
Alpha, Beta, and Now...Gamma

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Why Do People Seek Help?

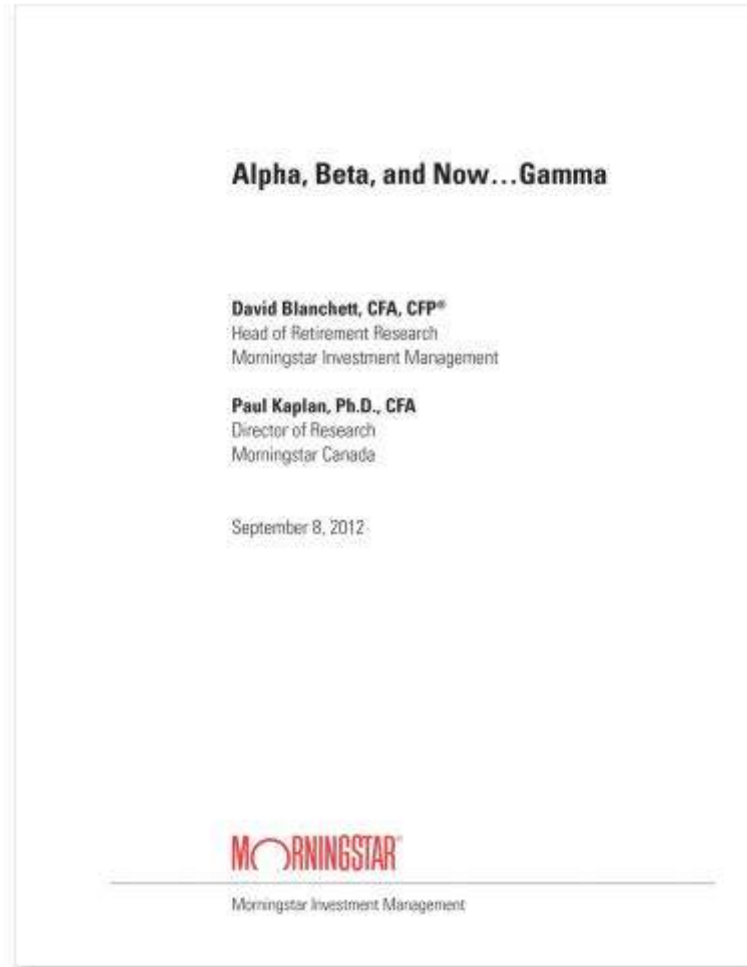


Alpha, Beta, and Now...Gamma

Alpha

Beta

Gamma



Different Types of Gamma

-  Total Wealth Asset Allocation
-  Dynamic Withdrawal Strategy
-  Annuity Allocation
-  Asset Location and Withdrawal Sourcing
-  Liability Relative Optimization



Total Wealth Asset Allocation

Individual Portfolio Assignment



Financial Capital

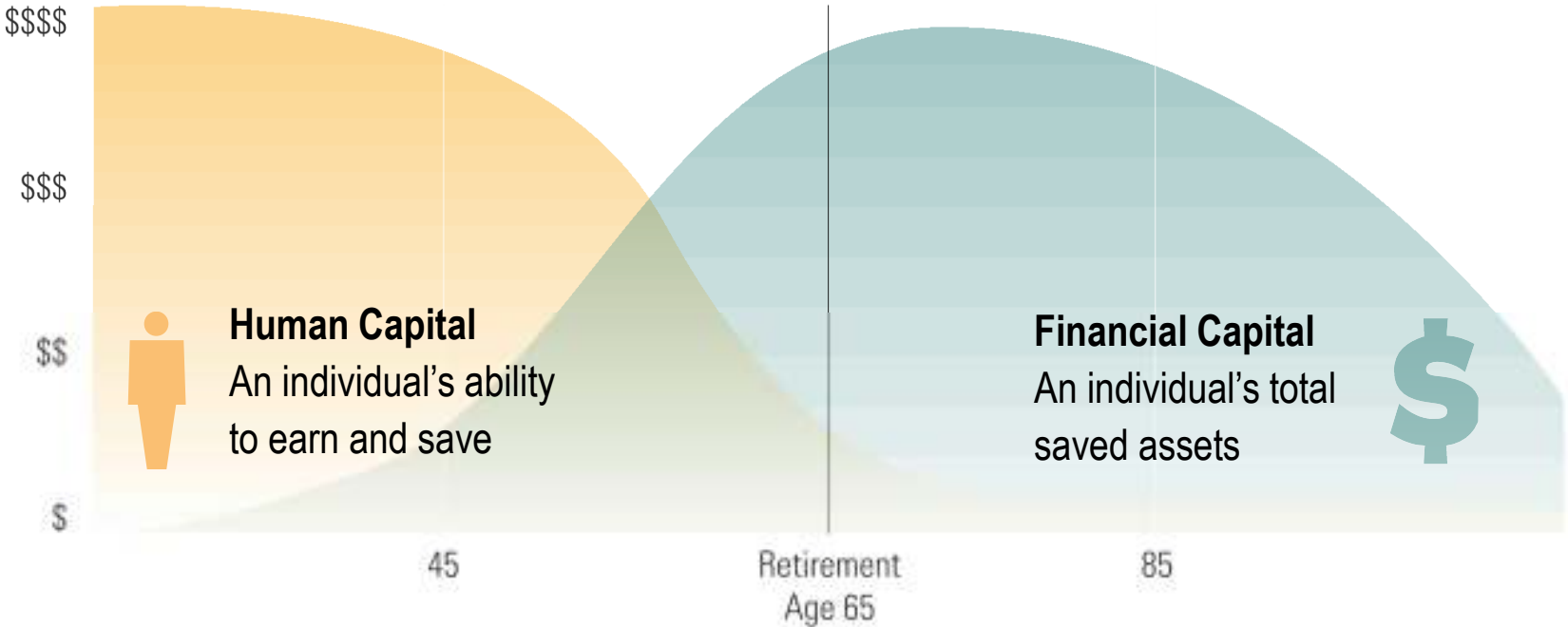
- ▶ Tradable assets such as stocks and bonds have traditionally been used when constructing an asset allocation
- ▶ Incomplete without considering Human Capital



