of traded U.S. Treasury inflation-protected securities bought so as to provide adequate funds to purchase the income stream in 20 years. In the absence of an active market in deferred inflation-proof annuities, this provides an estimated value of the deferred income.

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Laws intended to protect consumers would have the unintended consequence of prohibiting savers from holding the risk-free income asset.

Unfortunately that disconnect is now being codified in DC plan regulation. Required disclosures emphasize net asset value and its changes. In the interest of consumer protection, regulators in the European Union have even considered requiring minimum rates of return on portfolios. But if the goal is income for life after age 65, the relevant risk is retirement income uncertainty, not portfolio value. To truly protect consumers, such regulatory "floors" would need to be specified in terms of the safety of the future income stream, not the market value of that stream.

Yet under regulations that set a minimum floor on portfolio value, retirement plan managers would not be allowed to invest savers' funds in deferred annuities or long-maturity U.S. Treasury bonds—the very assets that are the safest from a retirement income perspective. That's because, if interest rates were to rise, their price (that is, their market value) could easily fall below the minimum required asset value. Ironically, therefore, laws intended to protect consumers would have the unintended consequence of prohibiting savers from holding the risk-free income asset.

At the same time, the law would encourage investments in assets that are actually highly risky from an income perspective. U.S. Treasury bills (T-bills) are commonly treated as the definitive risk-free asset. Over eight years, the dollar returns to T-bills have been stable, and principal has been fully protected. But as the exhibit "The Real Meaning of Risk in Retirement" illustrates, if we look at the unit of measure that matters to our consumer—how much the saver would receive if the investment were converted into an income stream—then T-bills are shown to be very risky, nearly as volatile as the stock market.

To understand what that means in commonsense terms, consider a person who plans to live off the income from $1 million invested in T-bills. Suppose he retires in a given year and converts his investments into an inflation-protected annuity with a return of 4% to 5%. He will receive an annual income of $40,000 to $50,000. But now suppose he retires a few years later, when the return on the annuity has dropped to 0.5%. His annual income will now be only $5,000. Yes, the $1 million principal amount was fully insured and protected, but you can see that he cannot possibly live on the amount he will now receive. T-bills preserve principal at all times, but the income received on them can vary enormously as return on the annuity goes up or down. Had the retiree bought instead a long-maturity U.S. Treasury bond with his $1 million, his spendable income would be secure for the life of the bond, even though the price of that bond would fluctuate substantially from day to day. The same holds true for annuities: Although their market value varies from day to day, the income from an annuity is secure throughout the retiree's life.

The seeds of an investment crisis have been sown. The only way to avoid a catastrophe is for plan participants, professionals, and regulators to shift the mind-set and metrics from asset value to income.

An Income-Focused Investment Strategy

So what should retirement planners be investing in? The particulars are, of course, somewhat technical, but in general, they should continue to follow portfolio theory: The investment manager invests in a mixture of risky assets (mainly equity) and risk-free assets, with the balance of risky and risk-free shifting over time so as to optimize the likelihood of achieving the investment goal. The difference is that risk should be defined from an income perspective, and the risk-free assets should be deferred inflation-indexed annuities.

It's important to note that the fund manager need not actually commit the employee to purchasing a deferred annuity but should manage the risk-free part of the portfolio in such a way that, on retirement, the employee would be able to purchase an annuity that would support the target standard of living regardless of what happens to interest rates and inflation in the meantime.

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This kind of liability-driven investment strategy is called "immunization." It's equivalent to how an insurer hedges an annuity contract that it has entered into and how pension funds hedge their liabilities for future retirement payments to plan members. What investment managers often fail to realize is that the same strategy can be employed at the individual investor level. (For a more detailed discussion see the sidebar "Portfolio Management: When Income Is the Goal.")

