

# Notes

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## A T A G L A N C E

### **Investment Options and HSAs: Findings from the EBRI HSA Database**, *by Paul Fronstin, Ph.D., Employee Benefit Research Institute*

- In 2014, 6.4 percent of health savings account (HSA) owners in the EBRI HSA Database had used the investment option portion of the account.
- Forty-seven percent of the HSAs with investments were opened between 2005 and 2008, compared with 8 percent among HSAs without investments. Among HSA owners with investments, the average age was 48.5 in 2014, compared with 43 among HSA owners without investments.
- Individuals contributed \$2,636 annually on average when they had investments and \$1,224 when they did not have investments. Annual distributions for health care claims averaged \$1,777 from HSAs with investments, and \$1,293 from HSAs without investments.
- End-of-year account balances averaged \$10,261 among HSAs with investments, and \$1,709 in HSAs without them.

### **How Much Can Qualifying Longevity Annuity Contracts Improve Retirement Security?** *by Jack VanDerhei, Ph.D., Employee Benefit Research Institute*

- In recent years, the prospect of increasing individual interest in annuitizing retirement savings has been enhanced through an insurance product designed to provide monthly benefits only after a significant deferral period in retirement.
- In 2014, one of the major constraints of using this type of product was eliminated when the U.S. Treasury Department and the Internal Revenue Service (IRS) issued final rules for creating a qualifying longevity annuity contract (QLAC).
- This *Notes* article provides analysis of the ability of QLACs to provide an effective longevity hedge for Boomers and Gen Xers who are simulated to participate in an in-plan offering either through a 10-year series of laddered purchases or as a one-time purchase based on the accumulated value of employer contributions from the current employer.
- The analysis finds that even at today's historically low interest rates, the purchase of these products may provide a significant increase in retirement readiness for the longest-lived quartile, compared with only a small reduction for the general population. Sensitivity analysis on the QLAC premiums resulting from likely increases in future interest rates provides even more favorable results.

# Investment Options and HSAs: Findings from the EBRI HSA Database

*By Paul Fronstin, Ph.D., Employee Benefit Research Institute*

## Introduction

The Medicare Prescription Drug, Improvement, and Modernization Act of 2003 (MMA) includes a provision that allows individuals enrolled in certain high-deductible health plans to open and fund a health savings account (HSA), effective Jan. 1, 2004. The ability of individuals to use HSAs as a savings vehicle for health care expenses in retirement has been a key selling point. HSAs provide account owners a triple tax-advantage: Contributions to an HSA reduce taxable income; earnings on the assets in the HSA build up tax free; and distributions from the HSA for qualified expenses are not subject to taxation.

Because of the triple tax-preference, some individuals might find using an HSA as a savings vehicle for health care expenses in retirement more advantageous from a tax perspective than saving in a 401(k) plan or other retirement savings plan. HSAs often have an investment-account option that allows account owners to invest in not just a money market account, but in mutual funds and other investment vehicles much like they would in a 401(k) plan. Some HSA owners may use the investment-account option as a means to increase savings for retirement, while others may be using it for shorter-term investing. It has been estimated that about 3 percent of HSA owners invest, and that HSA investments are likely to increase from an estimated \$3 billion in 2015 to \$40 billion in 2020.<sup>1</sup>

Whether investing for retirement or the short term, there are trade-offs to consider. Individuals must consider whether shifting contributions from a 401(k) plan to an HSA means leaving employer-matching dollars on the table. In addition, in order to maximize the savings in an HSA to cover health care expenses in retirement, HSA owners need to pay the medical expenses they incur prior to retirement on an after-tax basis using money not contributed to their HSA. Many individuals may not have the means to both save in an HSA and pay their out-of-pocket health care expenses. Finally, the investment options in the HSA may not be the same as the investment options in a 401(k) plan. Note that HSA owners with investments always have the option of liquidating them in order to take a distribution for a health care claim. They can also take a lump-sum distribution at any time once investments have provided an acceptable return.

This paper examines data from the EBRI HSA Database to get a better understanding of who is using the investment-account option, and how account balances and contributions differ with respect to whether there is an open investment option in an HSA.

## About the EBRI HSA Database

The EBRI HSA Database Project is a large representative repository of information about individual HSAs. As of Dec. 31, 2014, the EBRI database includes statistical information for:

- 2.9 million health savings accounts.
- \$5.0 billion in assets.

The 2014 EBRI HSA database covers 21 percent of the universe of HSAs and 21 percent of HSA assets.<sup>2</sup> The project is unique because it includes data provided by a wide variety of account record-keepers and, therefore, represents the characteristics and activity of a broad range of HSA owners.

When it comes to the availability of an investment-account option, the EBRI database contained about 1.2 million HSAs with \$2.7 billion in assets that had information as to whether an investment-account option was available in 2014. Nearly 78,000 of these HSAs (or 6.4 percent) had investments in their account.

In 2014, the nearly 78,000 HSAs with investments held \$795 million in assets, of which \$573 million (or 72 percent) were held in an investment option. Overall, the \$573 million in investment options represented 21 percent of the \$2.7 billion in assets in accounts where participation in an investment option could be tracked.

More information about HSAs and the EBRI HSA Database can be found in Fronstin (2015).

## **Year HSA was Opened**

HSAs with investments are generally older than accounts that do not have investments. In other words, owners of older HSAs have a higher propensity to invest. The 2014 analysis showed that nearly one-half (47 percent) of the HSAs with investments were opened between 2005 and 2008, whereas 8 percent of HSAs without investments were opened between 2005 and 2008 (Figure 1). In contrast, 5 percent of HSAs with investments, and 28 percent of HSAs without investments were opened in 2014.

## **Age of HSA Owner**

There are age differences between HSA owners with investments and those without. Among HSA owners with investments, the average age was 48.5 in 2014, compared with 43 among HSA owners without. The difference in the average age can be explained better by examining the age distribution of each group. HSA owners with investments are much less likely to be in the under-age-25 group and are much less likely to be in the 25–34 age group. In 2014, only 1 percent were under age 25, compared with 4 percent among HSA owners without investments, and 13 percent were ages 25–34, compared with 26 percent of individuals without investments (Figure 2). Both groups were about equally likely to be ages 35–44 and 45–54. Individuals with investments were more likely to be ages 55–64 and 65 or older than those without them.

These findings suggest that younger HSA owners are not seeing the long-term potential of the account, despite their longer time horizon for realizing a return.

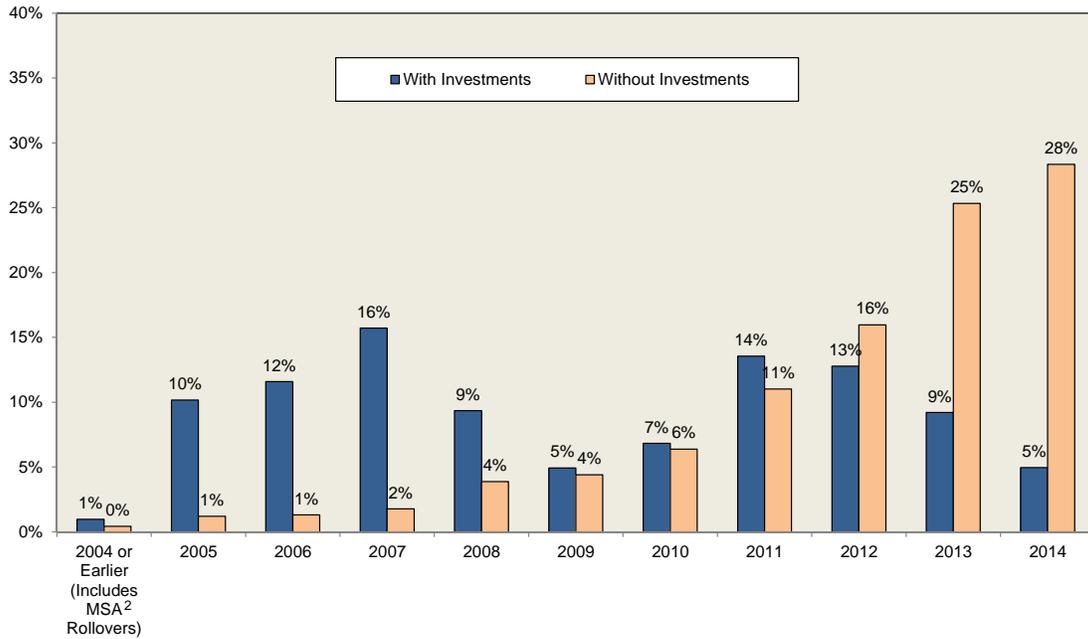
## **Contributions**

Individuals with investments in their HSA make larger annual contributions than individuals without them. Similarly, HSAs with investments also have received higher annual employer contributions.

