How to Solve the World's Retirement Crisis

By Kerry Pechter *Thu, Jan 28, 2021*

Retrofitting 401(k) plans with lifetime income options is one of the thorniest challenges of our time. We describe three possible solutions to that puzzle, from Nobelist Robert Merton and others, that were featured recently in the Journal of Investment Management.

The process of replacing defined benefit pensions with defined contribution plans at US companies has taken a long time. If you date the beginning of the end of DB plans to 1974, when **ERISA** was signed into law—or even to the termination of the **Studebaker-Packard pension** in 1963, which led to ERISA—the transition has lasted about half a century.

Will it take just as long to restore reliable monthly paychecks to the defined contribution plans? It might.

In a way, retrofitting 401(k) profit-sharing plans into vehicles for retirement income tests the **Second Law of Thermodynamics**. DC atomizes the collective pools of DB savings into individual accounts. To reverse that evaporation process will take a lot of work, imagination, and possibly new types of bonds from the US Treasury.

Given the high stakes—tens of trillions in retirement savings in the US alone—a lot of thought has gone into solving the DB-to-DC puzzle. The prestigious *Journal of Investment Management* focused its most recent **issue** on 'Retirement Investing,' featuring three articles by some of the top minds in the field. *RIJ* provides summaries of (and links to) these articles below.

"A Six-Component Integrated Approach to Addressing the Retirement Funding Challenge," by Robert C. Merton and Arun Muralidhar

Nobel-winning economist Robert Merton and Arun Muralidhar have collaborated for years on a retirement income-generating government-sponsored investment they call Standard-of-Living Indexed Forward-starting Income-only Securities, or SeLFIES. Their recent JOIM paper ties SeLFIES to the Coronavirus pandemic. It also outlines their six-component approach to the global retirement funding challenge.

As described by the authors, a single risk-free, consumption-indexed SeLFIE bond might pay

a real $5/year each over a retirement period of 20 years. A person age 55 today who wanted $50,000 per year, starting in 10 years and lasting for 20 years, would buy 10,000 of the 2031-series SeLFIES, either all at once or in increments.

"Individuals do not have to know anything about interest rates or rates of return or compounding. They only need to know the income in retirement paid by each SeLFIES bond and its price to figure how much income is being added to his retirement by purchasing the bond," the authors write. So-called "gig workers" who don't belong to a formal DC plan could buy SeLFIES on their own.

It may have been beyond the scope of the paper to consider how the US government would use the proceeds of selling trillions of dollars in SeLFIe bonds. Today, Social Security already relies on general federal tax receipts for the redemption of the special-purpose, non-tradable bonds in its trust fund, which represent surplus payroll tax receipts that were collected and lent to the US Treasury since the Social Security reforms of 1983.

SeLFIES are a component of the authors' vision for a six-point plan that they believe would solve much of the world's retirement income crisis. The six components, applicable in any country by any government, are: A basic minimum defined benefit pension or Social Security benefit as a safety net; a defined contribution plan; the availability of retail annuities (including reverse mortgages); the issuance of SeLFIES; public policies that encourage and allow older people to work longer; and innovations that make it easier to access retirement savings in emergencies, such as those imposed by the pandemic.

"How Much Can Collective Defined Contribution Plans Improve Risk-Sharing?" by Deborah Lucas and Daniel Smith.

In their paper, Deborah Lucas of the MIT Sloan School and Daniel Smith of the MIT Golub Center for Finance and Policy consider the Collective Defined Contribution (CDC) concept, a hybrid of DB and DC found in Europe and Canada. Then they ask if the CDC's risk-management strategy could be replicated in a DC plan with individual accounts, managed by individual participants with average investment skills.

In a CDC plan, all of the participants contribute to a common, professionally managed investment pool. This spreads out the risks and minimizes the costs of individually managed accounts. Each participant has a notional account that reflects the growth of his or her contributions, and the number of shares in the pool he/she has purchased. The pool maintains a reserve fund which captures excess profits during boom years.

[See *RIJ* **story** on a CDC experiment in New Brunswick, Canada.]

Retirees get income from the same big pool, based on the number of shares or value of their notional accounts at retirement. If their balance falls short of the cost of an annuity to cover a minimum target income, their balance would get topped up by a distribution from the reserve fund. This technique provides a smoothing effect across annual cohorts of participants so that no one bears the brunt of sequence risk.

In a CDC plan, Lucas and Smith say, the participants are selling an implicit call to the reserve fund (which receives a transfer from the collective fund when market returns are high) and buying an implicit put from the fund (which sends a transfer to the collective fund when market returns are low, assuming reserves are sufficient). Thus each retiree's income only rarely falls below a target level and sometimes exceeds it.

Lucas and Smith ask if, all else being equal, 401(k) participants could replicate this risk-management technique individually, in what the authors call an "options-augmented DC plan," by purchasing one-year puts and selling one-year calls on their entire accounts? Yes and no, they say.

"The options augmented model was able to produce outcomes that were considerably more predictable than the benefits in a 60/40 DC plan, and fairly similar to those of the CDC model," the author write. They offer a couple of observations: The one-year options strategy might demand too much financial sophistication from participants, and the CDC model's risk-management policies might be too conservative to produce desired levels of retirement income.

"Towards Replacing the Defined Benefit Plan: Assured Retirement Income Provided by a Liquid Investment Fund," by Miguel Palacios, Hayne Leland and Sasha Karimi.

The authors propose a new kind of DC fund that would allow individuals to create minimum assured future income streams for themselves for a period of time (typically 20 years). It employs a "floor-and-upside" strategy that divides savings between a "risk-free" and a risky asset. The risk-free asset is a ladder of safe zero-coupon US Treasury securities—which the authors call MIF, or Maximum Income Fund—whereas the risky asset is a diversified equity index fund.

The allocation between the risk-free and risky assets is such that the minimum assured income stream is satisfied for all investors, regardless of when they invest, while maximizing exposure to the risky asset. In their example, the minimum assured income is 80% of MIF.

Shares in the fund are issued so that the minimum annual income stream per share is $1. When income begins, part of the savings in the fund can be used to buy income beyond the period for which income is assured.

The new savings alternative is called the RLI, or Robust Liquid Income Fund. Over their working lives, plan participants buy more RLI shares. The share price would fluctuate, depending on a number of factors, but the minimum income would always be assured. Outstanding performance of the equity-index sleeve would result in increases to the minimum income, which would be paid with new shares or share "splits," such that the assured annual income per share remains at $1.

The difference between the value of the fund and the value required to provide assured income for the specified period of time, which is the balance of the equity index sleeve of the RLI, can be used by investors when income begins to buy a longevity annuity component to guarantee income beyond the first 20 years of retirement. This would likely be a tax-favored deferred income annuity called a Qualified Lifetime Annuity Contract (QLAC).

There are several challenges here. There's the challenge of dividing each new contribution between the risky and risk-free sleeves of RLI in proportions that will both ensure the provision of at least 80% of the MIF income over the first 20 years, while also maximizing the exposure to risky assets so that there's a chance for more than 100% of the MIF income—plus the purchase of the QLAC.

Another set of challenges involves ensuring that each share will buy $1 of annual income for 20 years, no matter when the share is purchased, regardless of asset values on that day, and without affecting any other participant's balance.

The authors claim to have a special sauce—a proprietary algorithm—that dynamically adjusts the allocation between the risk-free and risky assets to achieve an income for each participant that might not be as high the income from a fund that was 100% invested in a Treasury bond ladder but which could potentially be much higher. They note the concept's flexibility: there's lots of room to customize it and adjust the risk/return balance by changing the various inputs, goals, and asset choices.