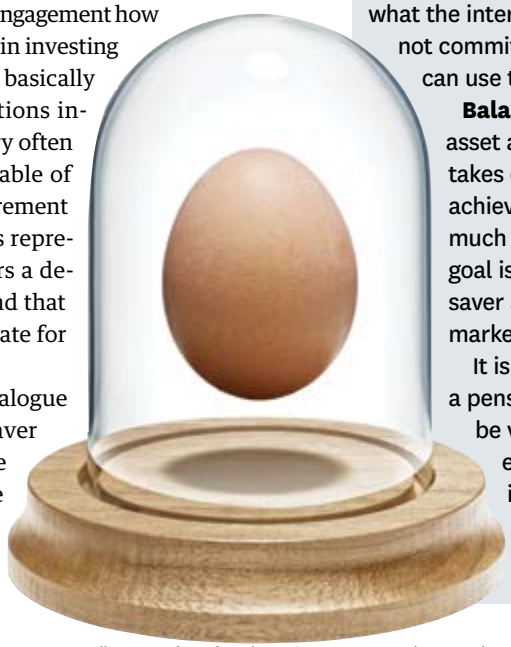
My point is that the financial technology already exists to invest individual pension contributions in this way. Employees still get a pot of money upon retirement and thus retain the same freedom of choice over their retirement savings that they have under current defined-contribution arrangements. The difference is that the value of the pot would be obtained through an investment strategy meant to maximize the likelihood of achieving the desired income stream at retirement. Of course, that value might be much more or much less than the value of the pot obtained through a wealth-maximizing investment strategy.

Moving to an income-focused pension strategy will require changes not only to the way retirement plan providers actually invest the money but also to how they engage and communicate with savers. Let's look at what's wrong with current practice in this regard.

Little Meaningful Dialogue

In the conventional DC model, the provider asks the employee at the beginning of the engagement how much risk he is willing to take on in investing the accumulated savings, which basically puts constraints on the proportions invested in bonds and equities. Very often the employee does not feel capable of specifying a level of risk or a retirement goal, so the plan provider makes representative assumptions and offers a default investment in a mutual fund that has a risk level deemed appropriate for the employee's age group.

From that moment on, the dialogue between the provider and the saver consists of regular reports on the value of the pooled fund, the amounts contributed, the annual returns achieved, and the size of the employee's share of



PORTFOLIO MANAGEMENT

When Income Is the Goal

What does it mean, in practical terms, to shift the focus of retirement planning from amassing the biggest pot of money possible to guaranteeing a retirement income for life?

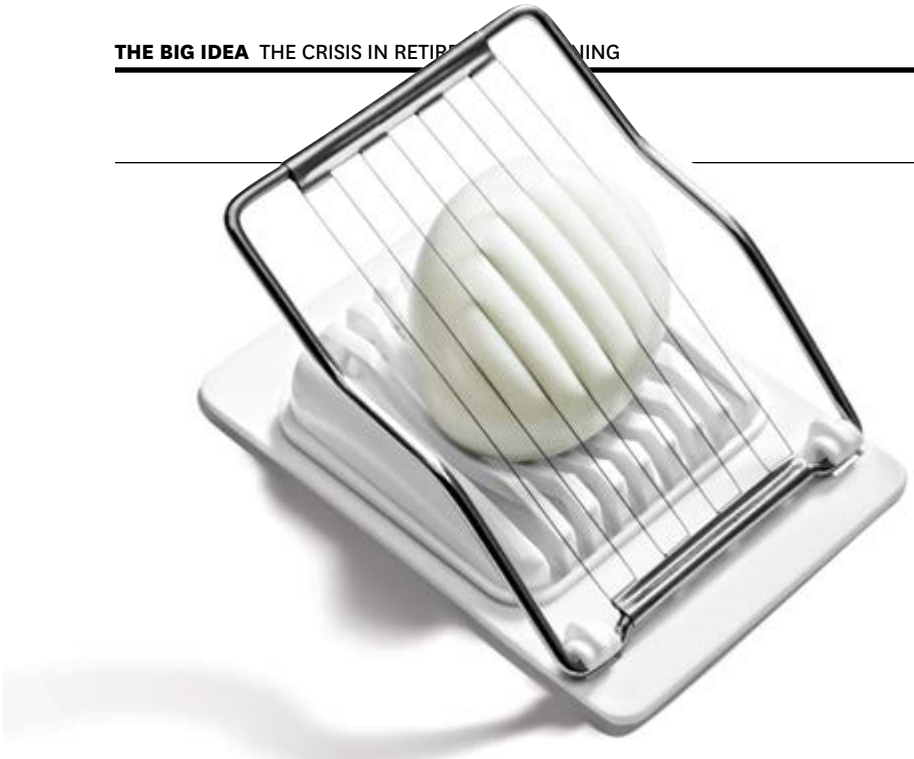
In my view, plan providers, employers, and savers must adopt a liability-driven strategy. As in a conventional plan, the accumulated savings are allocated between a well-diversified risky portfolio (made up of various low-cost mutual funds) and risk-free securities. The main difference lies in the definition of a "risk free" investment and the approach to taking on risk.