In 2014, individuals contributed \$2,636 annually on average when they had investments, and \$1,224 when they did not (Figure 3). Employers contributed \$586 annually on average when the HSA had investments, and \$519 when there were no investments. Individuals were slightly more likely to make a contribution (66 percent vs. 59 percent) when they had investments. Employers, however, were much less likely to make a contribution (39 percent vs. 52 percent) when there were investments.

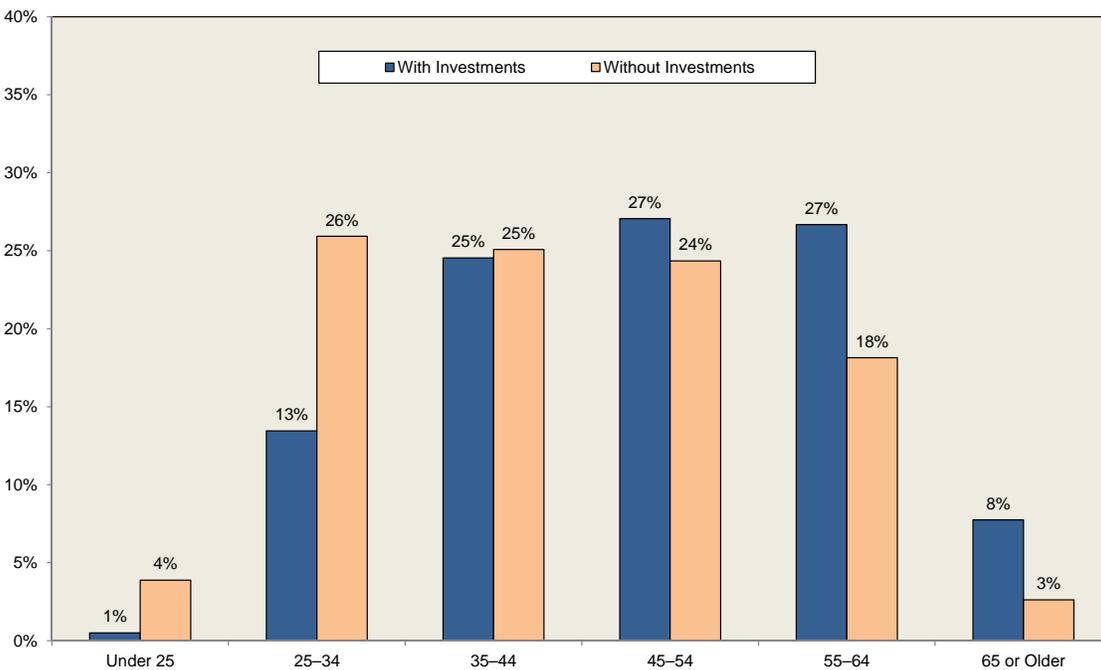
When examining the distribution of individual contributions, it is apparent that the average contribution is higher among individuals with investments. This may be because they are more likely than those without investments to contribute the statutory maximum, or because those who contribute the maximum are more likely to invest. Eleven percent of HSA owners with investments contributed \$6,550 or more in 2014, compared with 3 percent among HSA owners without investments (Figure 4). HSA owners with investments were also much more likely to contribute between \$2,000 and \$4,999 than those without investments.

Figure 1  
**HSA<sup>1</sup> by Year Account Was Opened  
 and Presence of Investments, 2014**



Source: EBRI HSA Database.  
<sup>1</sup> Health savings accounts.  
<sup>2</sup> Archer Medical Savings Account.

Figure 2  
**HSA\* Owners, by Age and Presence of Investments, 2014**



Source: EBRI HSA Database.  
 \* Health savings account.

**Figure 3**  
**Summary of Average Account Activity,**  
**by Presence of Investments, 2014**

	With Investments	Without Investments
<b>Accounts With Contributions or Distributions</b>		
Individual contributions	\$2,636	\$1,224
Employer contributions	586	519
Distributions for claims	1,777	1,293
End-of-year account balance	10,261	1,709
<b>Percent of Accounts With Contributions or Distributions</b>		
Individual contributions	66%	59%
Employer contributions	39	52
Distributions for claims	65	65

Source: EBRI HSA Database.

The difference in average employer contributions can be explained by the fact that individuals with investments are more likely than those without them to not receive any employer contribution. Just over 60 percent of HSA owners with investments did not receive an employer contribution in 2014, compared with 48 percent among HSA owners without investments (Figure 5).

The distribution of combined individual and employer contributions can be seen in Figure 6 and is driven by the finding that HSA owners with investments are more likely to contribute the statutory maximum than individuals without them.

## Distributions

While contributions are higher in HSAs with investments, suggesting that account owners are using their HSA either as a retirement savings vehicle or a long-term savings strategy, distributions for health care claims are also higher in HSAs with investments. In 2014, annual distributions averaged \$1,777 from HSAs with investments, and \$1,293 from HSAs without investments (Figure 3). However, HSA owners with investments were no more or less likely than those without them to take a distribution for a health care claim.

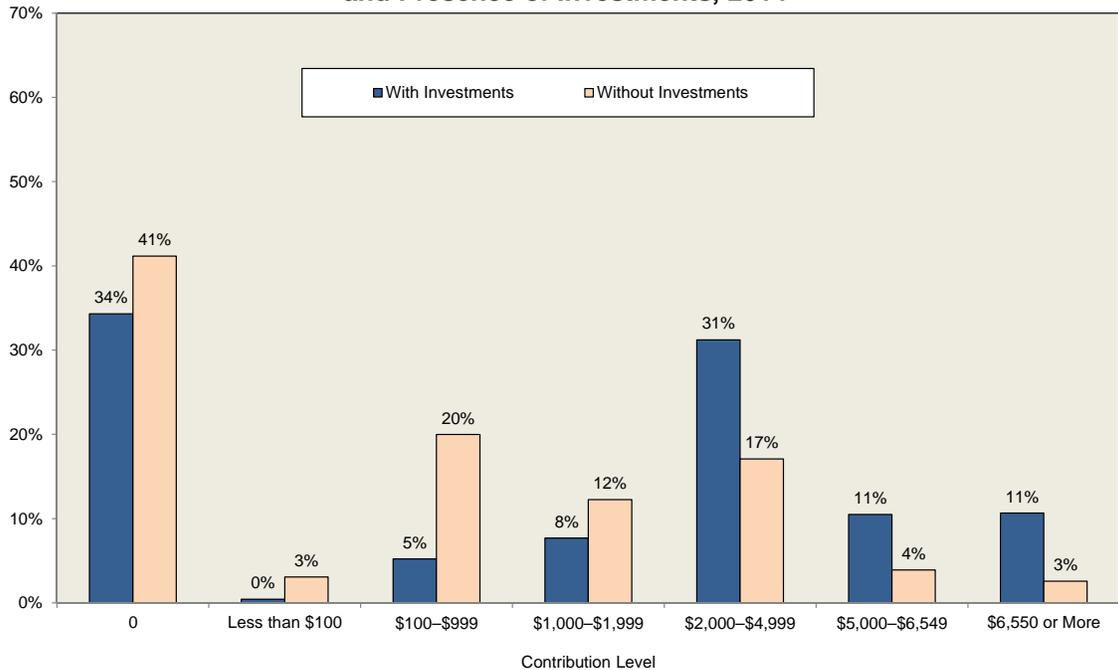
Among individuals taking a distribution for a health care claim, distributions averaged \$2,735 from HSAs with investments, and \$1,981 from HSAs without them in 2014 (Figure 7).

## End-of Year Account Balances

Average end-of-year account balances are much higher in HSAs with investments than in HSAs that do not have investments. In 2014, end-of-year account balances averaged \$10,261 among HSAs with investments, and \$1,709 in HSAs without them (Figure 3). Differences in the year in which the account was opened explained some of the difference in account balances. As shown in Figure 8, HSAs with investments were much older than accounts that did not have investments, so their owners had more years to make contributions. However, even when controlling for the year that the HSA was opened, average end-of-year balances in HSAs with investments outpaced those without investments (Figure 8).

