

# UNDERSTANDING LONGEVITY ANNUITIES & THEIR POTENTIAL ROLE IN RETIREMENT INCOME

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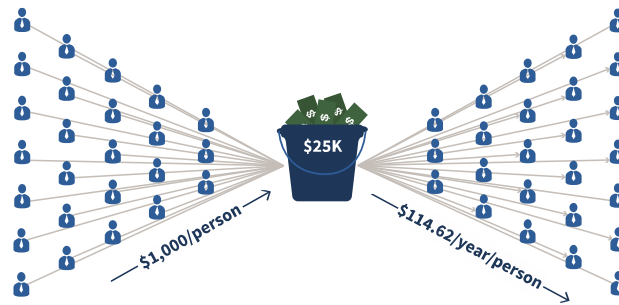
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## UNDERSTANDING LONGEVITY ANNUITIES

- Defining A “Longevity Annuity”
  - An **immediate annuity** is a contract where the buyer exchanges a lump sum with an insurance company to receive an ongoing stream of payments for life (or a certain period of time), generally starting within a year
  - A **longevity annuity** is a form of lump-sum-for-lifetime-payments contract, but payments do not begin until an advanced age
    - Also known as “**Deferred/Delayed Income Annuity**” (DIA)

## UNDERSTANDING LONGEVITY ANNUITIES

- Mortality Credits In Immediate Annuities
  - 25 people pool \$1,000/person into an annuity



- Mortality rate: 1 person/year | Growth rate: 5%

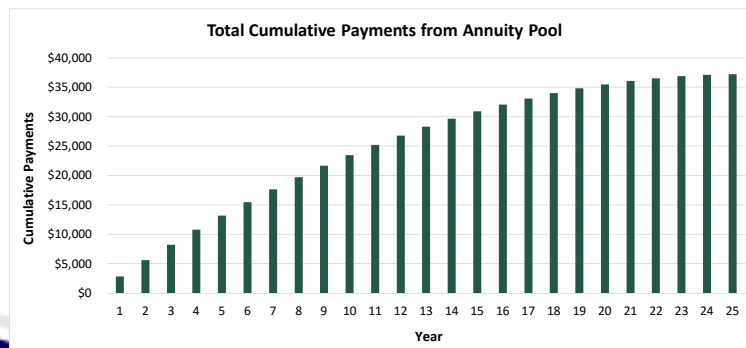
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## UNDERSTANDING LONGEVITY ANNUITIES

- Mortality Credits In Immediate Annuities
  - Payments of \$114.62/year/person add up over time!



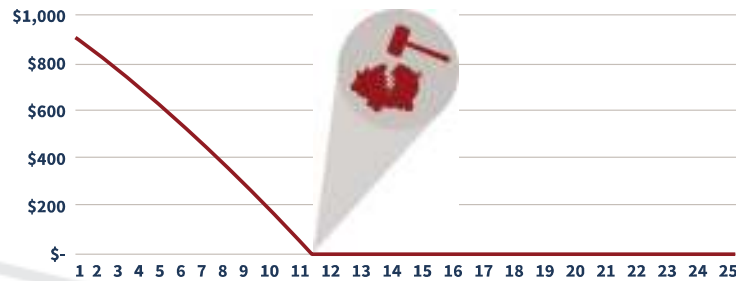
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## UNDERSTANDING LONGEVITY ANNUITIES

- The Role Of Mortality Credits
  - “Everyone” is guaranteed payments of \$114.62/year
    - Even though no one individually could sustain this!



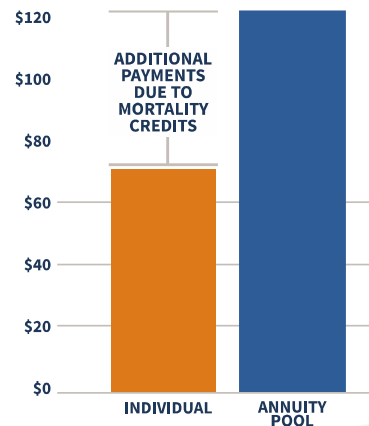
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## UNDERSTANDING LONGEVITY ANNUITIES

- The Role Of Mortality Credits
  - An individual who is afraid he/she “might” live for 25 years could only sustain a payment of \$70.95/year!
  - Mortality credits allow for greater payments than what could be achieved alone!



