Implications of Tax Reform on Retirement Plans

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Outline

• EBRI Retirement Security Projection Model®

• Proposals
  • Universal defined contribution, auto IRA and universal savings account
  • Mandate to automatically enroll and automatically escalate all employees into a defined contribution plan
  • Decreasing 402(g) or 415(c) limits
  • Auto portability
  • Rothification of 401(k) plans
    • Stylized results
    • EBRI tax reform survey
    • Questions that still need to be answered

• Takeaways
  • Impact on participants (coverage, contributions, retirement income adequacy)
  • Impact on plan sponsors (impact on plan design choices)
  • Impact on national retirement savings and retirement deficits broken out by various demographic categories

• Other scenarios (included in the appendices)
EBRI RETIREMENT SECURITY PROJECTION MODEL
EBRI Retirement Security Projection Model® (RSPM)

• Appendix A provides more details on the model

• Accumulation phase
  • Simulates retirement income/wealth to retirement age for HHs ages 35-64 from defined contribution, defined benefit, IRA, Social Security and net housing equity
  • Pension plan parameters coded from a time series of several hundred plans.
  • 401(k) participant behavior based on individual administrative records
    o Annual linked records dating back to 1996
    o Social security based on current statutory benefits for baseline
    o But sensitivity analysis is provided for scenarios in which Trust Fund is exhausted

• Retirement phase
  • Simulates 1,000 alternative life-paths for each household, starting at 65
  • Deterministic modeling of costs for food, apparel and services, transportation, entertainment, reading and education, housing, and basic health expenditures.
  • Stochastic modeling of longevity risk, investment risk, long-term care (LTC) costs
EBRI Retirement Security Projection Model® (RSPM)

- Produces a Retirement Readiness Rating (RRR) and Retirement Savings Shortfall (RSS)
  - RRR: Percentage of simulated HH life-paths that do NOT run short of money in retirement
    - If all the retirement savings are exhausted and if the Social Security and defined benefit payments are not sufficient to pay expenses, the HH is designated as having run short of money at that point.
  - RSS: Present value of simulated retirement deficits at retirement age
    - NB: this only includes HHs simulated to have a deficit
      - E.g., If a HH is currently simulated to have no deficits, increasing their account balances at retirement will not change either RRR or RSS

- For a brief overview on approximately 40 studies we have previously conducted with the model
2014 RSS With LTC Costs for HHs Ages 35-64, By Various Retirement Expenditure Thresholds (Trillions of Dollars)

- 100 percent: 4.13 trillion
- 90 percent: 2.09 trillion
- 80 percent: 0.70 trillion

Source: EBRI Retirement Security Projection Model® Version 2103
Average 2014 RSSs With LTC Costs for HHs Ages 35-64 in Various Age and Future DC Eligibility Groups (Dollars)

Source: EBRI Retirement Security Projection Model® Version 2103
UNIVERSAL DEFINED CONTRIBUTION, AUTO IRA AND UNIVERSAL SAVINGS ACCOUNT
## Reduction in 2014 RSSs With LTC Costs for HHs Ages 35-64 under Various Policy Scenarios (Billions of Dollars) - Baseline = $4,130 Billion

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Reduction (Billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universal DC at observed contributions and optouts</td>
<td>802</td>
</tr>
<tr>
<td>USA with participation and contributions based on VE</td>
<td>468</td>
</tr>
<tr>
<td>USA with participation and contributions based on AE</td>
<td>372</td>
</tr>
<tr>
<td>Automatic IRA at 6 percent, no optout</td>
<td>490</td>
</tr>
<tr>
<td>Automatic IRA at 3 percent, 75% optout</td>
<td>202</td>
</tr>
<tr>
<td>Automatic IRA at 3 percent, 50% optout</td>
<td>244</td>
</tr>
<tr>
<td>Automatic IRA at 3 percent, 10% optout</td>
<td>268</td>
</tr>
<tr>
<td>Auto IRA scenario</td>
<td></td>
</tr>
<tr>
<td>• Universal DC scenario</td>
<td></td>
</tr>
<tr>
<td>• Assumes all employers not currently offering DB and/or DC will start sponsoring a DC plan in 2015 and they will choose one similar to employers in their size range</td>
<td></td>
</tr>
<tr>
<td>• Universal Savings Account scenario</td>
<td></td>
</tr>
<tr>
<td>• All adults allowed to contribute on an after-tax basis and (tax-free) withdrawals can be used at any time for any reason</td>
<td></td>
</tr>
<tr>
<td>• Caveats:</td>
<td></td>
</tr>
<tr>
<td>• Survey information/sensitivity analysis needed to model new type of “leakage”</td>
<td></td>
</tr>
<tr>
<td>• Need to refine analysis to those plans with no employer match</td>
<td></td>
</tr>
</tbody>
</table>

*Retirement Savings Shortfalls (RSS) represent the present value (at age 65) of all simulated deficits in retirement for households where the head of household is 35–64.