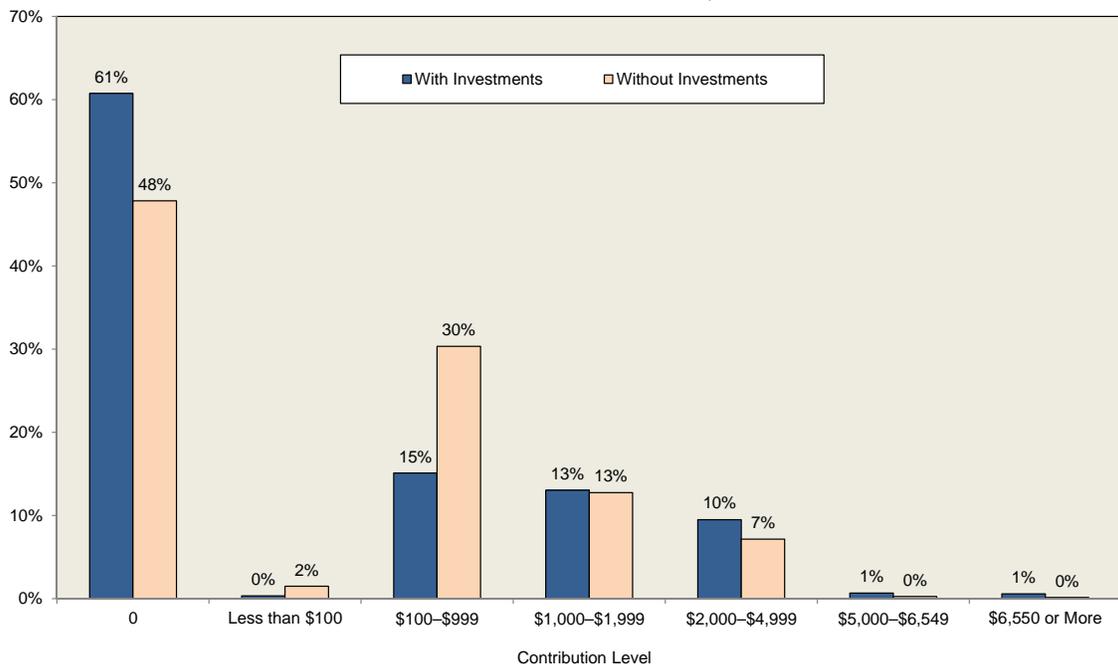
The distribution of average end-of-year account balances showed that while 37 percent of HSAs with investments had a balance of \$10,000 or more at the end of 2014, only 4 percent of HSAs without investments had such a balance (Figure 9).

**Figure 4**  
**HSAs,\* by Level of Individual Contributions**  
**and Presence of Investments, 2014**



Source: EBRI HSA Database.  
 \* Health saving accounts.

**Figure 5**  
**HSAs,\* by Level of Employer Contributions**  
**and Presence of Investments, 2014**



Source: EBRI HSA Database.  
 \* Health savings accounts.

## Conclusion

This study examines data from the EBRI HSA Database. It focuses on the 1.2 million accounts in the EBRI database that have information on the presence of an investment option. Overall, 6.4 percent of HSAs have investments. HSAs with investments are older; the owners of such accounts are older; balances are higher; and individual contributions are higher. Distributions for health care claims are higher in HSAs with investments.

These findings may indicate that HSA owners with investments are maximizing its use for saving, spending, and investing. However, they may not truly be using it as a retirement savings vehicle, as the propensity to take a distribution for a health care claim is the same whether or not an investment option is being used. Given the availability of investment options and the triple tax-advantage of HSAs, future research will examine whether HSA owners are moving contributions from 401(k) plans into HSAs.

## References

Berkley, Todd. *The Coming HSA Investment Wave*. White Paper, Minnetonka, MN: HSA Consulting Services, LLC, 2015.

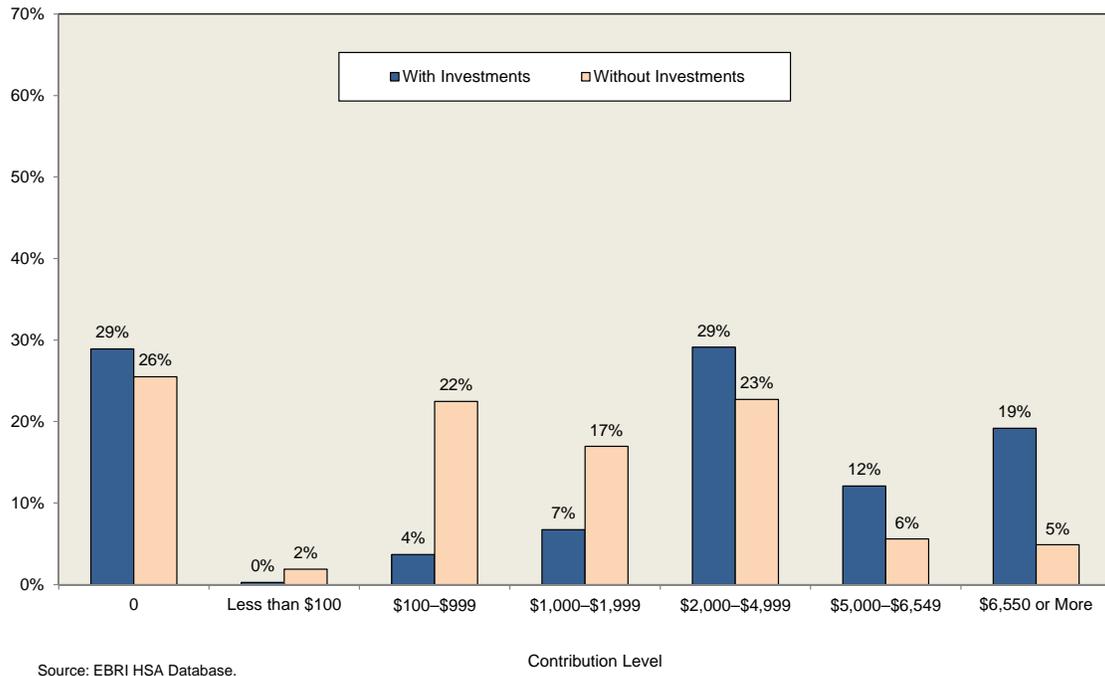
Fronstin, Paul. "Health Savings Account Balances, Contributions, Distributions, and Other Vital Statistics, 2014: Estimates from the EBRI HSA Database." *EBRI Issue Brief no. 416* (Employee Benefit Research Institute, July 2015).

## Endnotes

<sup>1</sup> See <http://www.devenir.com/research/2014-year-end-devenir-hsa-market-research-report/> and Berkley (2015).

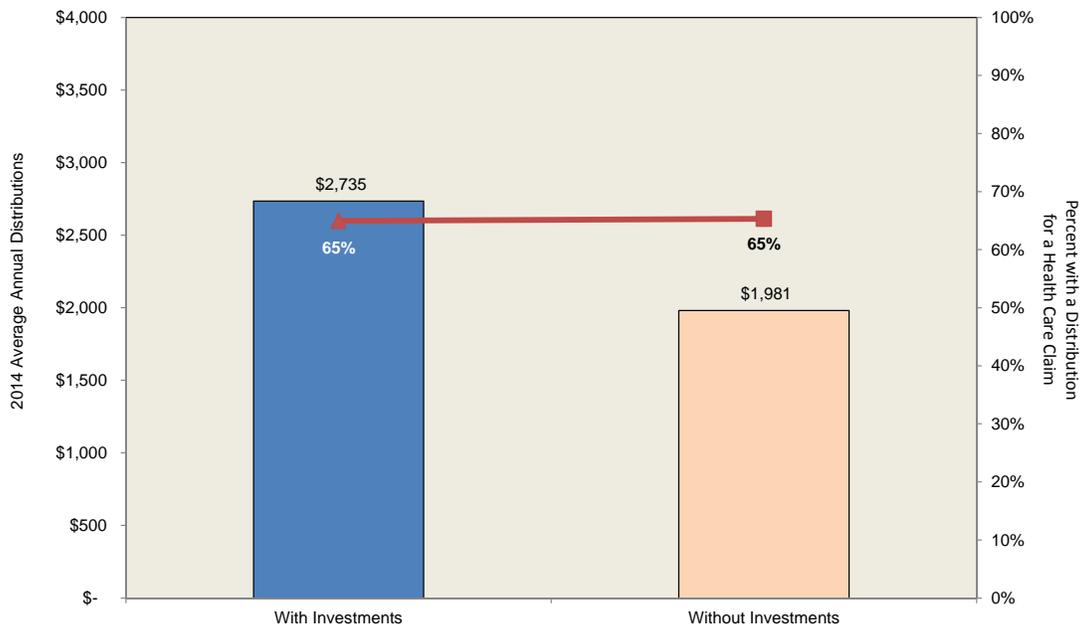
<sup>2</sup> According to Devenir, there were 13.8 million accounts holding \$24.2 billion in assets as of Dec. 31, 2014. See <http://www.devenir.com/research/2014-year-end-devenir-hsa-market-research-report/>