The risk-free portfolio. Under the proposed scheme, the risk-free retirement asset is a bond-like security that makes no coupon payments until the date of retirement and then makes level payments, adjusted for inflation, each month for the rest of the retiree's life. Because it is not feasible to purchase this security, called a deferred real annuity, until the employee is close to retirement, the fund manager creates a facsimile of the asset through a dynamic trading strategy that mixes U.S. Treasury Inflation-Protected Securities (TIPS) of various maturities to reflect the maturity structure of the employee's target retirement income. This way of using financial technology to match the returns and cash flows of a reference security is called a *replicating portfolio* strategy and has been widely used for several decades, although only recently in this specific application. The idea is to ensure that the amount of money in the portfolio at retirement is sufficient to purchase the replicated deferred annuity, no matter what the interest rate may be at the time. The retiree is not committed to purchasing the annuity, however, and can use the funds any way he chooses.

Balancing the portfolios. Unlike mechanical rule asset allocations, the approach advocated here takes on risk only when it improves the chance of achieving the desired income goal. And it takes as much risk out of the portfolio as possible once the goal is achieved, avoiding a scenario in which the saver achieves his goal only to fall below it if the markets subsequently go down.

It is important to note that the capital value of a pension pot managed in this way will most likely be very volatile, because risk is being hedged to eliminate income volatility, not price volatility. For this reason, good communication with savers is essential.

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Rather than trying to make employees smarter about investments, we need to create a smarter dialogue about how plan providers can help them achieve their income goals.

the fund. The employee feels happy if the value and returns look positive, but he typically has little or no idea what the implications of this performance might be on the chances of maintaining his standard of living in retirement as measured by income—an outcome which, as I demonstrated earlier, may not at all be related to returns on investment.

When employees try to become engaged and make decisions about their retirement, they are often confronted with very technical decisions, such as "How much debt versus equity do you want?" or "How much exposure to large-cap European stocks do you want?" It's a bit like having salespeople ask car buyers what engine compression ratio they want. Some buyers might know that a high ratio is good, but very few understand exactly what that means: how many more miles to the gallon they'll get, how much faster they'll go from zero to 60 miles per hour, or how much more reliable the car will be than one with a lower ratio. But fuel efficiency, speed, and reliability are the factors that car buyers care about.

Consumer education is often proposed as a remedy, but to my mind it's a real stretch to ask people to acquire sufficient financial expertise to manage all the investment steps needed to get to their pension goals. That's a challenge even for professionals. You'd no more require employees to make those kinds of decisions than an automaker would dump a pile of car parts and a technical manual in the buyer's driveway with a note that says, "Here's what you need to put the car together. If it doesn't work, that's your problem."

Experience also suggests that customer engagement in investment management is not necessarily a good thing. People who are induced to open a brokerage account in their IRAs often become very active in investing for their pension, trading stocks around the world on their computers after work. This is far from a good idea; such short-term trading will not improve the savers' chances of successfully achieving retirement goals—in fact, it will diminish them.