### Percentage Reductions in 2014 RSS With LTC Costs for HHs Ages 35-64 in Various Age and Coverage Expansion Groups

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Auto IRA (default employee contribution of 3%; assumes no opt-out)</th>
<th>USA with participation and contributions based on VE with 5500 (indexed) limit</th>
<th>USA with participation and contributions based on AE with 5500 (indexed) limit</th>
<th>Universal DC (empirical contribution and optout rates)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10.6%</td>
<td>9.4%</td>
<td>13.0%</td>
<td>28.2%</td>
</tr>
<tr>
<td></td>
<td>9.9%</td>
<td>14.2%</td>
<td>17.0%</td>
<td>25.9%</td>
</tr>
<tr>
<td></td>
<td>7.9%</td>
<td>7.0%</td>
<td>9.6%</td>
<td>22.1%</td>
</tr>
<tr>
<td></td>
<td>5.1%</td>
<td>8.4%</td>
<td>10.0%</td>
<td>15.5%</td>
</tr>
<tr>
<td></td>
<td>3.1%</td>
<td>4.2%</td>
<td>5.1%</td>
<td>10.1%</td>
</tr>
<tr>
<td></td>
<td>1.8%</td>
<td>2.5%</td>
<td>1.9%</td>
<td>4.4%</td>
</tr>
</tbody>
</table>

MANDATE TO AUTOMATICALLY ENROLL AND AUTOMATICALLY ESCALATE ALL EMPLOYEES INTO A DEFINED CONTRIBUTION PLAN
SSGA proposal

• Require all employers, including those that currently do not sponsor a plan, to automatically enroll and automatically escalate all employees, including part-time workers, into a defined contribution plan.
  • No employer contribution required
• The auto escalation required by the proposal would begin at 6% in the first year and that rate would be automatically escalated up to 12% over three years
• The automatic enrollment provision would apply annually to any employee who is contributing less than the 6% amount.
• For more information on the proposal:
Reduction in retirement deficits from SSGA proposal as a function of various opt-out assumptions

Reduction in Retirement Savings Shortfalls*
(Baseline = $4.13 trillion)

- 90 percent optout: 1.8%
- 75 percent optout: 4.6%
- 50 percent optout: 9.2%
- 25 percent optout: 13.6%
- 10 percent optout: 16.1%
- 0 percent optout: 17.7%

Reduction in retirement deficits from SSGA proposal by age as a function of various opt-out assumptions

Reduction in Retirement Savings Shortfalls* (Baseline = $4.19 trillion)

<table>
<thead>
<tr>
<th>Age (as of 1990)</th>
<th>0 percent</th>
<th>10 percent</th>
<th>25 percent</th>
<th>50 percent</th>
<th>75 percent</th>
<th>90 percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>35-39</td>
<td>25%</td>
<td>24%</td>
<td>21%</td>
<td>14%</td>
<td>7%</td>
<td>3%</td>
</tr>
<tr>
<td>40-44</td>
<td>28%</td>
<td>25%</td>
<td>21%</td>
<td>14%</td>
<td>7%</td>
<td>3%</td>
</tr>
<tr>
<td>45-49</td>
<td>24%</td>
<td>18%</td>
<td>13%</td>
<td>9%</td>
<td>5%</td>
<td>2%</td>
</tr>
<tr>
<td>50-54</td>
<td>18%</td>
<td>13%</td>
<td>8%</td>
<td>6%</td>
<td>3%</td>
<td>1%</td>
</tr>
<tr>
<td>55-59</td>
<td>10%</td>
<td>8%</td>
<td>5%</td>
<td>3%</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>60-64</td>
<td>7%</td>
<td>6%</td>
<td>5%</td>
<td>3%</td>
<td>1%</td>
<td></td>
</tr>
</tbody>
</table>

DECREASING 402(G) OR 415(C) LIMITS
Impact of Reducing the 402(g) limit to $12,000 (but Catchup is not Modified) on Account Balances at Age 65, by Current Age (Assuming no Job Turnover)

Assumes Auto Escalation up to **10 Percent**

Assumes Auto Escalation up to **15 Percent**

Assumes no modification of before-tax to after-tax contributions as a result.
Impact of Reducing the 415(c) limit to $30,000 (but Catchup is not Modified) on Account Balances at Age 65, by Current Age (Assuming no Job Turnover)

Assumes Auto Escalation up to **10 Percent**

Assumes Auto Escalation up to **15 Percent**

Overview

Three scenarios simulated:

1. **FULL auto portability**: Every participant consolidates their savings in their new employer plan every time they change jobs, i.e. all participants arrive at age 65 with one account.
   - Leakage limited to hardship withdrawals
2. **Partial auto portability**: Every participant with less than $5,000 (indexed for inflation) consolidates their savings in their new employer plan every time they change jobs
   - Leakage limited to hardship withdrawals
3. **Baseline: status quo**
   - In addition to hardship withdrawals, there is a participant-specific probability of cashing out and loan default leakage at job change

Compare present value of accumulations at age 65 (or end of time horizon if earlier) under FULL and PARTIAL auto portability with STATUS QUO

- Segmentation by
  - Age cohorts
  - Age-specific income quartiles
  - Time horizons (10, 20, 30, 40 years)