**Figure 6**  
**HSAs,\* by Level of Total Contributions**  
**and Presence of Investments, 2014**



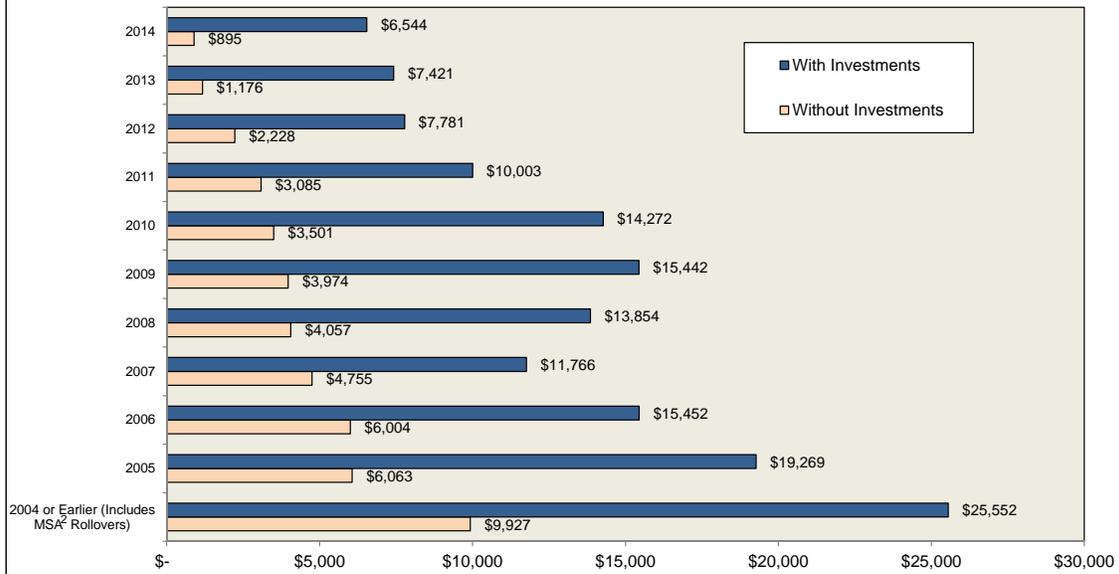
Source: EBRI HSA Database.  
 \* Health savings accounts.

**Figure 7**  
**Average Annual Distributions Among Accounts With Claims**  
**and the Likelihood of Having a Distribution for a Health**  
**Care Claim, by Presence of Investments, 2014**



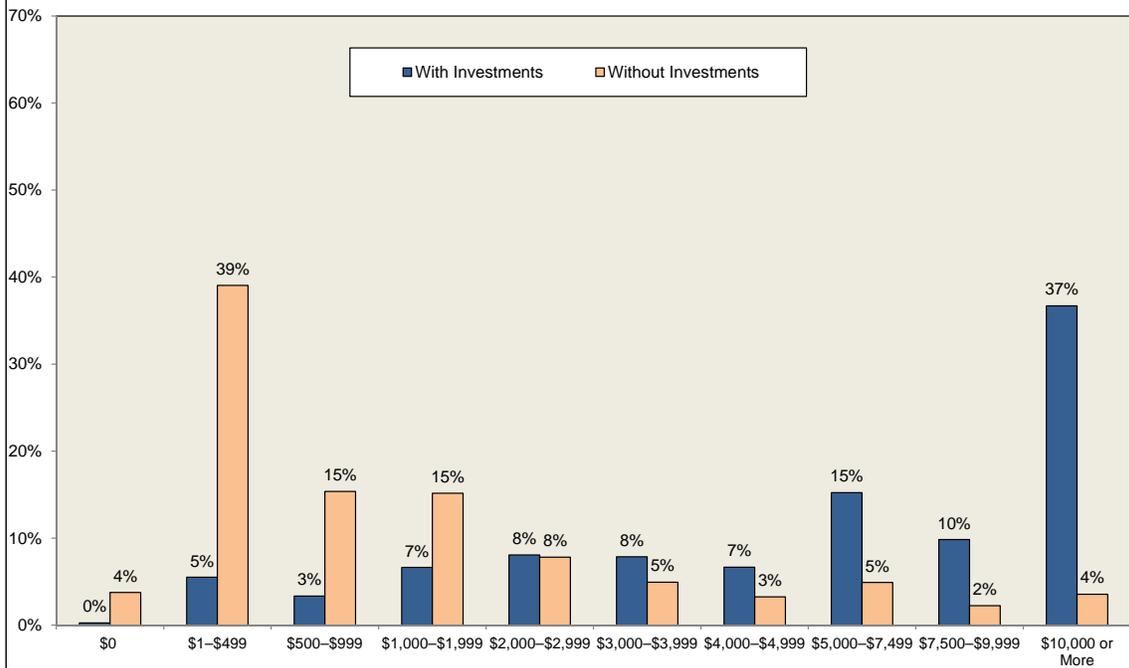
Source: EBRI HSA Database.

**Figure 8**  
**Average End-of-Year Account Balance Among Accounts**  
**With Contributions and Presence of Investments,**  
**by Year HSA<sup>1</sup> Was Opened, 2014**



Source: EBRI HSA Database.  
<sup>1</sup> Health savings account.  
<sup>2</sup> Archer Medical Savings Account.

**Figure 9**  
**Average End-of-Year Account Balance,**  
**by Presence of Investments, 2014**



Source: EBRI HSA Database.

# How Much Can Qualifying Longevity Annuity Contracts Improve Retirement Security?

By Jack VanDerhei, Ph.D., Employee Benefit Research Institute

## Introduction

Modeling retirement income adequacy for non-retired U.S. households has often been split into an analysis of the accumulation phase (current age until retirement age) and the decumulation phase (retirement age until the age of death). In the last 12 years, the Employee Benefit Research Institute (EBRI) has conducted a significant amount of research on the impact of various accumulation-phase scenarios;<sup>1</sup> however, only recently has an attempt been made to quantify the impact of the primary decumulation-phase risks: longevity risk, long-term-care and home-health costs, and investment risk.

As part of the assessment of the impact of longevity on retirement income adequacy, EBRI<sup>2</sup> used its Retirement Security Projection Model<sup>®</sup> (RSPM) to establish relative-longevity quartiles based on family status, gender, and age cohort. For the Early Baby Boomers<sup>3</sup> simulated to die in the earliest relative quartile, the Retirement Readiness Rating (RRR)<sup>4</sup> of 75.8 percent was 19.1 percentage points larger than the overall average for this age cohort. The RRR decreased to 63.1 percent in the second relative-longevity quartile and 44.9 percent in the third relative-longevity quartile. For the Early Boomer cohort with the longest relative longevity, the RRR fell all the way to 37.9 percent. Similar influences were found for the younger age cohorts, but there was a noticeable increase in the RRR range between the earliest and latest longevity quartiles: 37.9 percentage points for Early Boomers, 41.3 percentage points for Late Boomers,<sup>5</sup> and 49.2 percentage points for Gen Xers.<sup>6</sup>

While previous research has attempted to model single-premium immediate annuities (SPIAs) as at least a partial hedge against the longevity risk,<sup>7</sup> given that only a very small percentage of defined contribution (DC) and individual retirement account (IRA) balances have been annuitized (and that an increasing percentage of defined benefit (DB) accruals have been taken as lump-sum distributions when the option was available), the prospect of “out-living” this portion of retirement wealth is a very real risk for many Baby Boomers and Gen Xers. In recent years, the prospect of increasing individual interest in annuitizing retirement savings at retirement has been enhanced through an insurance product that has been designed to provide monthly benefits only after a significant deferral period in retirement. These products could be offered for a small fraction of the cost for a similar monthly benefit through a SPIA and many believe that the lower cost would at least partially mitigate retirees’ reluctance to give up control over a large portion of their DC and/or IRA balances at retirement age.