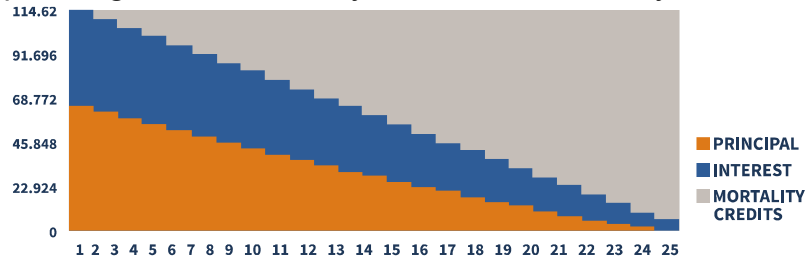
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## UNDERSTANDING LONGEVITY ANNUITIES

- The Role Of Mortality Credits
  - Mortality credits make it possible for “everyone” in the pool to get more than anyone could individually



- “Real world” mortality credits are even more back-loaded!

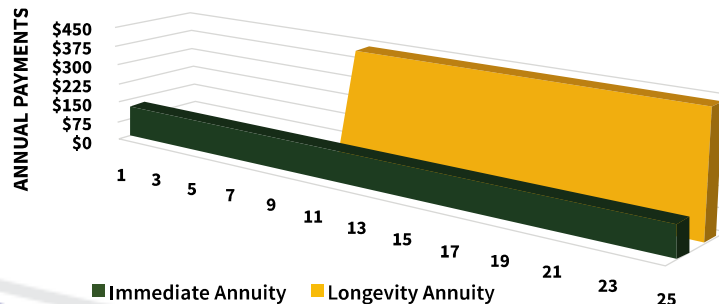
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## UNDERSTANDING LONGEVITY ANNUITIES

- Immediate Annuities Vs Longevity Annuities
  - What if the same group purchased the annuity, but none of the payments began until after the first decade?



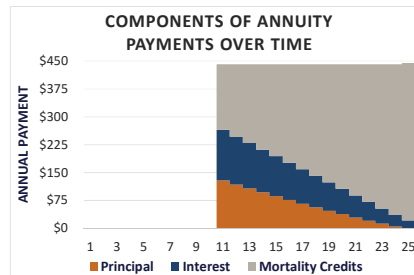
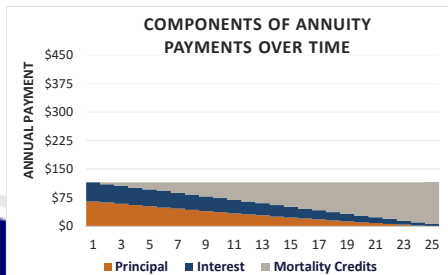
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## UNDERSTANDING LONGEVITY ANNUITIES

- Immediate Annuities Vs Longevity Annuities
  - Delaying payments...
    - Compresses principal & interest into fewer years...
    - And also accumulates more mortality credits!



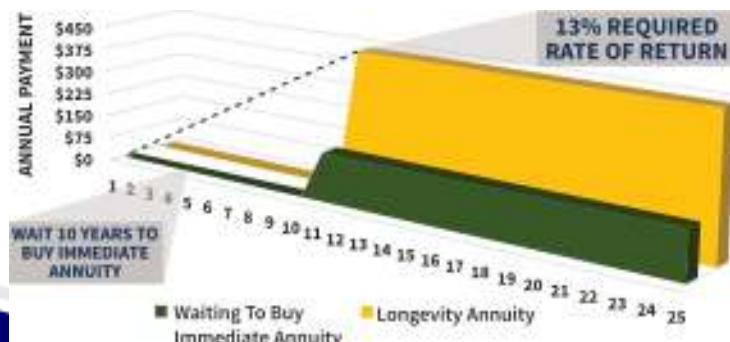
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## UNDERSTANDING LONGEVITY ANNUITIES

- Immediate Annuities Vs Longevity Annuities
  - Waiting to just buy an annuity later would require a highly risky investment!



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## UNDERSTANDING LONGEVITY ANNUITIES

- Increased “Returns” From Mortality Credits
  - With *real-world* mortality, each year of surviving has an exponentially larger contribution to return!