Compare retirement deficit reduction for FULL auto portability with alternative reform scenarios
RESULTS: ACCUMULATION INCREASES
Impact of auto portability over time

Present Value of additional savings at age 65 (or end of time horizon if earlier): Full vs. partial auto portability

<table>
<thead>
<tr>
<th>Years</th>
<th>5k (indexed)</th>
<th>FULL</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>$266</td>
<td>$472</td>
</tr>
<tr>
<td>20</td>
<td>$830</td>
<td>$1,182</td>
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<tr>
<td>30</td>
<td>$1,314</td>
<td>$1,757</td>
</tr>
<tr>
<td>40</td>
<td>$1,509</td>
<td>$1,987</td>
</tr>
</tbody>
</table>

Billions of 2017 dollars
Impact of auto portability by current age

Present Value of additional savings at age 65 by current age:
Full vs. partial auto portability

Billions of 2017 dollars

- 25-34: $900
- 35-44: $700
- 45-54: $400
- 55-64: $100

5k (indexed) vs. FULL
Impact of PARTIAL auto portability by current age and age-specific income quartile

Increase in Aggregate Balances at Age 65 as a Result of Implementing APS with a $5,000 (indexed) Threshold by Age and Age-Specific Income Quartile (40 Year Time Horizon)

Source: EBRI Retirement Security Projection Model, Versions 2913 and 2922
Impact of FULL auto portability by current age and age-specific income quartile

Increase in Aggregate Balances at Age 65 as a Result of Implementing APS with FULL Auto Portability by Age and Age-Specific Income Quartile (40 Year Time Horizon)

Source: EBRI Retirement Security Projection Model, Versions 2913 and 2915
RESULTS: RETIREMENT DEFICIT REDUCTIONS
Percentage Reductions in 2014 RSS With LTC Costs for HHs Ages 35-64 in Various Age and Reform Scenarios

**Auto IRA scenario:**
- All employers (regardless of size) are required to provide DB/DC or Auto IRA
- No erosion from DC to Auto IRA
- Husband’s employer size is used to categorize employer size for married HH
- 100% autocorrelation for employer size

**Universal DC scenario:**
- Assumes all employers not currently offering DB and/or DC start sponsoring a DC plan in 2015
- And they will choose one similar to employers in their size range

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Auto IRA (default employee contribution of 3%; assumes no opt-out)</th>
<th>Universal DC (empirical contribution and optout rates)</th>
<th>Auto Portability (assumes no leakage from auto portability system)</th>
</tr>
</thead>
<tbody>
<tr>
<td>35-39</td>
<td>11%</td>
<td>28%</td>
<td>20%</td>
</tr>
<tr>
<td>40-44</td>
<td>10%</td>
<td>26%</td>
<td>16%</td>
</tr>
<tr>
<td>45-49</td>
<td>8%</td>
<td>22%</td>
<td>13%</td>
</tr>
<tr>
<td>50-54</td>
<td>5%</td>
<td>15%</td>
<td>9%</td>
</tr>
<tr>
<td>55-59</td>
<td>3%</td>
<td>10%</td>
<td>8%</td>
</tr>
<tr>
<td>60-64</td>
<td>2%</td>
<td>4%</td>
<td>6%</td>
</tr>
</tbody>
</table>

ROTHIFICATION OF 401(K) PLANS
Overview of EBRI Study

- Project how selected tax reform changes might affect certain retirement security outcomes under the EBRI Retirement Security Projection Model (RSPM)
- Selected tax reform changes
  - Full “Rothification” of 401(k) employee contributions
  - Partial (Camp) “Rothification” of 401(k) employee contributions
  - Expanded Savers Credit
  - Increased contribution limits
  - Decreased income tax rates
  - Selected combinations
Schematic of the Simulation Process

<table>
<thead>
<tr>
<th>DATA, ASSUMPTION INPUTS</th>
<th>EBRI RETIREMENT SECURITY PROJECTION MODEL</th>
<th>RESULT MEASURE OUTPUTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modifications in Employee Contributions</td>
<td></td>
<td>Retirement Readiness Rating (RRR)</td>
</tr>
<tr>
<td>Consumption/Debt</td>
<td></td>
<td>Retirement Savings Shortfall (RSS)</td>
</tr>
<tr>
<td>Pre-Retirement Distributions</td>
<td></td>
<td>Retirement Savings Surplus (RSS+)</td>
</tr>
<tr>
<td>Plan Sponsorship</td>
<td></td>
<td>After-tax Value of Retirement Savings Accumulation at retirement</td>
</tr>
<tr>
<td>Plan Design</td>
<td></td>
<td>Assets Under Management (AUM)</td>
</tr>
<tr>
<td>Income Tax Rates (individual, Pass-Thru)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PRELIMINARY AND CONFIDENTIAL: PLEASE DO NOT DISTRIBUTE
STYLIZED RESULTS

Update for today’s simulations available in the next few weeks at: http://bit.ly/Rothification
RSS improvement assuming full Roth status in 2018 as a function of assumed reduction in employee contributions.  