Choosing *not* to educate customers is not a radical idea. Many technologically sophisticated products are actually designed to minimize learning requirements on the part of the user. If you were to drive a car made in 1955, the accelerator would feel the same to your foot as one does in a new car today. Of course, in 1955, the accelerator was connected to pieces of metal that made the carburetor open. Today all the connections are electronic, and you could activate them with your finger. Car manufacturers keep the pedal to help us feel comfortable—we've always pushed the accelerator with our foot. How would you like it if you bought your next car and found a joystick instead of a steering wheel?

The bottom line is that we have to be realistic about what we can expect people to understand (or what they should have to understand). Rather than trying to make employees smarter about investments, we need to create a smarter dialogue about how the plan provider or its investment management agents can help them achieve their goals. Let's look now at what that dialogue might be like.

Redefining Customer Engagement

To create meaningful engagement in pension planning, a plan provider should begin by asking employees not about risk but about their expectations for income needs in retirement.

Clearly, employees in their twenties, thirties, or forties will not be able to be very specific about this, but they're likely to agree that a reasonable goal would be to have a standard of living more or less the same as they'd be experiencing in the last five or so years before retirement. This would be, in effect, a plausible default option.

Once the working expectations have been agreed on, the provider can calculate the probabilities of

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achieving each employee's target standard of living for given levels of contribution, expressed as a percentage of salary, and for a given working life. The provider will of course need more information, such as the employee's current salary and the salary levels of retiring employees, estimates of interest and inflation rates, and Social Security and defined-benefit pension expectations. But all these data can be obtained from the employer or other sources, or assumed based on publicly available financial market indicators.

The customer need worry about three things only: her retirement income goals, how much she is prepared to contribute from her current income, and how long she plans to work. The only feedback she needs from her plan provider is her probability of achieving her income goals. She should not receive quarterly updates about the returns on her investment (historical, current, or projected) or about the current allocation of her assets. These are important factors in achieving success, but they are not *meaningful* input for the choices about income that the customer has to make.

Suppose the saver learns that she has a 54% chance of achieving her desired income in retirement. Like a high cholesterol number, that relatively low probability serves as a warning. What can she do to improve her outlook? There are only three things: Save more, work longer, or take more risk. These are, therefore, the only decisions a saver needs to think about in the context of retirement. And those choices have immediate impact because if you increase savings, your take-home paycheck is going to be smaller. If you decide to retire at a later age, you will have to explain that decision to your family and loved ones.

The income-focused dialogue between investment provider and saver should continue right up to and after retirement. Typically, employees start thinking more seriously about their detailed preferences closer to the actual date of retirement. By this time, they have a much better sense of their health status, their ability and willingness to continue working beyond retirement, what dependent responsibilities they have, whether they have other sources of income from, say, a working spouse, where and how they want to live, and the other things they'd like to do with their savings. They may no longer want to stick to the default of investing all their retirement pot into an annuity because they may wish to be able to realize a lump sum at some stage.

Close to retirement, the provider and the future pensioner need to refine the goals. A good framework in which to do this is to divide income needs into three categories:

Category 1: Minimum guaranteed income. Income in this category must be inflation-protected and guaranteed for life, thus shielding the retiree from longevity risk, interest rate fluctuations, and inflation. Government benefits, such as Social Security, and any defined-benefit pensions would be included in this category. (DB plan payments with no inflation adjustment should be treated as if they were falling at the expected rate of inflation.) To increase the amount of guaranteed income above and beyond those benefits, the pensioner would have to buy an inflation-protected life annuity from a highly rated insurance company, the "safe" asset described above. A graded annuity whose income payments grow at the expected rate of inflation can also be used when inflation-protection is not available. The annuity could provide a joint survivorship feature for a spouse but would provide no other death benefits or payouts.

Opting for guaranteed income comes with downsides. Annuities are inflexible and allow for no liquidity to alter the income stream if circumstances change, if there is an unanticipated need for a lump sum of money, or if the retiree wishes to make bequests. With reason, therefore, some people are uncomfortable using all their assets to purchase a risk-free annuity, especially if they have no additional nonpension savings that can provide them with some flexibility. For this reason, they ought to consider trading off some—but not all—guaranteed future income for alternatives that offer more flexibility.