Age	Mortality Credits (basis points)
55	35
60	52
65	83
70	138
75	237
80	414
85	725
90	1256

**Source:** Investment Benefits From Annuitization Assuming 40/60 Male/Female Split for Annuity 2000 Table Under 6% Interest, by Moshe Milevsky, “Real Longevity Insurance With A Deductible: Introduction To Advanced-Life Delayed Annuities”. North American Actuarial Journal, 2005.

## UNDERSTANDING LONGEVITY ANNUITIES

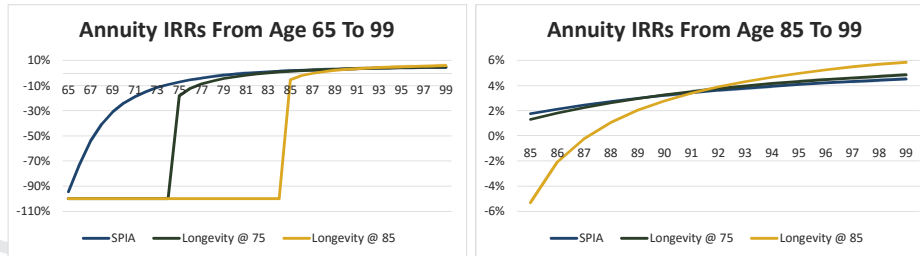
- Trade-Offs Of Delayed Vs Immediate Annuities
  - The longer the deferral period, the bigger the increase in payments!

Purchase Age	Starting Payment Age	Monthly Payment	% Increase
65	65	\$478.91	N/A
65	75	\$934.18	95%
65	85	\$2,656.20	455% (184%)

**Source:** Annuity Quotes via Cannex, as of July 8, 2014

## UNDERSTANDING LONGEVITY ANNUITIES

- Trade-Offs Of Delayed Vs Immediate Annuities
  - Not quite like a return, though, because waiting has a risk of not surviving, in exchange for higher payments if you do!



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## UNDERSTANDING LONGEVITY ANNUITIES

- Trade-Offs Of Delayed Vs Immediate Annuities
  - Cash refund guarantees ensure principal isn't lost
    - But give up mortality credits in the process!

Purchase Age	Starting Payment Age	Monthly Payment	With Cash Refund Guarantee
65	65	\$478.91	\$471.45
65	75	\$934.18	\$929.46
65	85	\$2,656.20	\$2,373.19

**Source:** Annuity Quotes via Cannex, as of July 8, 2014

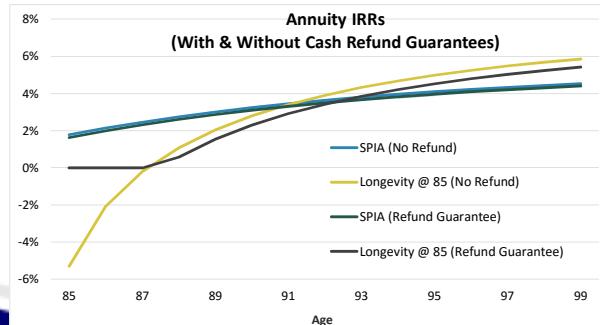
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## UNDERSTANDING LONGEVITY ANNUITIES

- Trade-Offs Of Delayed Vs Immediate Annuities
  - Managing risk of death with a cash-refund feature
    - The longer the deferral, the more the impact!



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## UNDERSTANDING LONGEVITY ANNUITIES

- Trade-Offs Of Delayed Vs Immediate Annuities
  - Managing inflation risk and CPI adjustments

Purchase Age	Starting Payment Age	Original Monthly Payment	Inflation-Adjusted Monthly Payment	With Cash Refund Guarantee (Also)
65	65	\$478.91	\$318.18	\$308.37
65	75	\$934.18	\$710.39	\$688.94
65	85	\$2,656.20	\$2,170.43	\$2,005.07

**Source:** Annuity Quotes via Cannex, as of July 8, 2014

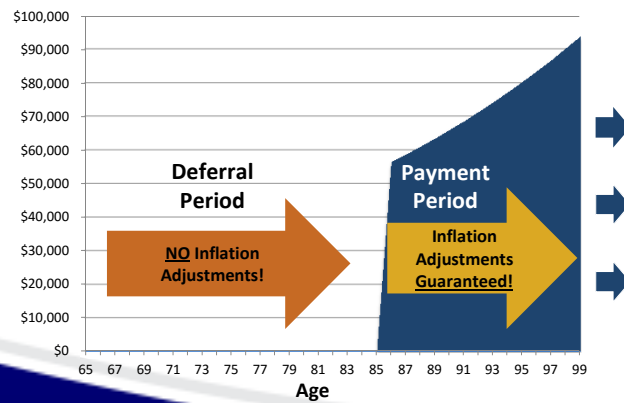
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## UNDERSTANDING LONGEVITY ANNUITIES

- Trade-Offs Of Delayed Vs Immediate Annuities
  - But inflation adjustments only apply during the payout period!