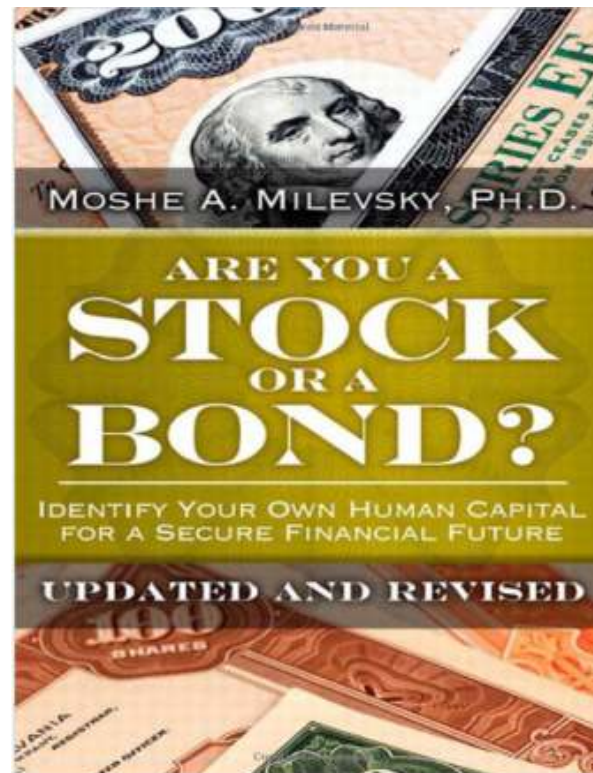
Human Capital

- ▶ An individual's ability to earn and save
- ▶ Present value of all your expected future wages including pension and social securities

Life Cycle of Human Capital and Financial Capital



How Risky is Human Capital?