In 2014, one of the major constraints of using this type of product was eliminated when the U.S. Treasury Department and the Internal Revenue Service (IRS) issued final rules for creating a qualifying longevity annuity contract (QLAC) that would be exempt from the required minimum distribution rules that dictate distributions from DC plans and IRAs must typically begin by age 70-½ (significantly earlier than the age at which payments commence for these products).<sup>8</sup>

While it is still too early to know how individuals’ demand for these products and the insurance industry’s supply of QLAC options will eventually modify the market for longevity annuities,<sup>9</sup> it is useful to model the degree to which QLACs can improve retirement security. Specifically, this *EBRI Notes* article models two scenarios under which QLACs are utilized as part of a 401(k) plan, and finds that, even at today’s historically low interest rates, the transfer of longevity risk provides a significant increase in retirement readiness for the longest-lived quartile, compared with only a small reduction for the general population. Sensitivity analysis on the QLAC premia resulting from likely increases in future interest rates provides even more favorable results.

## Previous Research on Longevity Annuities

The concept of longevity annuities as a longevity hedge has been discussed for at least 10 years. In 2005, Milevsky<sup>10</sup> published a paper analyzing an inflation-adjusted, deferred-annuity contract that would begin payouts not at retirement age but at an advanced age (e.g., 80 or 85). In essence, this contract would attempt to apply basic risk-management principles to retirement planning and would carve out the high-probability/low-severity costs (e.g., retirement income from 65–85) that could be budgeted relatively easily from the typical retirement scenario before transferring the low-probability/high-severity costs (e.g., retirement costs from 85 through the remainder of the retiree’s life) to the insurance company. This would be analogous to accepting a deductible on automobile insurance collision coverage and considered a more efficient method of choosing which risks (or portions thereof) should be transferred to an insurance company.<sup>11</sup>

In 2007, Gong and Webb<sup>12</sup> attempted to deal with the fact that rates of voluntary annuitization remained extremely low by analyzing what would happen if longevity annuities were used as a 401(k) plan default. Realizing this had the potential to harm high-mortality households (relative to taking the 401(k) balances in unannuitized form), the authors used numerical-optimization techniques to show that few households would suffer significant losses under this type of default (as measured by the authors’ methodology).

In 2013, Pfau<sup>13</sup> demonstrated how deferred income annuities (DIAs) expanded the retiree’s “efficient frontier” and provided a case example of how these products could be more effective than a single-premium immediate annuity (SPIA) for a particular objective function.

In 2014, Blanchett<sup>14</sup> used a utility-based, annuity-preference model to analyze the optimal form of guaranteed income and found that it varied substantially as a function of model assumptions and retiree preferences. He found that nominal SPIAs tended to be the most efficient of the eight annuity types analyzed; however, if nominal DIA-payout rates increased by just 5 percent, they became the most attractive option on average. In a 2015 article, Blanchett<sup>15</sup> used regression analysis on the optimal DIA allocation for each investor and found evidence that higher allocations would tend to be associated with those who were younger and those who had less existing guaranteed retirement income.

## Employee Interest in Purchasing a QLAC

As part of the 2015 Retirement Confidence Survey (RCS), workers were asked how interested they thought they would be at retirement in purchasing an insurance product with a portion of their savings that would begin providing guaranteed monthly income for the rest of the worker’s (or their spouse’s) life at some point in the future, such as age 80 or 85. Eight percent of workers indicated they were very interested and 30 percent reported they were somewhat interested, while 21 percent said they were not too interested and 38 percent said they were not at all interested. Not surprisingly, Figure 1 demonstrates that the level of interest in purchasing a QLAC-type product is strongly associated with the respondent’s perceived likelihood of living to age 85. Nearly one-half (47 percent) of those who believed it was “very likely” that they would live until at least age 85 were either somewhat interested or very interested in purchasing such a product; however, this percentage dropped to 41 percent for those who believed it was “somewhat likely” that they would live until at least age 85. One-quarter (25 percent) of those who believed that they were either “not too likely” or “not at all likely” to live until at least age 85 reported that they were interested in purchasing this type of product at retirement.

Figure 2 shows a similar relationship between the level of interest in purchasing a QLAC-type product and the respondent’s perceived likelihood of living to age 95. In this case, more than one-half (53 percent) of those who believed it was “very likely” or “somewhat likely” that they would live until at least age 95 were either somewhat interested or very interested in purchasing such a product. This percentage dropped to 35 percent

for those who believed it was “not too likely” that they would live until at least age 95 and 30 percent for those who believed that they were “not at all likely” to live until at least age 95.

Figure 3 shows the percentage of workers in the RCS who were either somewhat interested or very interested in purchasing such a QLAC-type product as a function of household income and age. Regardless of household income, workers ages 45 or under were much more likely to be interested in purchasing such a product. At least some of this age discrepancy could be attributable to public perceptions of the future solvency of Social Security. Retirement benefits paid by Social Security represent a major portion of the longevity protection for many retirees and the prospects of this benefit being modified when the Social Security Trust Fund is expected to be depleted in 2034<sup>16</sup> may provide an incentive for younger workers to consider a QLAC-type product as part of their individual risk management. Figure 4 shows that the percentage of workers 45 or younger interested in a QLAC-type product is 40 percent for those who believed Social Security would be a major source of income in retirement; however, it increased to 47 percent for those who believed it would be only a minor source of retirement income. The portion of those who expressed interest in a QLAC-type product increased to 59 percent for younger workers who believed Social Security will not be a source of income in retirement at all.<sup>17</sup>

## **EBRI’s Retirement Security Projection Model<sup>®</sup>**

This *Notes* article attempts to quantify the relative impact on retirement income adequacy of two proposals to introduce QLACs into 401(k) plans. Before providing the simulation results, this section provides a brief review of the simulation model utilized in the analysis.

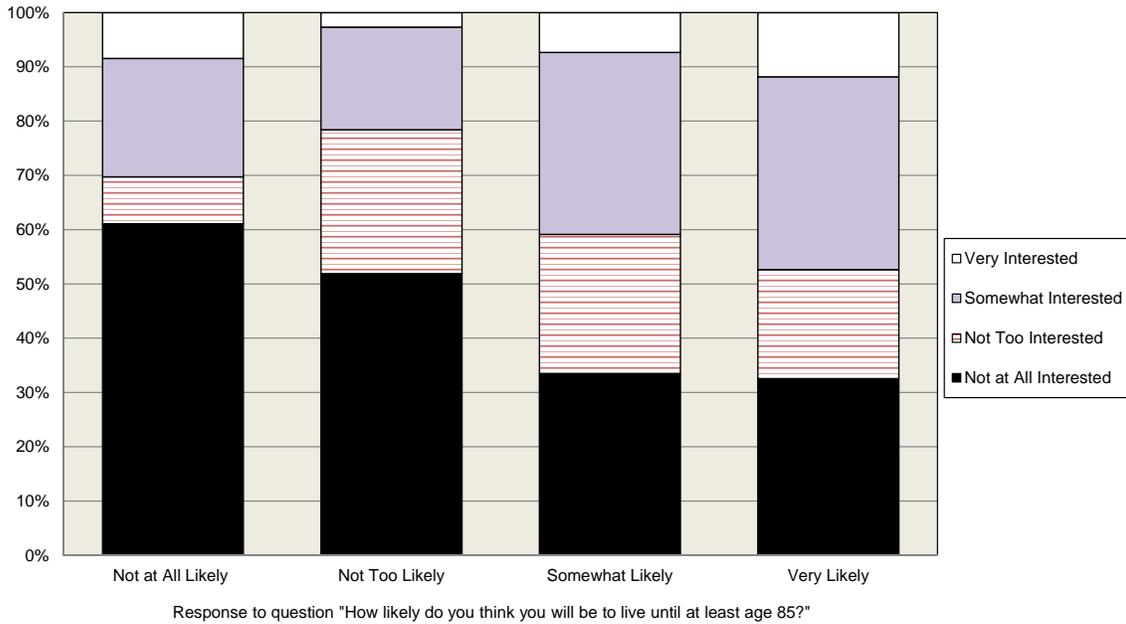
EBRI launched a major project to provide retirement income adequacy measurement in the late 1990s for several states concerned whether their residents would have sufficient income when they reached retirement age. After conducting studies for Oregon, Kansas, and Massachusetts, EBRI developed a national model in 2003—EBRI’s Retirement Security Projection Model<sup>®</sup> (RSPM)—and in 2010 it was updated to incorporate several significant changes, including the impacts of DB plan freezes, automatic enrollment provisions for 401(k) plans, and the crises in the financial and housing markets.<sup>18</sup> EBRI has updated RSPM<sup>®</sup> on an annual basis since then for changes in financial and real estate market conditions as well as for underlying demographic changes and changes in 401(k) participant behavior (based on a database of the actual account activity of some 24 million 401(k) participants).