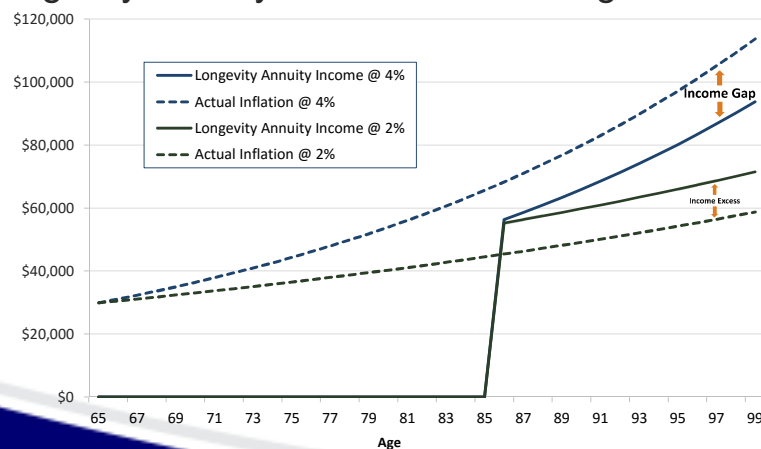
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## UNDERSTANDING LONGEVITY ANNUITIES

- Longevity Annuity Inflation Risk During Deferral



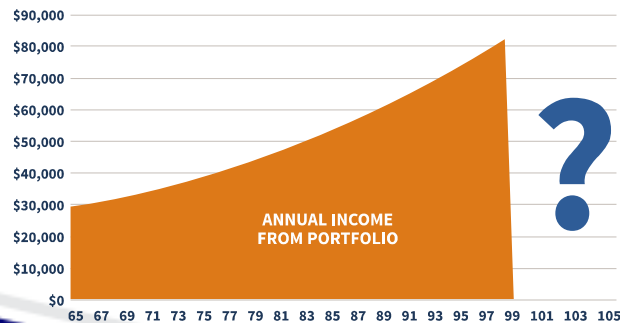
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## UNDERSTANDING LONGEVITY ANNUITIES

- Longevity Annuities And Bucketing Strategies
  - Can longevity annuities solve the “Unknown Time Horizon” problem of traditional DC plans?



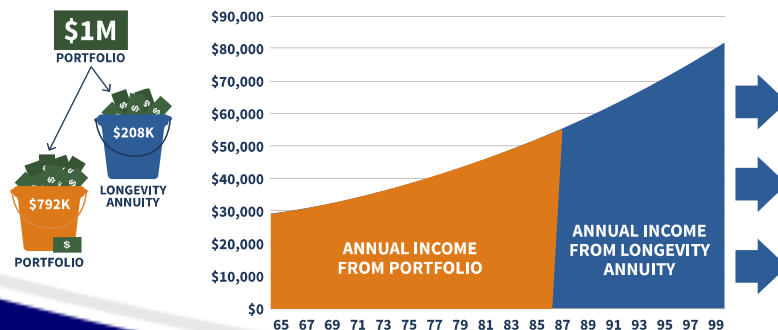
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## UNDERSTANDING LONGEVITY ANNUITIES

- Longevity Annuities And Bucketing Strategies
  - 20-year bucket can be guaranteed via TIPS ladder?