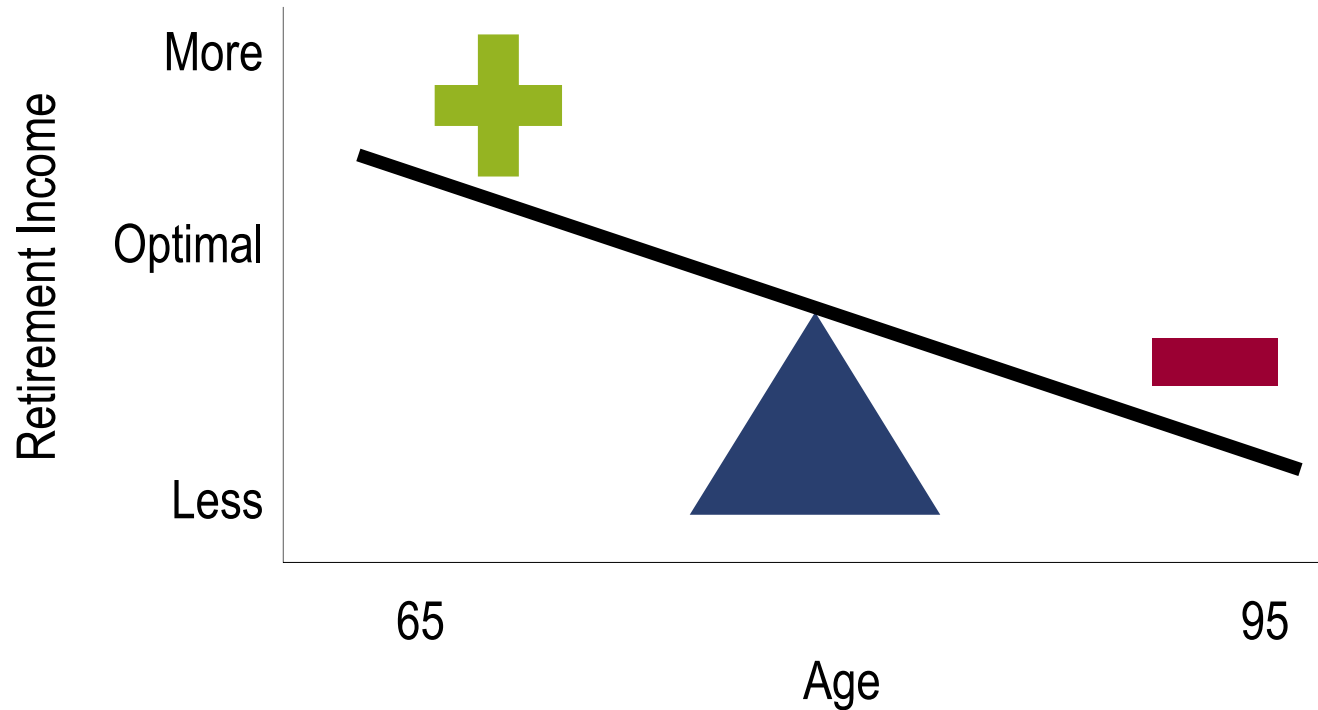
Dynamic Withdrawal Strategy

Two Key Unknowns. . .