NB: this does not (yet) account for increases in cashout at job change, potential plan terminations, changes in participation rates or consumption decreases to finance the additional federal taxes.  

(Limited to those with at least one year of future participation in a 401(k) plan)

Source: EBRI Retirement Security Projection Model, versions 2965-2971

NB: these are preliminary results based on stylized simulations and not representative of our final results when we have the survey results added.
Previous Studies

- Analysis of administrative data from eleven companies that added a Roth contribution option to their existing 401(k) plan between 2006 and 2010.
  - Not the ideal dataset to look at the impact on retirement saving behavior if the ability to make before-tax contributions was removed (as opposed to made available as an option)
- Previous analysis by others looks only at VOLUNTARY Roth, need behavioral estimates for a MANDATORY system
New EBRI survey

- The survey inquires about likely changes in contribution amounts to the plan if the following policy changes are adopted:
  - Full Roth tax treatment of employee contributions
  - Camp proposal for treatment of employee contributions
  - Full Roth tax treatment of employee contributions plus an enhanced Savers Credit
  - Full Roth tax treatment of employee contributions plus 402(g) dollar limits that are increased by 33%
  - Full Roth tax treatment of employee contributions with lower income tax rates.
- In each case, we not only state how the employee contributions would be taxed, but also how the contributions and income/gains in the plan would be taxed on withdrawal/distribution.
- Breakouts by:
  - Age, wage/salary (individual and family), family status, gender, size of employer, education, racial background, current savings
  - Participant vs eligible non-participant
  - Level of current contributions ($ and percent of wage/salary)
  - Currently eligible to make Roth contributions (and, if so, whether they are making them and to what extent)
  - Automatic enrollment status
  - How much of employee contribution is matched (relative levels)
  - Importance of several rationales for decreasing/increasing/keeping contributions the same
  - Respondent’s (self-assessed) familiarity with traditional/Roth/topics discussed in survey
Sample

- Potential respondents were selected from the Research Now online research panel.
  - Time frame: May 30- June 15
- In order to qualify for participation in the study, respondents must meet the following criteria:
  - Working full-time
  - Private for profit or private not for profit organization
  - Employer offers a 401(k) plan
  - Respondent is eligible to contribute to 401(k) plan
- Survey administered by Greenwald & Associates
- Total respondents = 1505 individuals eligible to contribute to a 401(k) plan
  - Currently contributing = 1203
  - Not currently contributing = 302
- Weighting scheme
  - Weighted by age, income (individual) and gender
    - Based on Fidelity Investments record kept data of 22,100 corporate DC plans (including advisor-sold DC) and 14.8M participants as of 3/31/2017
Pedagogical strategies

• Important that respondent knew the consequences of switching to a (mandatory) Roth scenario

• At the beginning of the survey we provided the respondent with a definition of:
  • Traditional 401(k) plans
  • Roth 401(k) plans

• In addition we provided a numerical example illustrating the differential impact on after-tax income when the contribution is made and tax consequences when a distribution is taken

• Also provided pop-up boxes with definitions any time the following appeared in the survey:
  • Traditional 401(k) plans
  • Roth 401(k) plans
QUESTIONS THAT STILL NEED TO BE ANSWERED
PRE-RETIREMENT WITHDRAWALS
Looking for research data

- Will leakages from 401(k) participants with MANDATORY Roth accounts be larger than status quo?
  - If so, by how much?
  - Breakouts by any of the following?
    - Age, income, account balance or tenure
- Possible to pull some of this from VOLUNTARY Roth accounts currently
  - But the skewness towards higher income participants in current 401(k) utilization makes any extrapolation towards lower income at least somewhat problematic
PLAN SPONSOR AND DESIGN CHANGES
Information to assess potential plan sponsor impact

- In May, the Plan Sponsor Council of America launched an employer survey on the potential impact of tax reform on retirement savings.
- What about other types of reaction other than terminate the plan?
  - Modifications of plan design
  - Modifications of plan type
AMOUNT OF ADDITIONAL FINANCING THAT IS FINANCED THOUGH REDUCED CONSUMPTION
Next steps

- Parameterize the RSS simulations with employee behavioral responses from the Roth survey
- Parameterize the RSS simulations with plan sponsor behavioral responses from the PSCA survey
- Interactions with Roth taxation
  - Enhanced savers credit
  - Higher contribution limits
  - Full Roth tax treatment of employee contributions with lower income tax rates
- Additional output metrics
  - Create a "surplus" version of RSS
  - Show the impact on AUM
- Additional scenarios
  - Impact of tax rates increasing/decreasing in the future
Takeaways

• Impact on participants (coverage, contributions, retirement income adequacy)
• Impact on plan sponsors (impact on plan design choices)
• Impact on national retirement savings and retirement deficits broken out by various demographic categories
OTHER SCENARIOS (INCLUDED IN THE APPENDICES)
Other scenarios

- Disability (appendix slides B1-B5)
  - Annual purchase of LTD insurance outside of the plan can reduce RSS by $34,000 for those 35-39 with disabilities of any duration
    - Increases to $106,000 for those with disabilities of at least 5 years
  - Due to SSDI and assumption of a 60 percent replacement rate, much larger RSS reductions for higher income quartiles

