

Retirement Income Planning: A New Efficient Frontier and Outcome Based Investment Strategies

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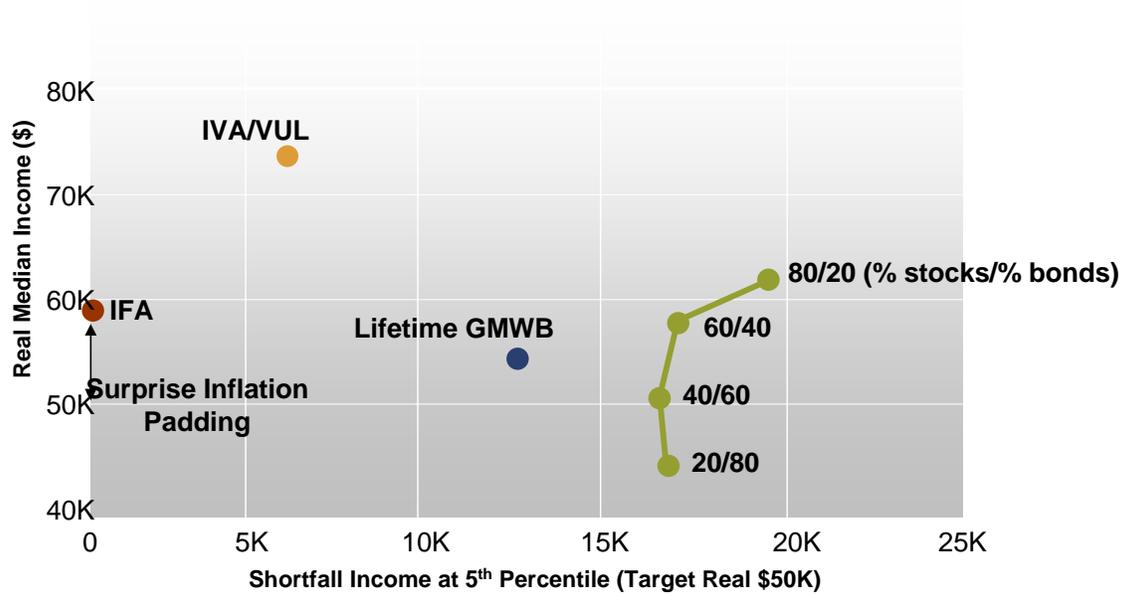
Agenda

- × Investor Goals
 - × Maintain a comfortable lifestyle in retirement (convert savings into a sustainable lifetime income)
 - × Bequest
- × Shortfall Factors
 - × Market risk
 - × Longevity risk
 - × Inadequate savings
- × Solutions
 - × Controlling the 3 risk factors
 - × New Efficient Frontier between traditional assets and **outcome based investment products:** Principal Protected Products, Annuities (Payout or VA+GLiB)

New Efficient Frontier for Retirement Income

- × Traditional Mean-Variance Efficient Frontier
 - × Does not handle “outcome based” strategy well
- × New Income Frontier
 - × Average Sustainable Income vs. Shortfall Income for a given horizon
 - × Shortfall Income → Value-at-Risk (VAR)
 - × VAR → estimate of the loss that we expect to be exceeded with a probability (e.g. 5%)
 - × Shortfall Income → shortage of income against a target in the worst scenario (5th percentile)

Real Median Sustainable Income vs. Real Shortfall Income 30 Year Horizon



Source: Ibbotson Associates

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Asset Allocation with Payout Annuity and VA+GLiB : Key Factors

Factor	Proportion to Implement with PA or VA+GMWB	Reason
Large Bequest	Lower	Preference to leave more
High Income Sustainability	Higher	Preference for personal consumption
High Subjective Survival Probability	Higher	Perceived longevity risk / suitability
High Fees	Lower	Fees reduce returns
Large Wealth	Varies	Ratio of wealth to income need
High Income	Varies	Ratio of wealth to income need

*Ibbotson has US Patent 7120601B2. Granted October 10, 2006

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Asset Allocation with Payout Annuities or VA+GLiB

Objective Factors

- × Financial Wealth
- × Retirement Income Need
- × Guaranteed Income

Subjective Factors

- × Subjective Survival
- × Likelihood of Holding for Life
- × Consumption vs. Bequest



Product Allocation

- Traditional Assets
- Outcome based strategies, Payout Annuities, VA+GLiB

Summary

- × New retirement income efficient frontier is more effective for tradeoffs on retirement income than traditional mean-variance efficient frontier
- × Shortfall Factors can be Managed by combining Traditional Asset Allocation with **outcome based products**
- × Caveats
 - × Default risk
 - × Investor with shorter retirement period
 - × For investors with existing market risk and retirement income risk coverage, the benefit will be smaller (existing DB)

Thought Leadership

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**Lifetime Financial Advice:
 Human Capital, Asset
 Allocation, and Insurance**



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**Human Capital, Asset Allocation, and
 Life Insurance**

Peng Chen, CFA, Roger G. Ibbotson, Moshe A. Milevsky, and Kevin X. Zhu

Financial planners and advisors increasingly recognize that human capital must be taken into account when building optimal portfolios for individual investors. But human capital is not simply another pre-enclosed asset class; it contains a unique mortality risk in the form of the loss of future income and wages in the event of the wage earner's death. Life insurance hedges this mortality risk, so human capital affects both optimal asset allocation and demand for life insurance. Yet, historically, asset allocation and life insurance decisions have been analyzed separately. This article develops a unified framework based on human capital that enables individual investors to make these decisions jointly.

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**Retirement Portfolio and Variable
 Annuity with Guaranteed Minimum
 Withdrawal Benefit (VA+GMWB)**

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