- ▶ Life expectancy
- ▶ Returns

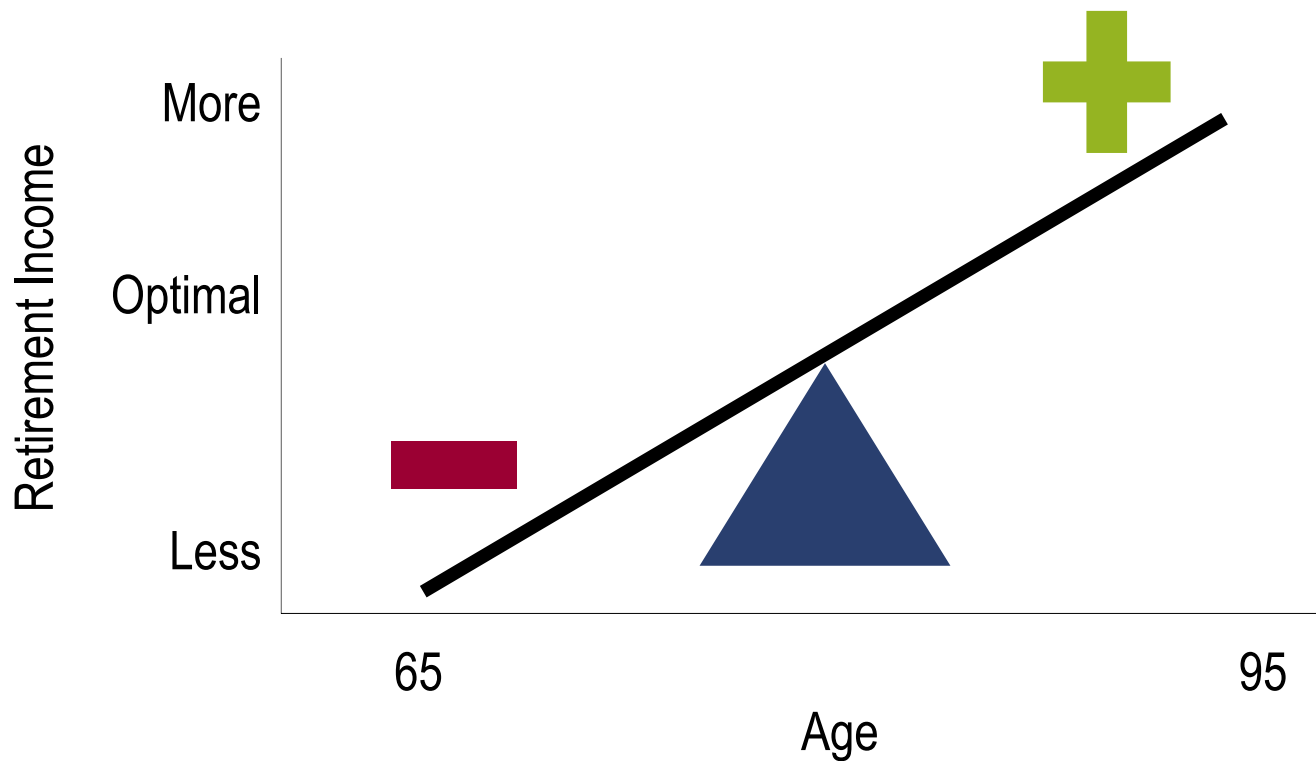


A Balancing Act: Income Early in Retirement



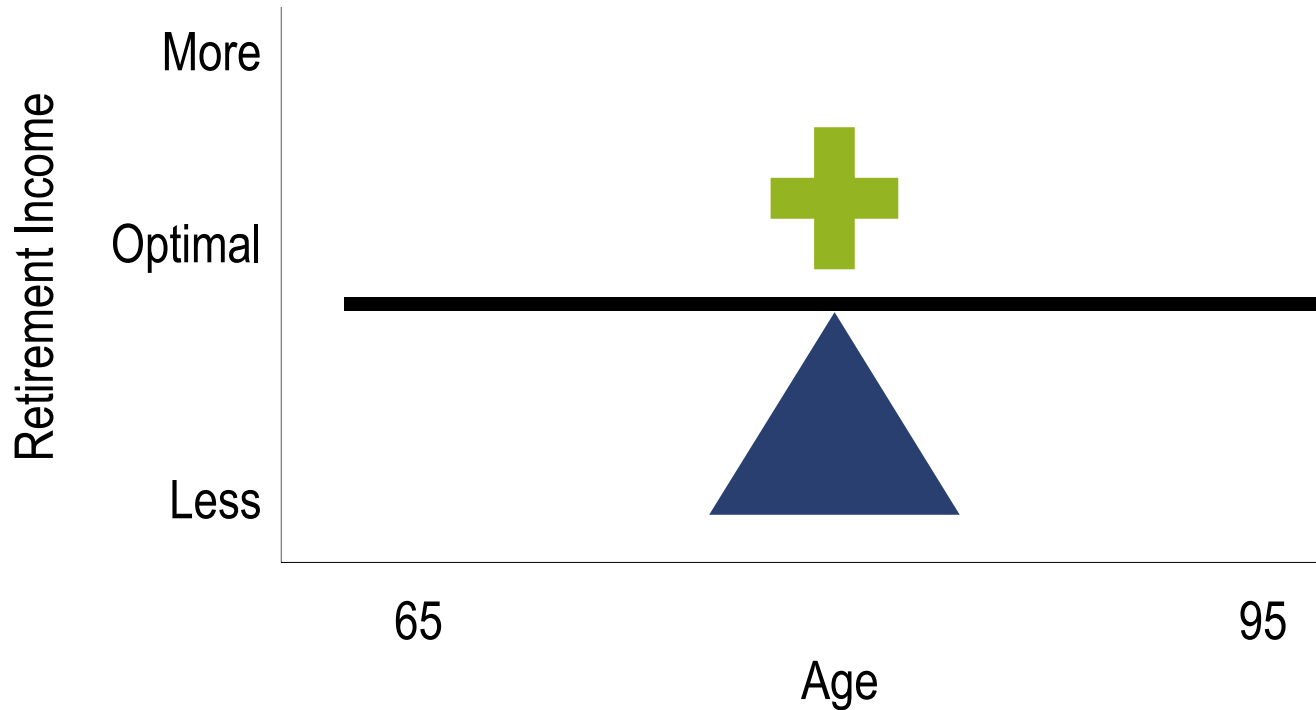
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A Balancing Act: Income Late in Retirement



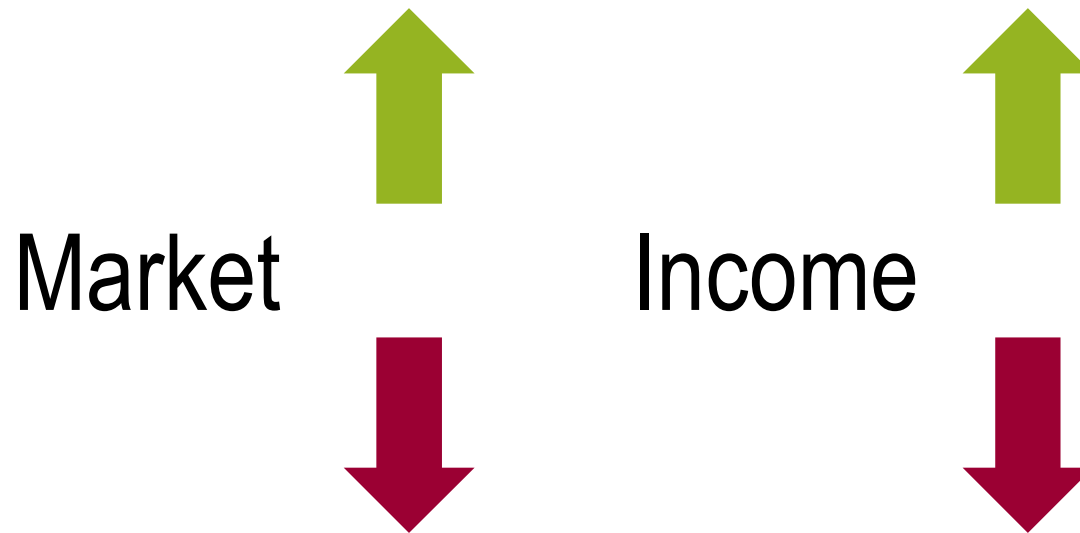
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A Balancing Act: Just Right