**Source:** TIPS  
Yield quotes via the  
U.S. Department of  
the Treasury as of  
August 6, 2014

TIPS Length (Years to Maturity - N)	Real Yield (I/Y)	Real Maturity Value (FV)	Req'd Lump Sum Payment (PV)
1	-0.50%	\$30,000	(\$30,150.15)
2	-0.44%	\$30,000	(\$30,263.32)
3	-0.37%	\$30,000	(\$30,339.13)
4	-0.31%	\$30,000	(\$30,377.34)
5	-0.25%	\$30,000	(\$30,377.83)
6	-0.04%	\$30,000	(\$30,063.08)
7	0.18%	\$30,000	(\$29,624.71)
8	0.20%	\$30,000	(\$29,516.44)
9	0.23%	\$30,000	(\$29,394.88)
10	0.25%	\$30,000	(\$29,260.21)
11	0.29%	\$30,000	(\$29,049.88)
12	0.34%	\$30,000	(\$28,816.41)
13	0.38%	\$30,000	(\$28,560.38)
14	0.42%	\$30,000	(\$28,282.46)
15	0.47%	\$30,000	(\$27,983.33)
16	0.51%	\$30,000	(\$27,663.76)
17	0.55%	\$30,000	(\$27,324.52)
18	0.59%	\$30,000	(\$26,966.45)
19	0.64%	\$30,000	(\$26,590.43)
20	0.68%	\$30,000	(\$26,197.34)
Total Cost of 20-Year TIPS Ladder:			\$576,802.04
Cost Of Longevity Annuity:			\$208,000.00
Remaining Portfolio Reserves:			\$215,197.96

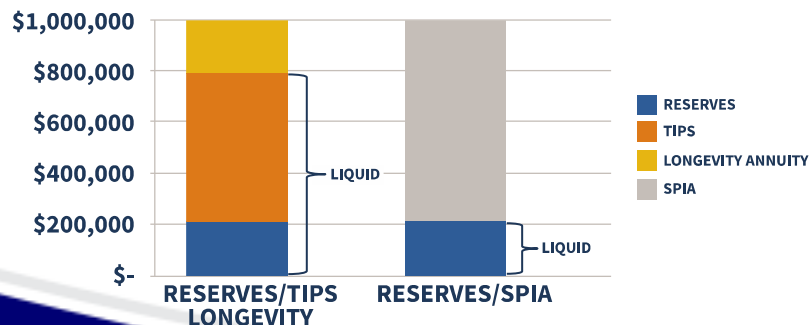
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## UNDERSTANDING LONGEVITY ANNUITIES

- Longevity Annuities And Bucketing Strategies
  - A comparable lifetime immediate annuity would cost \$786k
    - Similar cost, but more flexibility & liquidity (and death benefit?)



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## UNDERSTANDING LONGEVITY ANNUITIES

- Longevity Annuities Vs Alternative Choices
  - Superior to a purely fixed-income portfolio
    - “Expensive” to buy government bonds in low-yield environment
    - Mortality credits can always provide superior payments to comparable bonds alone...
      - At least for those most concerned about longevity
  - Solves the “Unknown Time Horizon” problem
    - Especially pernicious for laddered bonds if clients outlive the ladder!

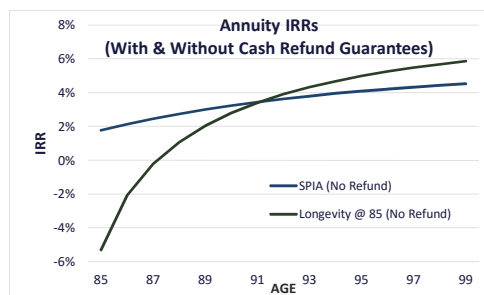
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## UNDERSTANDING LONGEVITY ANNUITIES

- Longevity Annuities Vs Alternative Choices
  - Arguably dominates immediate annuities
    - Superior in actual longevity scenarios...
    - And greater liquidity during the intervening years!
      - Even with a risk of “total” loss, it’s only a small slice!



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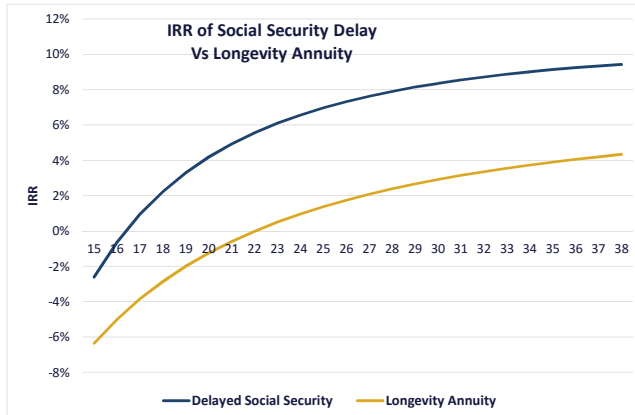
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## UNDERSTANDING LONGEVITY ANNUITIES

- Longevity Annuities Vs Alternative Choices

- Still absolutely dominated by Social Security!