One of the basic objectives of RSPM<sup>®</sup> is to simulate the percentage of the population at risk of not having retirement income adequate to cover average expenses and uninsured health care costs (including long-term-care costs) at age 65 or older throughout retirement in specific income and age groupings. RSPM<sup>®</sup> also provides information on the distribution of the likely number of years before those at risk run short of money, as well as the percentage of preretirement compensation they would need in terms of additional savings in order to have a 50, 70, or 90 percent probability of retirement income adequacy.

A previous EBRI publication<sup>19</sup> describes how households are tracked through retirement age and how their retirement income/wealth is simulated for the following components:

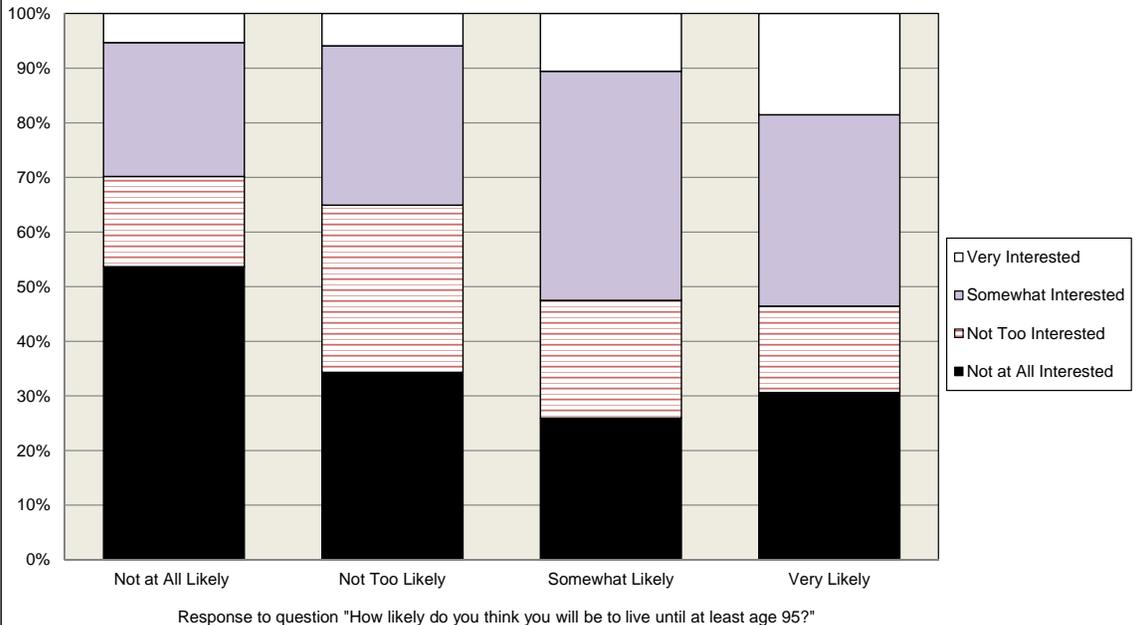
- Social Security.
- DC balances.
- IRA balances.
- DB annuities and/or lump-sum distributions.
- Net housing equity.

**Figure 1**  
**Interest in Purchasing a QLAC\*-Type Product at Retirement**  
**as a Function of the Perceived Likelihood of Living to Age 85**



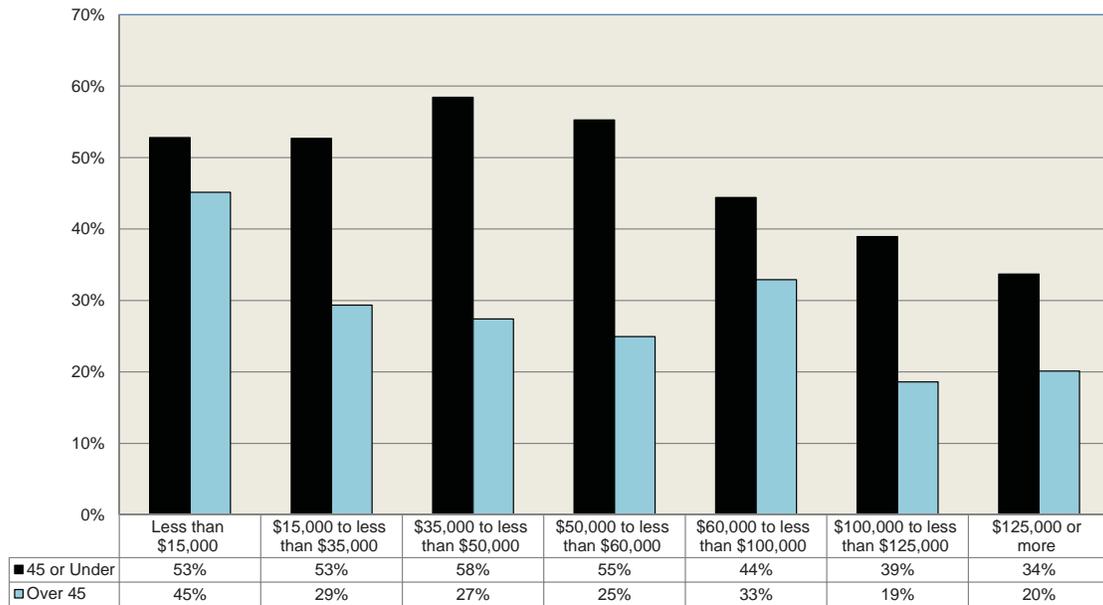
Source: Author's tabulations from Employee Benefit Research Institute and Greenwald & Associates, 2015 Retirement Confidence Survey.  
 \* Qualifying longevity annuity contract.

**Figure 2**  
**Interest in Purchasing a QLAC\*-Type Product at Retirement**  
**as a Function of the Perceived Likelihood of Living to Age 95**



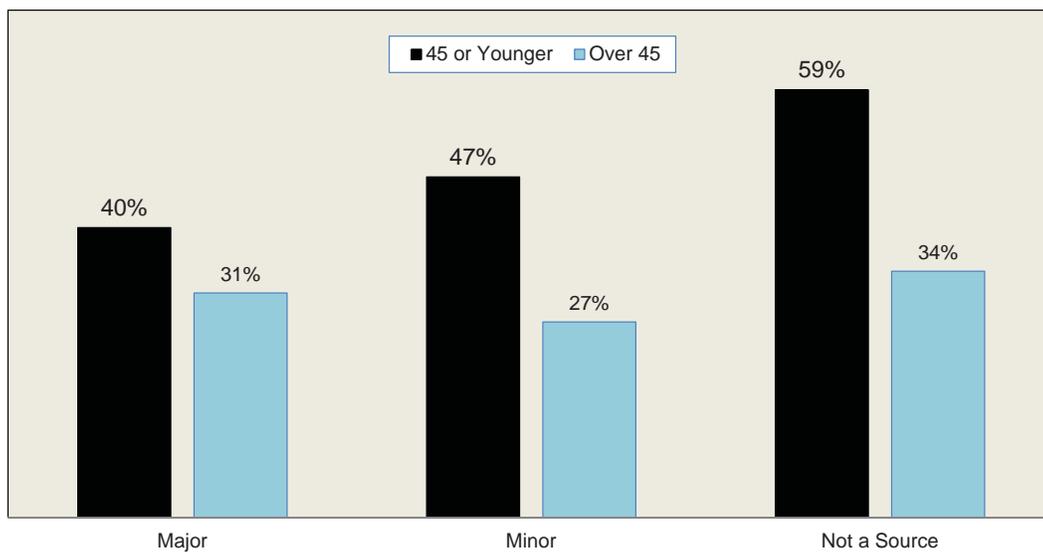
Source: Author's tabulations from Employee Benefit Research Institute and Greenwald & Associates, 2015 Retirement Confidence Survey.  
 \* Qualifying longevity annuity contract.

**Figure 3**  
**Percentage of Workers Interested in Purchasing a QLAC\*-Type Product at Retirement as a Function of Age and Household Income**



Source: Author's tabulations from Employee Benefit Research Institute and Greenwald & Associates, 2015 Retirement Confidence Survey.  
 \* Qualifying longevity annuity contract.

**Figure 4**  
**Percentage Interested in a QLAC\* as a Function of Age and Whether They Think Social Security Will be a Major Source of Income in Retirement vs. Minor or Not at All**



Source: Author's tabulations from Employee Benefit Research Institute and Greenwald & Associates, 2015 Retirement Confidence Survey.  
 \* Qualifying Longevity Annuity Contract.