Category 2: Conservatively flexible income. The more flexible but still relatively safe alternative to annuities is a portfolio of U.S. Treasury Inflation-Protected Securities ("TIPS") that offer a periodic payout of inflation-protected income for a fixed time horizon, typically the life expectancy of the participant at retirement. Both the portfolio interest income and principal at each bond's maturity are used for income payments, so there is no capital residual after the term.

There are two advantages to this type of conservative additional income relative to guaranteed income. Because the savings can be held in liquid UST assets, they are available in whole or in part to the participant at any time, for medical emergencies or

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other lump sum expenditures. And any assets remaining in the fund at the pensioner's death would be available for bequests. The main disadvantage, of course, is that there is no income beyond the term. That is, the retiree takes the risk of outliving the pool of assets. (Savers can purchase deferred annuity contracts that do not pay anything until one reaches a later age—for instance, 85—to provide longevity "tail" insurance.)

Category 3: Desired additional income. Many DC plan participants will find that their targeted mix of guaranteed and conservative incomes, along with nonpension plan personal assets (for instance, their house, bank accounts, and savings deposits), is sufficient to meet all their retirement goals. In this case, they may allocate 100% of their DC accumulation to investing in the relevant financial instruments (annuities and bond funds) for guaranteed and conservative additional incomes. But some participants may find that their anticipated total income and assets will not be enough to finance the level of retirement income they desire. In that case they may wish to accept lower income now (that is, increase savings) or invest a portion of their DC accumulations in risky assets that hold out the possibility of earning sufficient returns to permit achieving the desired higher retirement income.

Few employees will have the wherewithal to afford a full-time financial adviser. Thus, an effective retirement system must guide savers to good retirement outcomes through clear and meaningful communication and simplicity of choices, during both the accumulation phase and the postretirement payout phase.

Again, this approach can be implemented today using existing financial technology on a cost-effective basis and to scale. For example, I have developed, with Dimensional Fund Advisors, such a system for interacting with customers, and I successfully installed this kind of solution in a large Dutch company in 2006.

Implications for Investors and Regulators

An approach that uses smarter products rather than tries to make consumers smarter about finance calls for different kinds of investments and, in turn, changes to the way regulatory oversight is provided.

Under current regulation, accumulated DC investments are restricted largely to stocks, bonds, and money market instruments, or mutual funds made up of them. The problem, as we have seen, is that these kinds of investments cannot deliver security in terms of income. Switching to the kind of income-driven investment strategy proposed here will require an altogether more sophisticated investment technology, for which the existing education-and-disclosure approach to regulation is clearly unworkable.

The logical alternative is to place the burden of oversight on the company sponsoring the plan: the participant's employer, who generally has the financial expertise (or access to it) to assess the competences and processes of the plan providers. In fact, this is already starting to happen: The Pension Protection Act of 2006, with its opt-out provision and the associated setting of a default investment strategy for those who do not make a selection, encouraged employers to take a much more assertive role in managing DC plans. More, however, will be needed.

Savers, on the whole, should welcome such changes to the status quo. Although I don't do academic research on this particular issue, evidence suggests that people trust their employers—certainly more than they trust banks, insurance companies, or brokerage firms. Shifting the regulatory burden as gatekeeper of provider quality and of well-designed products (but not as guarantor of investment performance) onto plan sponsors, therefore, seems to me to be a reasonable policy, certainly more reasonable than expecting even well-educated people with very high IQs to read prospectuses, evaluate past performance, and generally make sense of complex financial strategies.

IT IS fair enough to expect people to provide for their retirement. But expecting them to acquire the expertise necessary to invest that provision wisely is not. We wouldn't want them to. We don't want a busy surgeon to spend time learning about dynamic immunization trading instead of figuring out how to save lives, any more than we would want skilled finance professionals to spend time learning how to do their own surgery. But unless we rethink the way we engage savers and invest their money, this is precisely where we're headed. I realize that what I'm advocating may seem perverse at a time when trust in financial institutions, and indeed in financial innovation, has fallen to pretty low levels. Yet it seems just as perverse to deny savers the benefits of financial technology.

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