- Stretch match (appendix slide C1)
  - Median percentage increase in 401(k) accumulations at age 65 from FUTURE employee and employer contributions if proposed stretch-match safe harbor was used instead of the PPA safe harbor for workers currently ages 25–29 participating in a 401(k) plan
    - 1.7-3.8 percent increases, depending on income quartile
    - If employer contributions are not reduced, increases would be 6.7-8.0 percent

- Leakages from automatic enrollment 401(k) plans (appendix slide D1)
  - Percentage of those not reaching the threshold replacement rate when leakages exist who would reach an 80 percent real replacement rate if all three leakages were absent varies from 15% for highest income quartile to 27% for lowest income quartile
  - Cashouts more important than loan defaults or hardship withdrawals (with a 6 month suspension of contributions)
Other scenarios (continued)

- QLACs (appendix slides E1-E2)
  - Purchasing a 10-Year laddered QLAC of 1.5% of 401(k) account balances from ages 55–64 increases Retirement Readiness Rating by 3.5% for Gen Xers in the longest relative longevity quartile at current rates
    - Increases to 6.7% with a 30% reduction in premia
    - Significant increase if 401(k) account balances attributable to employer contributions with the current employer are used at retirement age to purchase a QLAC
  - Impact of low interest rate scenarios (appendix slide F1)
    - If real bond ror drops from 2.6% to 0 (and equity premium remains constant), the percentage of Gen Xers who will NOT run short of money in retirement drops from 57% to 47%
  - Reductions in Social Security benefits (appendix slides G1-G2)
    - If there is a pro-rata reductions in Social Security retirement benefits (starting in 2033), the Retirement Readiness Ratings for Gen Xers in the lowest wage quartile will decrease by ½
    - The aggregate retirement deficits will increase from 4.13 trillion to 4.38 trillion
Other scenarios (continued)

- Voluntary enrollment 401(k) vs. automatic enrollment 401(k) with auto escalation (appendix slide H1)
  - Across all age cohorts and income quartiles, there is at least a 17.5% Improvement in simulated retirement outcomes moving from voluntary enrollment to automatic enrollment (with auto escalation) 401(k) plans

- SSGA proposal (appendix slides I1-I3)
  - Under the version of the SSGA proposal modelled by EBRI, there was a 17.7% reduction in retirement deficits assuming a 0% opt-out
    - 25% reduction for those ages 35-39

- Deferring retirement past age 65 (appendix slides J1-J3)
  - One-half of the Baby boom and Gen X Households in the lowest income quartile would need to work until 72 for at Least a 50 Percent probability of NOT running short of money in retirement
  - The results are significantly worse for a 70 or 80 Percent probability of NOT running short of money in retirement
APPENDIX A: BACKGROUND ON EBRI’S RETIREMENT SECURITY PROJECTION MODEL®
EBRI Retirement Security Projection Model® (RSPM)

• Accumulation phase
  • Simulates retirement income/wealth to retirement age for HHs from defined contribution, defined benefit, IRA, Social Security and net housing equity
    • Pension plan parameters coded from a time series of several hundred plans.
    • 401(k) participant behavior based on individual administrative records
      o Annual linked records dating back to 1996
      o Social security based on current statutory benefits for baseline
      o But sensitivity analysis is provided for scenarios in which Trust Fund is exhausted

• Retirement phase
  • Simulates 1,000 alternative life-paths for each household, starting at 65
  • Deterministic modeling of costs for food, apparel and services, transportation, entertainment, reading and education, housing, and basic health expenditures.
  • Stochastic modeling of longevity risk, investment risk, long-term care (LTC) costs

For additional information, see: VanDerhei, Jack (Fall 2015), Retirement Saving Shortfalls, The Journal of Retirement; VanDerhei, Jack (Spring 2014), Why Does Retirement Readiness Vary: Results from EBRI's 2014 Retirement Security Projection Model®, The Journal of Retirement
Leakages

• 401(k) cash outs, loan defaults, hardship withdrawals
  • Based on confidential industry data
  • Function of:
    • Age
    • Income
    • Account balance
    • Type of plan

• 401(k) loan behavior

• IRA withdrawal behavior
Additional assumptions

• Rate of return assumptions:
  • Accumulation model:
    • Deterministic nominal returns of 6.45% for equity and 3.15% for non-equity
  • Retirement deficit model:
    • Stochastic returns with a higher geometric average (based on historical returns)

• Age/wage profiles:
  • Computed from EBRI/ICI longitudinal data
When is a household considered to run short of money in EBRI’s simulation model?

• If aggregate resources in retirement are not sufficient to meet average retirement expenditures
  • This version of the model is constructed to simulate retirement income adequacy
  • 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 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)
  • to the extent that the sum of their expenses and uninsured medical expenses exceed the projected after-tax annual income from those sources
    • They immediately begin to withdraw money from their individual accounts (defined contribution and cash balance plans, as well as IRAs).
When is a household considered to run short of money (continued)?