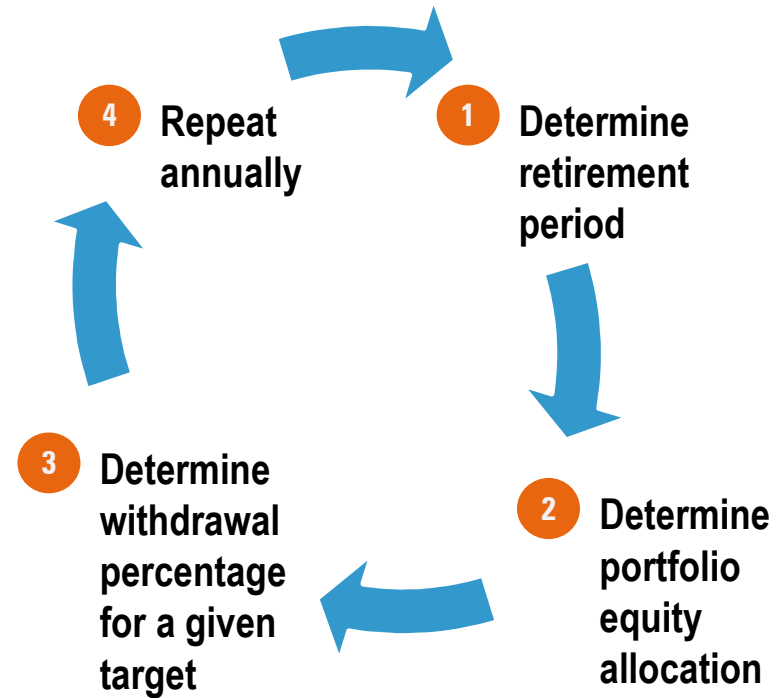


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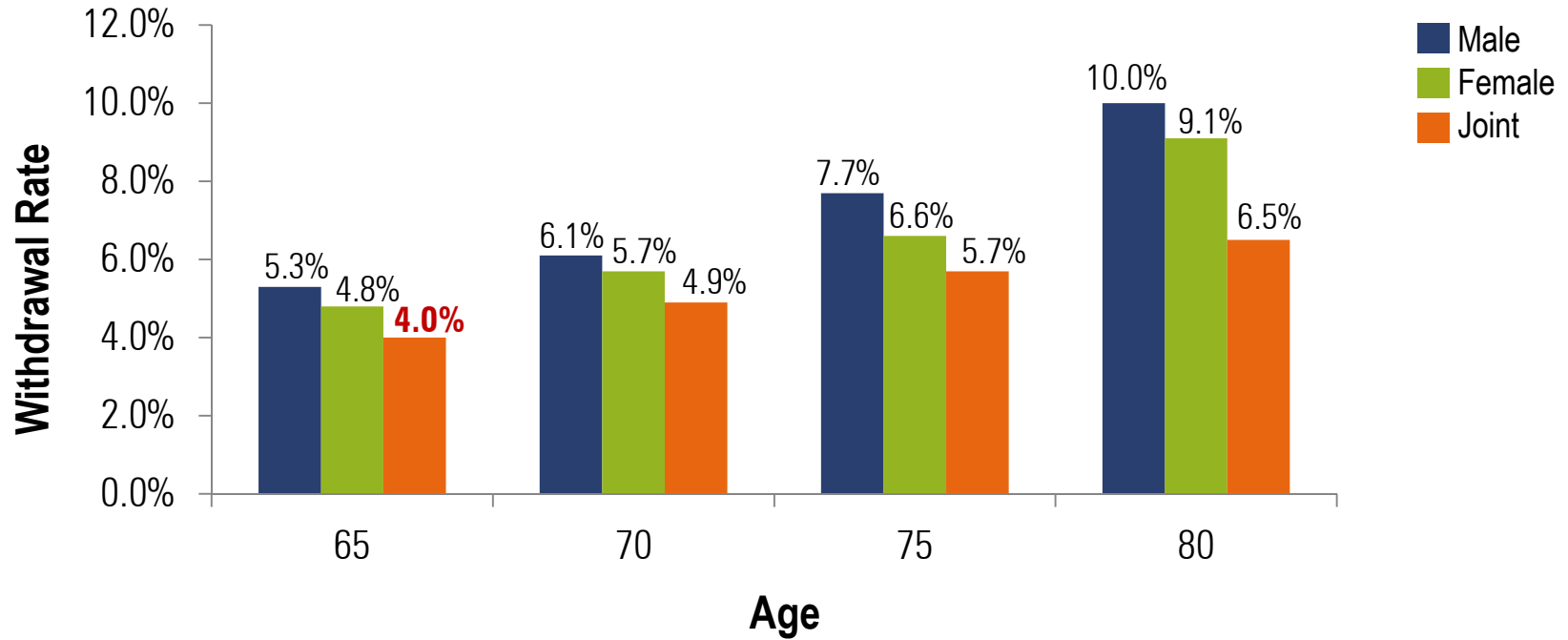
Change is Good Thing