A household is considered to run short of money in this model if aggregate resources in retirement are not sufficient to meet average retirement expenditures, defined as a combination of deterministic expenses from the Consumer Expenditure Survey (as a function of age and income) and some health insurance and out-of-pocket, health-related expenses, plus stochastic expenses from nursing-home and home-health care (at least until the point such expenses are covered by Medicaid). This version of the model is constructed to simulate retirement income adequacy, as noted above. Alternative versions of the model allow similar analysis for replacement rates, standard-of-living calculations, and other ad hoc thresholds.

The baseline version of the model that has been used for this analysis assumes all workers retire at age 65, that they immediately begin drawing benefits from Social Security and defined benefit plans (if any), and, to the extent that the sum of their expenses and uninsured medical expenses exceed the projected, after-tax annual income from those sources, immediately begin to withdraw money from their individual accounts (defined contribution and cash balance plans, as well as IRAs). If there is sufficient money to pay expenses without tapping into the tax-qualified individual accounts, those balances are assumed to be invested in a non-tax-advantaged account where the investment income is taxed as ordinary income. Individual accounts are tracked until the point at which they are depleted. At that point, any net housing equity is assumed to be added to retirement savings in the form of a lump-sum distribution (not a reverse annuity mortgage (RAM)). If all the retirement savings are exhausted and if the Social Security and defined-benefit payments are not sufficient to pay expenses, the individual is designated as having run short of money at that point.

## Specifics of the QLAC Scenarios Modeled

Several publications on QLACs have appeared recently with particular emphasis on financial planning for retirement. From a public policy perspective however, the question of how to increase demand for this product to a point where a significant percentage of new retirees will have this type of longevity hedge remains largely unanswered.

Two potential scenarios that have been discussed involve adding in-plan QLAC purchases to 401(k) plans.<sup>20</sup> The first scenario would attempt to convert 15 percent of the 401(k) balance with the current employer (subject to the appropriate dollar limitation) to a QLAC premium and would simultaneously attempt to partially mitigate the risk of purchasing the product when interest rates would be low. This would be accomplished by using a 10-year ladder of purchases based on 1.5 percent of the 401(k) balance each year from ages 55–64.<sup>21</sup>

The second proposal assumes (some) plan sponsors would be willing to convert the accumulated value of their 401(k) contributions (subject to the applicable dollar and percentage limits) in each employee's plan to a QLAC purchase when the employee reaches retirement age on either an opt-in or opt-out basis for the employee. Of course, there could be several variations on this basic theme including those involving purchase of the QLACs on an annual basis.<sup>22</sup> However, for purposes of this *Notes* article, the simulations under the second option were performed assuming that the purchases would take place with a one-time QLAC purchase at age 65. It is important to note that this type of QLAC purchase would apply only to account balances attributable to the current employer's contributions. Any amounts attributable to employer contributions with a previous employer are not included in the simulation results.

## Retirement Readiness Ratings Results

Figure 5 shows the percentage change in Retirement Readiness Ratings that result from purchasing a 10-year ladder QLAC of 1.5 percent of 401(k) account balances with the current employer from ages 55–64 for households in the longest relative-longevity quartile with a QLAC as well as the impact on all households with a QLAC.<sup>23</sup>

The increase in RRR for Early Boomers in the longest relative-longevity quartile with a QLAC is only 1.9 percent but it increases to 2.9 percent for Late Boomers and 3.5 percent for Gen Xers.<sup>24</sup> The larger percentage increases for the younger cohorts are largely a function of their larger 401(k) balances as a multiple of earnings.

One problem with performing the simulations using only current annuity purchase prices is the impact of historically low discount rates. In 2014, Moody's annual "Yield on Seasoned Corporate Bonds—All Industries, AAA" was only 4.16 percent—more than 370 basis points below the average dating back to 1976. The 2012 Individual Annuity Mortality (IAM) Basic Table and observed market prices were used to interpolate for the interest rate that, when combined with the cash flow and mortality assumptions, reproduced the original premium. Using those parameters, a 100-basis-point increase in the interest rate would produce an approximate 21 percent decrease in the premium rate (and a 200-basis-point increase would produce approximately a 37 percent decrease in the premium rate). Sensitivity analysis for this likely reduction in premium rates if interest rates increase at least partially to historical norms was undertaken by repeating the analysis using premium rate decreases of 10, 20 and 30 percent.

When the premium rates are decreased by 10 percent, the percent increase in the RRRs (compared to the baseline of no QLACs) vary from 2.5 percent for Early Boomers to 4.6 percent for Gen Xers. A 20 percent decrease in premium rates increases the range of RRR increases to 3.2 percent for Early Boomers to 5.3 percent for Gen Xers. A 30 percent decrease in premium rates increases the range of RRR increases to 4.5 percent for Early Boomers to 6.7 percent for Gen Xers.

Figure 5 also tracks the change in RRR for all households (including those who do not live to age 85 and thus do not receive any income benefits for their QLAC premiums). The results are typically small (all less than 1 percent in absolute value). Assuming current QLAC premiums, the changes in RRR vary from a decrease of 0.8 percent for Early Boomers to a decrease of 0.5 percent for Gen Xers. At a premium decrease of 30 percent, RRR changes vary from a decrease of 0.1 percent for Early Boomers to an increase of 0.4 percent for Gen Xers.

Figure 6 shows the percentage change in Retirement Readiness Ratings that result from using 401(k) account balances attributable to employer contributions with the current employer at age 65 to purchase a QLAC. The increase in RRR (compared to the baseline of no QLACs) for Early Boomers in the longest relative-longevity quartile with a QLAC is 6.7 percent but it increases to 7.3 percent for Late Boomers and 8.7 percent for Gen Xers.

When the premium rates are decreased by 10 percent, the increase in the RRRs varies from 8.4 percent for Early Boomers to 11.0 percent for Gen Xers. A 20 percent decrease in premium rates further impacts the range of RRR increases, which vary from 10.7 percent for Early Boomers to 13.5 percent for Gen Xers, while a 30 percent decrease in premium rates leads to RRR increases ranging from 13.3 percent for Early Boomers to 16.2 percent for Gen Xers.

When the change in RRR for all households with a QLAC is simulated in this scenario under the current QLAC premiums, they vary from a decrease of 1.5 percent for Early Boomers to a decrease of 1.1 percent for Gen Xers. At a 30 percent decrease in premiums, RRR values vary from an increase of 0.2 percent for Early Boomers to an increase of 0.7 percent for Gen Xers.

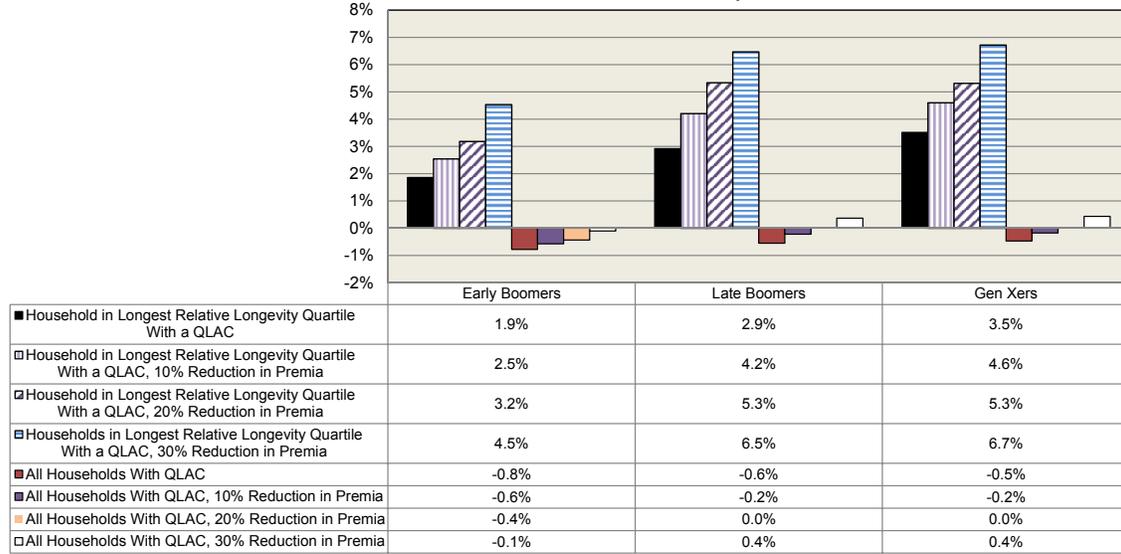
## Summary and Future Research

This *Notes* article provides analysis of the ability of QLACs to provide an effective longevity hedge for those Boomers and Gen Xers who are simulated to participate in an in-plan offering either through a 10-year series of laddered purchases or as a one-time purchase based on the accumulated value of employer contributions from the current employer. The analysis finds that even at today's historically low interest rates, the transfer of longevity risk provides a significant increase in retirement readiness for the longest-lived quartile, compared with only a small reduction for

the general population. Sensitivity analysis on the QLAC premiums resulting from likely increases in future interest rates provides even more favorable results.