• 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 household is designated as having run short of money at that point.
2014 RRRs With and Without LTC Costs for HHs Ages 35-64 by Various Retirement Expenditure Thresholds

Percentage of Simulated Life Paths that will NOT Run Short of Money in Retirement at Various Thresholds

<table>
<thead>
<tr>
<th>Threshold</th>
<th>With LTC costs included</th>
<th>Without LTC costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td>57.4%</td>
<td>75.5%</td>
</tr>
<tr>
<td>90%</td>
<td>68.1%</td>
<td>82.7%</td>
</tr>
<tr>
<td>80%</td>
<td>82.1%</td>
<td>91.1%</td>
</tr>
</tbody>
</table>

B1: Background

• Baseline assumption for disabled employees
  • Employees have no disability insurance, so disabled employees will withdraw accumulated savings to attempt to meet a 60 percent of previous wage threshold for current living as long as funds remain
  • Factors in SSDI

• Alternative scenario assumptions
  • All employees purchase annual LTD insurance from outside of the plan equal to 60% replacement at time of disability (no COLA)
B2: Average Reduction in RSS with LTC Costs for HHs Age 34-65 From Purchase of LTD Insurance for Those Who Become Disabled, by Age – Any/All Disability Durations

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Reduction in RSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>35-39</td>
<td>$34,0</td>
</tr>
<tr>
<td>40-44</td>
<td>$28,5</td>
</tr>
<tr>
<td>45-49</td>
<td>$12,3</td>
</tr>
<tr>
<td>50-54</td>
<td>$9,67</td>
</tr>
<tr>
<td>55-59</td>
<td>$5,30</td>
</tr>
<tr>
<td>60-64</td>
<td>$1,29</td>
</tr>
</tbody>
</table>

Source: EBRI Retirement Security Projection Model® Version 2649
B3: Average Reduction in RSS with LTC Costs for HHs Age 34-65 From Purchase of LTD Insurance for Those Who Become Disabled, by Age – Disability Durations of at least 5 Years

Source: EBRI Retirement Security Projection Model® Version 2649
B4: Average Reduction in RSS with LTC Costs for HHs Age 34-65 From Purchase of LTD Insurance for Those Who Become Disabled, by Age and Income Quartile – Any/All Disability Durations

Source: EBRI Retirement Security Projection Model® Version 2649
B5: Average Reduction in RSS with LTC Costs for HHs Age 34-65 From Purchase of LTD Insurance for Those Who Become Disabled, by Age and Income Quartile – Disability Durations of at least 5 Years

Source: EBRI Retirement Security Projection Model® Version 2649
C1: Percentage increase in 401(k) accumulations* at age 65 from FUTURE employee and employer contributions by income quartile if proposed stretch-match safe harbor was used instead of the PPA safe harbor: workers currently ages 25–29 participating in a 401(k) plan

Proposed stretch match alternative to the PPA safe harbor:
- Default at 6 percent
- Auto increase of 2 percent per year until 10 percent
- Employer match of:
  - 50 percent on the first 2 percent, and
  - 30 percent on the next 8 percent

Delta = difference between employer contribution under PPA and safe harbor

<table>
<thead>
<tr>
<th>Income Quartile</th>
<th>25th Percentile</th>
<th>Median</th>
<th>75th Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest income quartile</td>
<td>1.4%</td>
<td>1.7%</td>
<td>1.9%</td>
</tr>
<tr>
<td>Second</td>
<td>1.5%</td>
<td>1.8%</td>
<td>2.2%</td>
</tr>
<tr>
<td>Third</td>
<td>3.2%</td>
<td>3.5%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Highest income quartile</td>
<td>3.4%</td>
<td>3.8%</td>
<td>4.1%</td>
</tr>
</tbody>
</table>

* This includes 401(k) balances as well as IRA balances rolled over from 401(k) plans.
D1: Impact of Leakages for Automatic Enrollment Plans
Assuming No Participant Behavior Change for Participation, Contribution or Asset Allocation

Percentage of those not reaching the threshold replacement rate when leakages exist who would reach an 80 percent real replacement rate if the leakages were removed

<table>
<thead>
<tr>
<th>Category</th>
<th>Lowest income quartile</th>
<th>Second income quartile</th>
<th>Third income quartile</th>
<th>Highest income quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loan Defaults</td>
<td>4.2%</td>
<td>3.3%</td>
<td>4.0%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Hardship WD w 6 mo suspension</td>
<td>8.0%</td>
<td>6.7%</td>
<td>4.3%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Cashouts</td>
<td>20.0%</td>
<td>15.9%</td>
<td>12.7%</td>
<td>10.3%</td>
</tr>
<tr>
<td>All</td>
<td>27.3%</td>
<td>22.7%</td>
<td>18.3%</td>
<td>15.2%</td>
</tr>
</tbody>
</table>

Source: Jack VanDerhei, "The Impact of Leakages on 401(k) Accumulations at Retirement Age" Testimony for the ERISA Advisory Committee, June 17, 2014.
E1: 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