Better Outcomes



“4%” for All Ages



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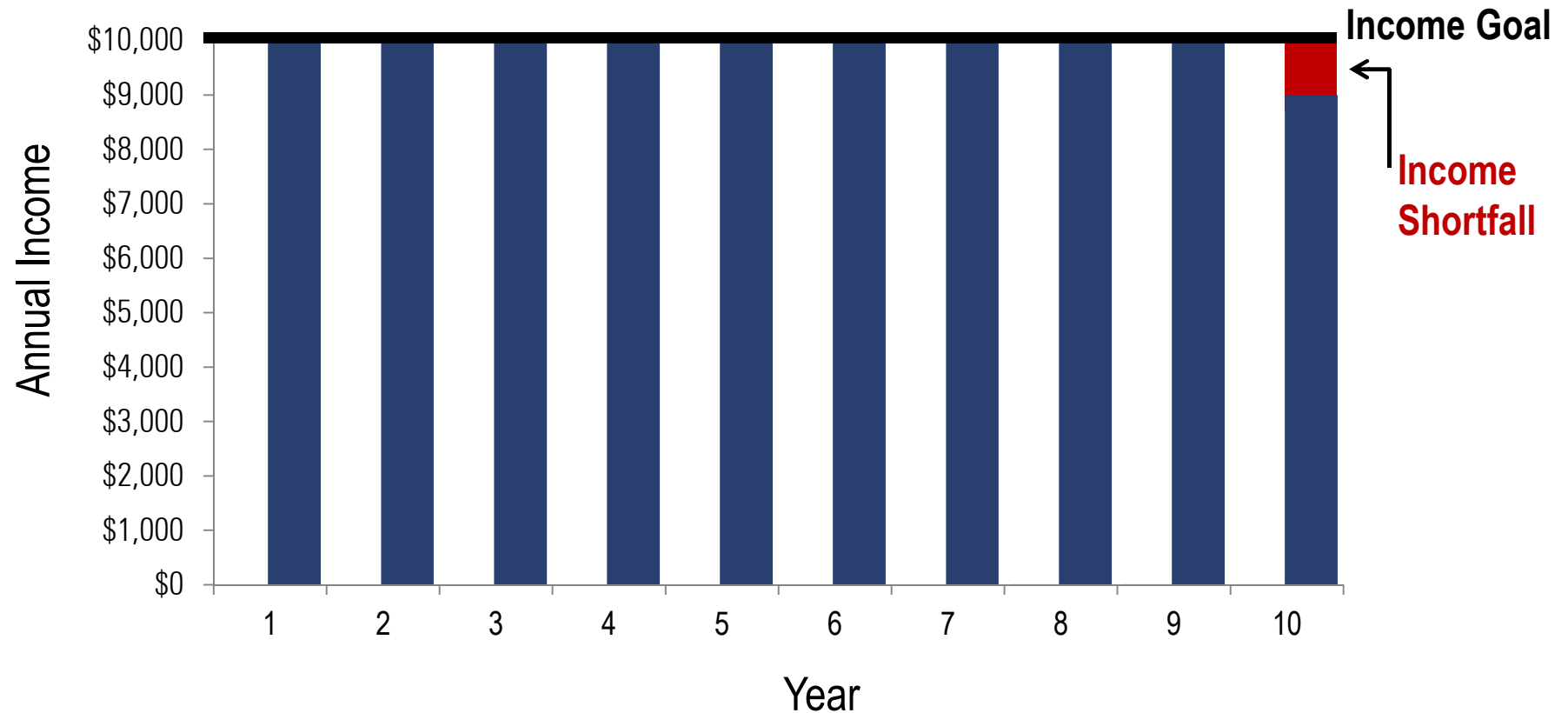
Where You Start Matters

- ▶ Probability of success for a 4% initial withdrawal rate over 30 years for a 40% stock portfolio

| | | Initial CAPE Ratio | | | | | |
|--------------------|------|--------------------|-------|-------|-------|-------|-------|
| | | 10 | 15 | 20 | 25 | 30 | 35 |
| Initial Bond Yield | 1.0% | 67.1% | 58.1% | 46.8% | 35.4% | 26.1% | 17.7% |
| | 2.0% | 71.6% | 62.3% | 51.0% | 41.6% | 29.7% | 21.9% |
| | 3.0% | 75.4% | 66.5% | 55.9% | 45.6% | 34.8% | 25.7% |
| | 4.0% | 78.3% | 70.8% | 62.1% | 50.2% | 38.3% | 29.5% |
| | 5.0% | 82.1% | 74.0% | 65.2% | 54.7% | 43.7% | 32.6% |
| | 6.0% | 85.0% | 78.4% | 69.1% | 60.3% | 49.0% | 37.1% |

Source: "Market Valuations, Bond Yields, and Retirement Success"

Defining “Failure” for a Retiree



- ▶ You can achieve 99% of your goal and still “fail”

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What is True Failure?

| | | Current Living Status | |
|-------------------|------------|-----------------------|-------------|
| | | Alive | Dead |
| Portfolio Balance | $\geq \$0$ | Not Failure | Not Failure |
| | $< \$0$ | Failure | Not Failure |