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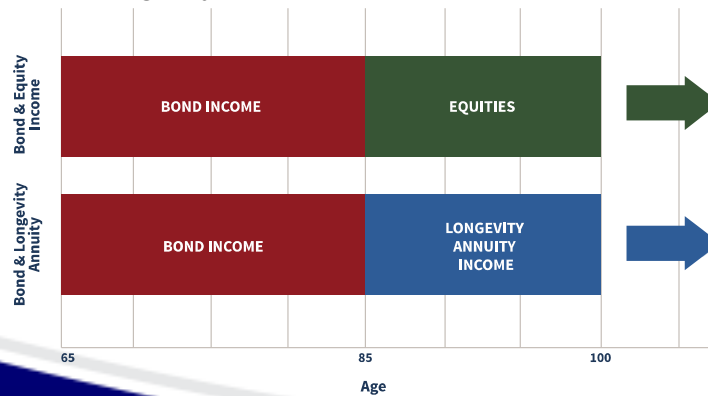
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## UNDERSTANDING LONGEVITY ANNUITIES

- Longevity Annuities Vs Alternative Choices

- Should Longevity Annuities replace fixed income, or stocks?



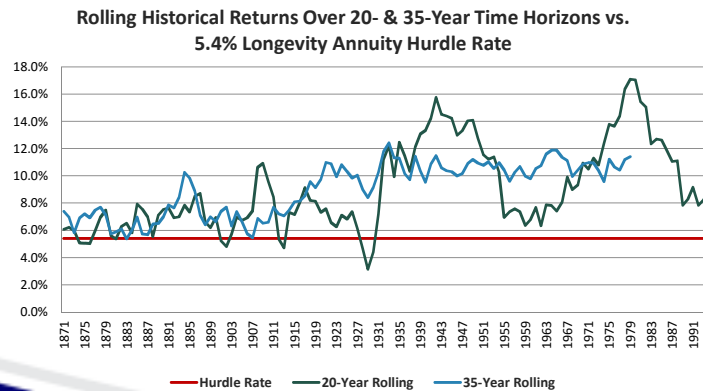
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## UNDERSTANDING LONGEVITY ANNUITIES

- Longevity Annuities Vs Alternative Choices



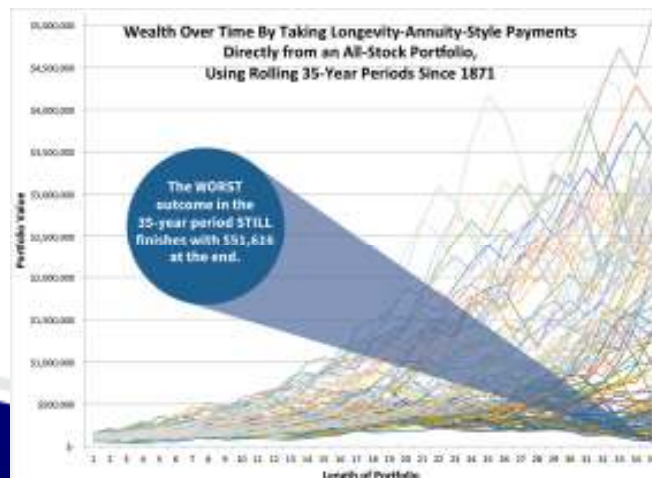
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- Longevity Annuities Vs Alternative Choices