<table>
<thead>
<tr>
<th>Cohort</th>
<th>Without Reduction</th>
<th>10% Reduction</th>
<th>20% Reduction</th>
<th>30% Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Boomers</td>
<td>1.9%</td>
<td>2.5%</td>
<td>3.2%</td>
<td>4.5%</td>
</tr>
<tr>
<td>Late Boomers</td>
<td>2.9%</td>
<td>4.2%</td>
<td>5.3%</td>
<td>6.5%</td>
</tr>
<tr>
<td>Gen Xers</td>
<td>3.5%</td>
<td>4.6%</td>
<td>5.3%</td>
<td>6.7%</td>
</tr>
</tbody>
</table>

Households in Longest Relative Longevity Quartile With a QLAC

-0.8%            -0.6%            -0.4%            -0.1%

All Households With QLAC -0.8% -0.6% -0.4% -0.1%

All Households With QLAC, 10% Reduction in Premia -0.6% -0.2% 0.0% 0.4%

All Households With QLAC, 20% Reduction in Premia -0.4% 0.0% 0.0% 0.4%

All Households With QLAC, 30% Reduction in Premia -0.1% 0.4% 0.4% 0.4%


* Qualifying longevity annuity contract.

Gender specific QLAC APP is used.

Source of app = best rates from immediateannuity.com on August 10, 2015.

Source: Jack VanDerhei, (August 2015), ‘How Much Can Qualifying Longevity Annuity Contracts Improve Retirement Security?’ EBRI Notes

3B-63
<table>
<thead>
<tr>
<th>Population</th>
<th>Early Boomers (%)</th>
<th>Late Boomers (%)</th>
<th>Gen Xers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household in Longest Relative Longevity Quartile With a QLAC</td>
<td>6.7%</td>
<td>7.3%</td>
<td>8.7%</td>
</tr>
<tr>
<td>Household in Longest Relative Longevity Quartile With a QLAC, 10% Reduction in Premia</td>
<td>8.4%</td>
<td>9.0%</td>
<td>11.0%</td>
</tr>
<tr>
<td>Household in Longest Relative Longevity Quartile With a QLAC, 20% Reduction in Premia</td>
<td>10.7%</td>
<td>10.8%</td>
<td>13.5%</td>
</tr>
<tr>
<td>Household in Longest Relative Longevity Quartile With a QLAC, 30% Reduction in Premia</td>
<td>13.3%</td>
<td>12.6%</td>
<td>16.2%</td>
</tr>
<tr>
<td>All Households With QLAC</td>
<td>-1.5%</td>
<td>-1.6%</td>
<td>-1.1%</td>
</tr>
<tr>
<td>All Households With QLAC, 10% Reduction in Premia</td>
<td>-1.0%</td>
<td>-1.2%</td>
<td>-0.6%</td>
</tr>
<tr>
<td>All Households With QLAC, 20% Reduction in Premia</td>
<td>-0.4%</td>
<td>-0.6%</td>
<td>0.0%</td>
</tr>
<tr>
<td>All Households With QLAC, 30% Reduction in Premia</td>
<td>0.2%</td>
<td>-0.1%</td>
<td>0.7%</td>
</tr>
</tbody>
</table>

Source: EBRI Retirement Security Projection Model® Versions 2305, 2309, 2311, 2313, and 2315

* Qualifying longevity annuity contract.
Gender specific QLAC APP is used.

Source: Jack VanDerhei, (August 2015), ‘How Much Can Qualifying Longevity Annuity Contracts Improve Retirement Security?’ EBRI Notes
F1: Impact of low-interest rate scenarios on Retirement Readiness Ratings (TM) by age cohort

Percentage of simulated life paths that will NOT run short of:

- Enough to cover 80% of simulated expenses
- Enough to cover 90% of simulated expenses

Historical averages

Real bond ror = 0

5-year TIPS (1/1/13)

Source: EBRI Retirement Security Projection Model® Versions 1750, 1755 and 1760

Return assumptions are presented as arithmetic means for equities and bonds as real returns. Fees are not incorporated in this version of the model.
G1: Impact of pro-rata reductions in Social Security retirement benefits (starting in 2033) for Gen Xers on 2014 Retirement Readiness Ratings,™ by preretirement wage quartile (reductions range from 22-27 percent over time)

<table>
<thead>
<tr>
<th>Quartile</th>
<th>Social Security Benefits Reduced</th>
<th>No Social Security Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest-Income</td>
<td>10.3%</td>
<td>20.9%</td>
</tr>
<tr>
<td>Second</td>
<td>45.5%</td>
<td>53.5%</td>
</tr>
<tr>
<td>Third</td>
<td>64.3%</td>
<td>70.1%</td>
</tr>
<tr>
<td>Highest-Income</td>
<td>79.6%</td>
<td>83.1%</td>
</tr>
</tbody>
</table>

G2: Summary of the aggregate deficits by scenario, with LTC costs (trillions of 2014 dollars)

- Pro-rata reduction in Social Security benefits starting in 2033

<table>
<thead>
<tr>
<th>Year</th>
<th>Deficit (trillions of 2014 dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>4.13</td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>4.38</td>
</tr>
</tbody>
</table>