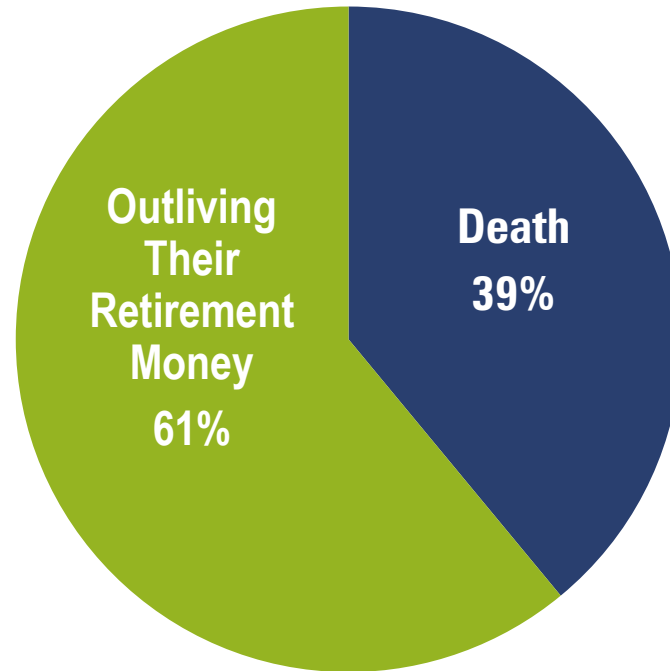


Annuity Allocation

Who Cares About Guaranteed Income?



Annuity Allocation: What Do Retirees Fear More?



Source: <https://www.allianzlife.com/content/public/Literature/Documents/ent-1154.pdf>