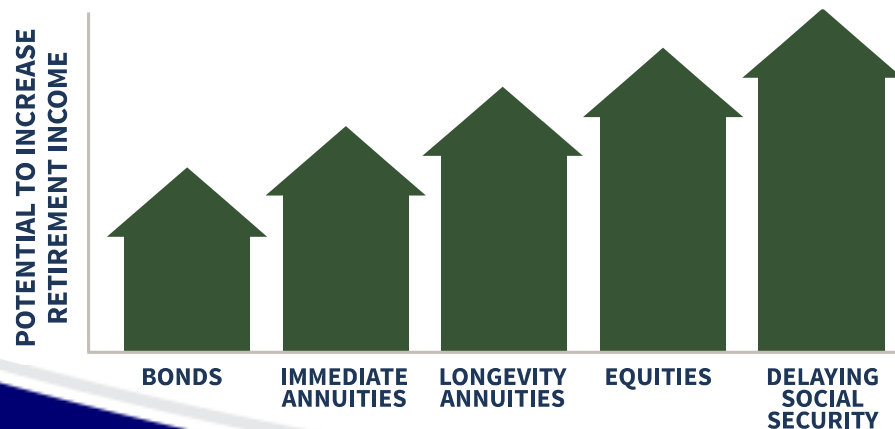
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## UNDERSTANDING LONGEVITY ANNUITIES

- How Longevity Annuities Stack Up



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## UNDERSTANDING LONGEVITY ANNUITIES

- Longevity Annuities As An Accumulation Vehicle?
  - Buying incrementally during the accumulation years?
  - Value again depends on the time horizon
    - Superior to accumulating in bonds for future spending
    - Inferior to accumulating in stocks for future spending?
  - Mortality credits not very significant during the early accumulation years anyway?

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## UNDERSTANDING LONGEVITY ANNUITIES

- Caveats And Concerns
  - Relies heavily on the credit quality of the insurer
    - Check credit quality of the insurer
    - Could greater volume of longevity annuities increase insurance company risk in the future?
      - The danger of longevity/health “shocks”
      - Difficult to liability-match “back-loaded” payments?

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## UNDERSTANDING LONGEVITY ANNUITIES

- Caveats And Concerns
  - The “best” longevity annuities take the greatest risk?
    - Risk of loss is what gives the mortality credits
      - Buying refund guarantees eliminates the risk, but also much of the mortality benefit?
    - Manage risk by limiting exposure, not buying death benefit guarantees?

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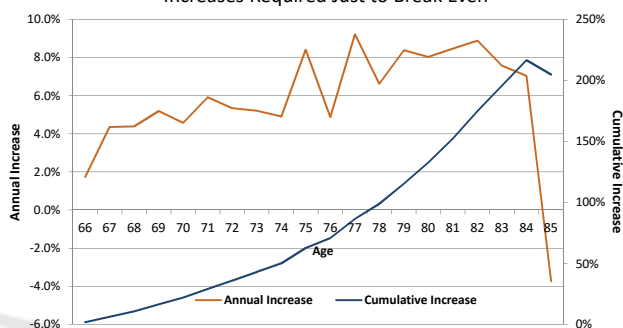
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## UNDERSTANDING LONGEVITY ANNUITIES

- Caveats And Concerns

Impact of Waiting for a Longevity Annuity &  
The Cost of Foregone Mortality Credits –  
Increases Required Just to Break Even



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## UNDERSTANDING LONGEVITY ANNUITIES

- Planning Implications/Applications
  - Of primary importance for those who fear outliving their life expectancy
    - Delaying Social Security always superior first step
    - Arguably dominant over immediate annuities
    - Solves the “Unknown Time Horizon” problem
    - Can be purchased with inflation protection
    - Still may be inferior to long-term equities though?

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## UNDERSTANDING LONGEVITY ANNUITIES

- Planning Implications/Applications
  - Difficult to peg “right” amount to purchase
    - Depends on uncertainty of inflation during deferral?
  - “Best” versions have *fewest* death guarantees?
    - Limits the amount of capital required while maximizing the payouts if client survives
    - Maximize the deferral period!
    - But this poses the greatest psychological challenges?

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## UNDERSTANDING LONGEVITY ANNUITIES

- Planning Implications/Applications
  - An uphill battle to playing the waiting game
    - Potential for competitiveness to increase...
    - Against foregone mortality credits, and the risk that payouts get worse (regulatory or longevity changes)
    - Could become highly compelling at higher payout rates, though?
  - Buy from a top-rated insurer!
    - Not a time to shop on payment size alone!

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## UNDERSTANDING LONGEVITY ANNUITIES

- Summary
  - Longevity annuities provide an interesting possibility
    - Solves the “Unknown Time Horizon” problem
    - Risks implicitly managed by smaller required payments
    - Compelling now against some alternatives...
    - ..But the time may not be right just yet for widespread use?

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