- Retirement Savings Shortfalls represent the present value (at age 65) of all simulated deficits in retirement for all U.S. households where the head of the household is between 35 and 64, inclusive.
- Expressed in 2014 dollars

### Percentage Increase in the Median Multiples of Final Pay

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Low income quartile</th>
<th>Middle 50 percent</th>
<th>High income quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-29</td>
<td>23.6%</td>
<td>32.7%</td>
<td>23.5%</td>
</tr>
<tr>
<td>30-34</td>
<td>24.6%</td>
<td>24.2%</td>
<td>21.4%</td>
</tr>
<tr>
<td>35-39</td>
<td>22.1%</td>
<td>19.9%</td>
<td>22.8%</td>
</tr>
<tr>
<td>40-44</td>
<td>21.7%</td>
<td>17.5%</td>
<td>21.2%</td>
</tr>
<tr>
<td>45-49</td>
<td>21.0%</td>
<td>17.7%</td>
<td>20.0%</td>
</tr>
<tr>
<td>50-54</td>
<td>24.2%</td>
<td>22.2%</td>
<td>22.7%</td>
</tr>
<tr>
<td>55-59</td>
<td>26.2%</td>
<td>23.0%</td>
<td>21.8%</td>
</tr>
<tr>
<td>60-64</td>
<td>19.0%</td>
<td>25.4%</td>
<td>29.6%</td>
</tr>
</tbody>
</table>

Source: Employee Benefit Research Institute Retirement Security Projection Model® Versions 2554a and 2580a
I1: SSGA proposal

- Require all employers, including those that currently do not sponsor a plan, to automatically enroll and automatically escalate all employees, including part-time workers, into a defined contribution plan.
  - No employer contribution required
- The auto escalation required by the proposal would begin at 6% in the first year and that rate would be automatically escalated up to 12% over three years
- The automatic enrollment provision would apply annually to any employee who is contributing less than the 6% amount.
- Click here for more information on the proposal.
I1: Reduction in retirement deficits from SSGA proposal as a function of various opt-out assumptions

<table>
<thead>
<tr>
<th>Opt-Out Assumption</th>
<th>Reduction in Savings Shortfalls*</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 percent optout</td>
<td>1.8%</td>
</tr>
<tr>
<td>75 percent optout</td>
<td>4.6%</td>
</tr>
<tr>
<td>50 percent optout</td>
<td>9.2%</td>
</tr>
<tr>
<td>25 percent optout</td>
<td>13.6%</td>
</tr>
<tr>
<td>10 percent optout</td>
<td>16.1%</td>
</tr>
<tr>
<td>0 percent optout</td>
<td>17.7%</td>
</tr>
</tbody>
</table>

(Baseline = $4.13 trillion)

### I2: Reduction in retirement deficits from SSGA proposal by age as a function of various opt-out assumptions

<table>
<thead>
<tr>
<th>Age Group</th>
<th>0 percent</th>
<th>5%</th>
<th>10%</th>
<th>15%</th>
<th>20%</th>
<th>25%</th>
<th>30%</th>
</tr>
</thead>
<tbody>
<tr>
<td>35-39</td>
<td>25%</td>
<td>28%</td>
<td>24%</td>
<td>18%</td>
<td>10%</td>
<td>7%</td>
<td></td>
</tr>
<tr>
<td>40-44</td>
<td>24%</td>
<td>25%</td>
<td>21%</td>
<td>16%</td>
<td>10%</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>45-49</td>
<td>21%</td>
<td>21%</td>
<td>18%</td>
<td>13%</td>
<td>8%</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>50-54</td>
<td>14%</td>
<td>14%</td>
<td>12%</td>
<td>9%</td>
<td>6%</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>55-59</td>
<td>7%</td>
<td>7%</td>
<td>6%</td>
<td>5%</td>
<td>3%</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>60-64</td>
<td>3%</td>
<td>3%</td>
<td>2%</td>
<td>2%</td>
<td>1%</td>
<td>1%</td>
<td></td>
</tr>
</tbody>
</table>

*Reduction in Retirement Savings Shortfalls* (Baseline = $4.19 trillion)

J1: Percentage of Baby boom and Gen X Households Simulated to Have Adequate Retirement Income for at Least 50 Percent of Simulated Life Paths After Retirement Age by Pre-Retirement Income Quartiles

Source: VanDerhei and Copeland (June 2011). The Impact of Deferring Retirement Age on Retirement Income Adequacy. EBRI Issue Brief.
J2: Percentage of Baby boom and Gen X Households Simulated to Have Adequate Retirement Income for at Least 70 Percent of Simulated Life Paths After Retirement Age by Pre-Retirement Income Quartiles

Source: VanDerhei and Copeland (June 2011). The Impact of Deferring Retirement Age on Retirement Income Adequacy. EBRI Issue Brief.
J3: Percentage of Baby boom and Gen X Households Simulated to Have Adequate Retirement Income for at Least 80 Percent of Simulated Life Paths After Retirement Age by Pre-Retirement Income Quartiles

Source: VanDerhei and Copeland (June 2011). The Impact of Deferring Retirement Age on Retirement Income Adequacy. EBRI Issue Brief.