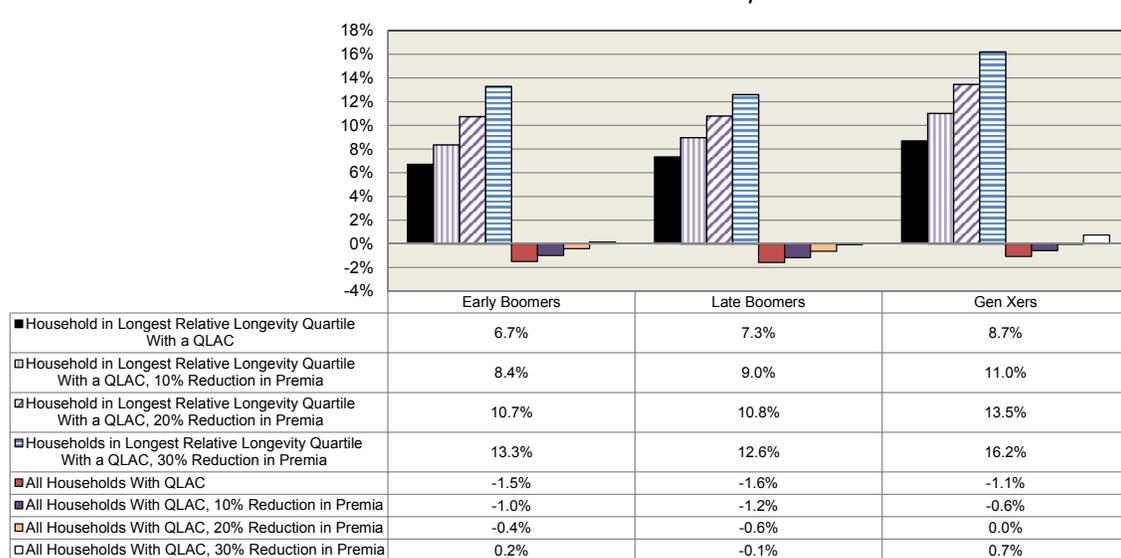
It is difficult to predict the extent to which individual demand for QLACs will increase without an in-plan offering similar to one of the two scenarios modeled in this article. However, limitations to another approach were eased in October 2014 when the Treasury Department issued Notice 2014-66 (*Lifetime Income Provided Through Target Date Funds in Section 401(k) Plans and Other Qualified Defined Contribution Plans*) that enables qualified defined contribution plans to provide lifetime income by offering, as investment options, a series of target-date funds (TDFs) that include deferred annuities among their assets.<sup>25</sup> It appears that this will allow 401(k) plan sponsors to offer deferred annuities as part of the non-equity component of the TDF. EBRI plans to model the potential impact of such a TDF on overall retirement readiness in the near future.

**Figure 5**  
**Impact of Purchasing a 10-Year Laddered QLAC\* of 1.5 %**  
**of 401(k) Account Balances From Ages 55–64 on**  
**Retirement Readiness Ratings, by Age Cohort (Percent Change).**  
*With and without a reduction in QLAC premia*



Source: EBRI Retirement Security Projection Model® Versions 2305, 2307, 2317, 2319 and 2321.  
 \* Qualifying longevity annuity contract.  
 Gender specific QLAC APP is used.  
 Source of app = best rates from immediateannuity.com on August 10, 2015.

**Figure 6**  
**Impact of Using 401(k) Account Balances Attributable to Employer Contributions**  
**With the Current Employer at Retirement Age to Purchase a QLAC\* at Age 65 on**  
**Retirement Readiness Ratings, by Age Cohort (Percentage Change)**  
*With and without a reduction in QLAC premia*



Source: EBRI Retirement Security Projection Model® Versions 2305, 2309, 2311, 2313, and 2315  
 \* Qualifying longevity annuity contract.  
 Gender specific QLAC APP is used.  
 Source of app = best rates from immediateannuity.com on August 10, 2015.

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## Endnotes

- <sup>1</sup> This includes studies on the impact of freezing of defined benefit accruals (VanDerhei, 2006); the transition from defined benefit to defined contribution plans (VanDerhei, June 2013); a comparative analysis of automatic enrollment 401(k) plans relative to voluntary enrollment plans (VanDerhei and Copeland, June 2008); employer contributions when converting from voluntary enrollment to automatic enrollment and its implications for retirement income (VanDerhei, April 2010); plan design and employee behavior for automatic escalation provisions in automatic enrollment plans (VanDerhei and Lucas, November 2010); and increasing default contributions for automatic enrollment plans (VanDerhei, September 2012).
- <sup>2</sup> VanDerhei (Spring 2014).
- <sup>3</sup> Individuals born from 1948–1954.
- <sup>4</sup> One of the primary outputs of RSPM is the production of Retirement Readiness Ratings (RRRs) for various subgroups of the population. The RRR is defined as the percentage of simulated life-paths that do not run short of money in retirement.
- <sup>5</sup> Individuals born from 1955–1964.
- <sup>6</sup> Individuals born from 1965–1974.
- <sup>7</sup> VanDerhei (September 2006), Park (May 2011) and VanDerhei and Copeland (May 2004).
- <sup>8</sup> The final regulations on QLACs were published in the July 2, 2014 *Federal Register*: <http://www.gpo.gov/fdsys/pkg/FR-2014-07-02/pdf/2014-15524.pdf> For a detailed summary of the rules, see Defined Contribution Institutional Investment Association (December 2014).
- <sup>9</sup> For an excellent analysis of the market for longevity annuities, see Abraham and Harris (November 2014).
- <sup>10</sup> Milevsky (2005).

<sup>11</sup> Scott (2008) demonstrates under a number of scenarios that longevity annuities maximize guaranteed retirement spending per dollar annuitized.

<sup>12</sup> Gong and Webb (2007).

<sup>13</sup> Pfau (September 2013).

<sup>14</sup> Blanchett (2014).

<sup>15</sup> Blanchett, (Spring 2015).

<sup>16</sup> Social Security and Medicare Boards of Trustees (July 22, 2015).

<sup>17</sup> Whether workers responding to the RCS currently have a defined benefit plan is also a factor associated with their interest in purchasing a QLAC-type product: 45 percent of those without a defined benefit plan were interested in purchasing a QLAC-type product whereas only 35 percent of those with a defined benefit plan indicated they were interested.

<sup>18</sup> A brief chronology of RSPM is provided in Appendix A of VanDerhei (February 2015).

<sup>19</sup> VanDerhei and Copeland (July 2010).

<sup>20</sup> These scenarios typically include a modification of the current employer liability exposures involved with offering in-plan annuities.

<sup>21</sup> In reality, such a proposal would undoubtedly need to be modified to deal with minimum premium requirements from the QLAC providers. More than 20 percent of the 401(k) participants ages 55–64 in the EBRI/ICI 401(k) database would have annual premiums less than \$100 (largely due to short tenure and the ability to start taking in-plan withdrawals without a penalty tax after age 59-½).

<sup>22</sup> This would involve several additional considerations including the status of the QLAC contracts at the time of preretirement job change. Some have suggested that a lack of cash values for QLACs would have a valuable side effect of helping to reduce leakages at job change.

<sup>23</sup> The annuity purchase prices were based on the best rates available at age 65 for a deferred annuity starting at age 85 from immediateannuities.com. The rates were within 1.1 percent of those used by Blanchett (Spring 2015) based on quotes obtained from CANNEX. Gender-specific rates were used in the analysis even though unisex rates would be used for in-plan offerings. Consistent results were obtained when the simulations were repeated using a 50/50 gender mixture. Turner and McCarthy (2013) evaluate the impact of the need to calculate benefits on a unisex basis when offered in a 401(k) plan.

<sup>24</sup> The annuity purchase price currently charged for an applicant age 65 is used for all individuals, regardless of age. To the extent that future mortality improvements are reflected in the QLAC premia for Late Boomers and Gen Xers, the improvements in RRR would likely decrease from those produced by the current simulations.

<sup>25</sup> This special rule provides that, if certain conditions are satisfied, a series of target date funds (TDFs) in a defined contribution plan is treated as a single right or feature for purposes of the nondiscrimination requirements of §401(a)(4) of the Internal Revenue Code.

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