Inefficient Retirement Planning

Defined Benefit Plans



DC Plans



Research Perspectives

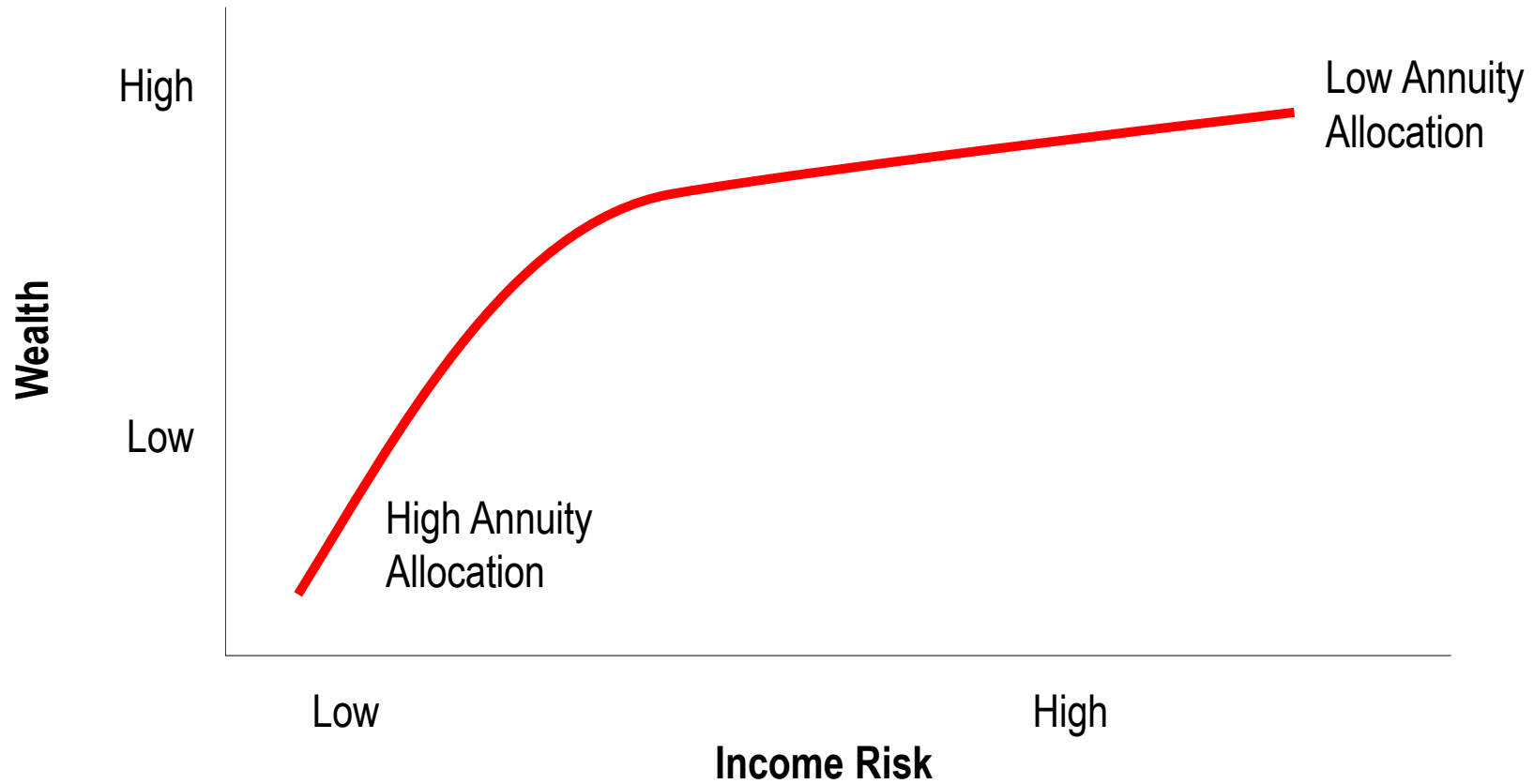
Portfolio Withdrawal Strategies



Annuities

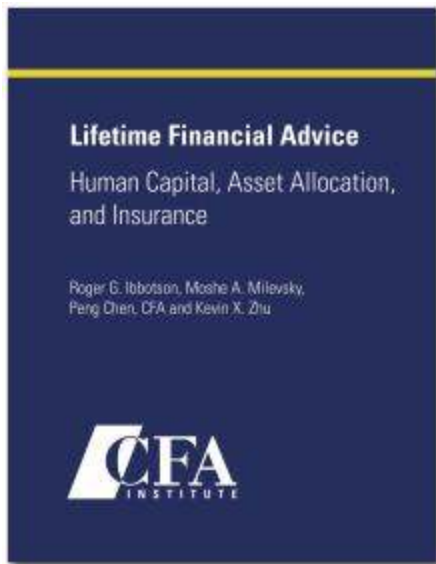


Retirement Income Efficient Frontier



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Incorporating Guaranteed Income



Research published in CFA Institute Monograph



Award-winning paper on the integration of human capital and asset allocation



Research paper focused on a methodology reflecting the features of variable annuities with GMWB for life

A Holistic Perspective

Collect Inputs



Determine Asset Allocations



Human Capital



Financial Capital
and Current Savings



Life Insurance
Annuities



Traditional Funds, ETFs

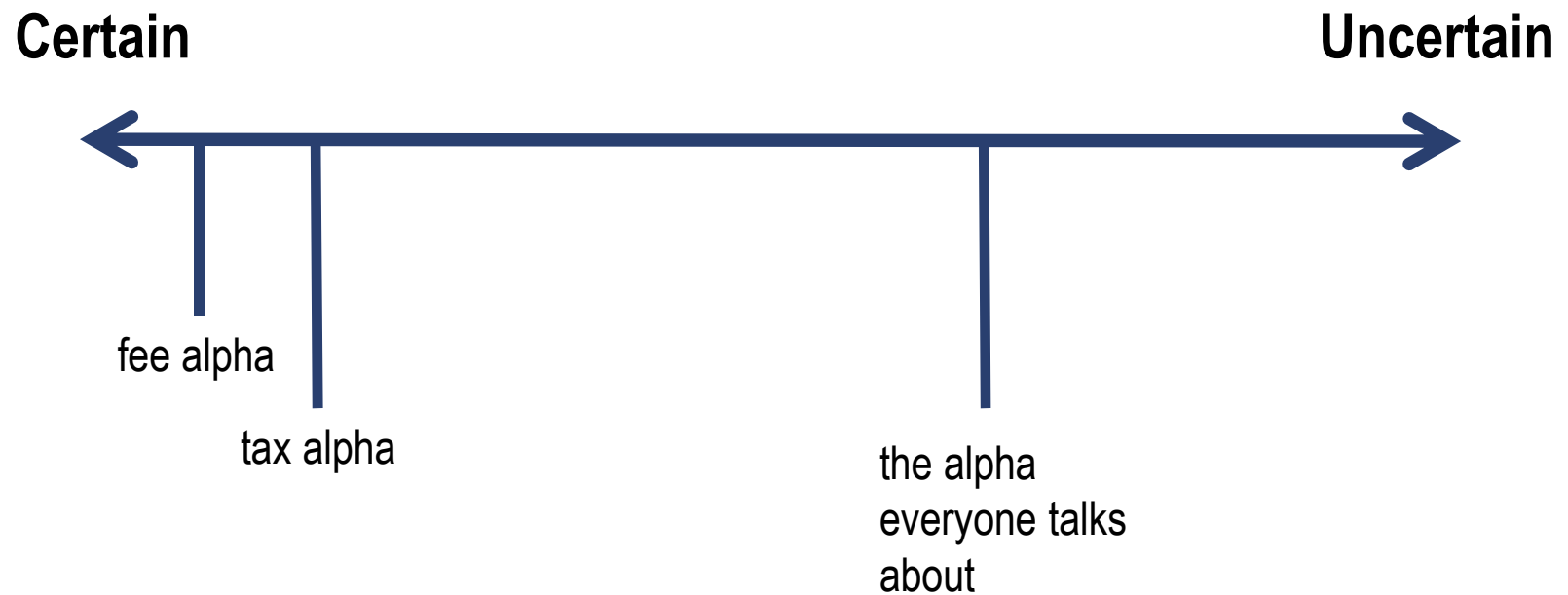


Life Insurance/Annuities



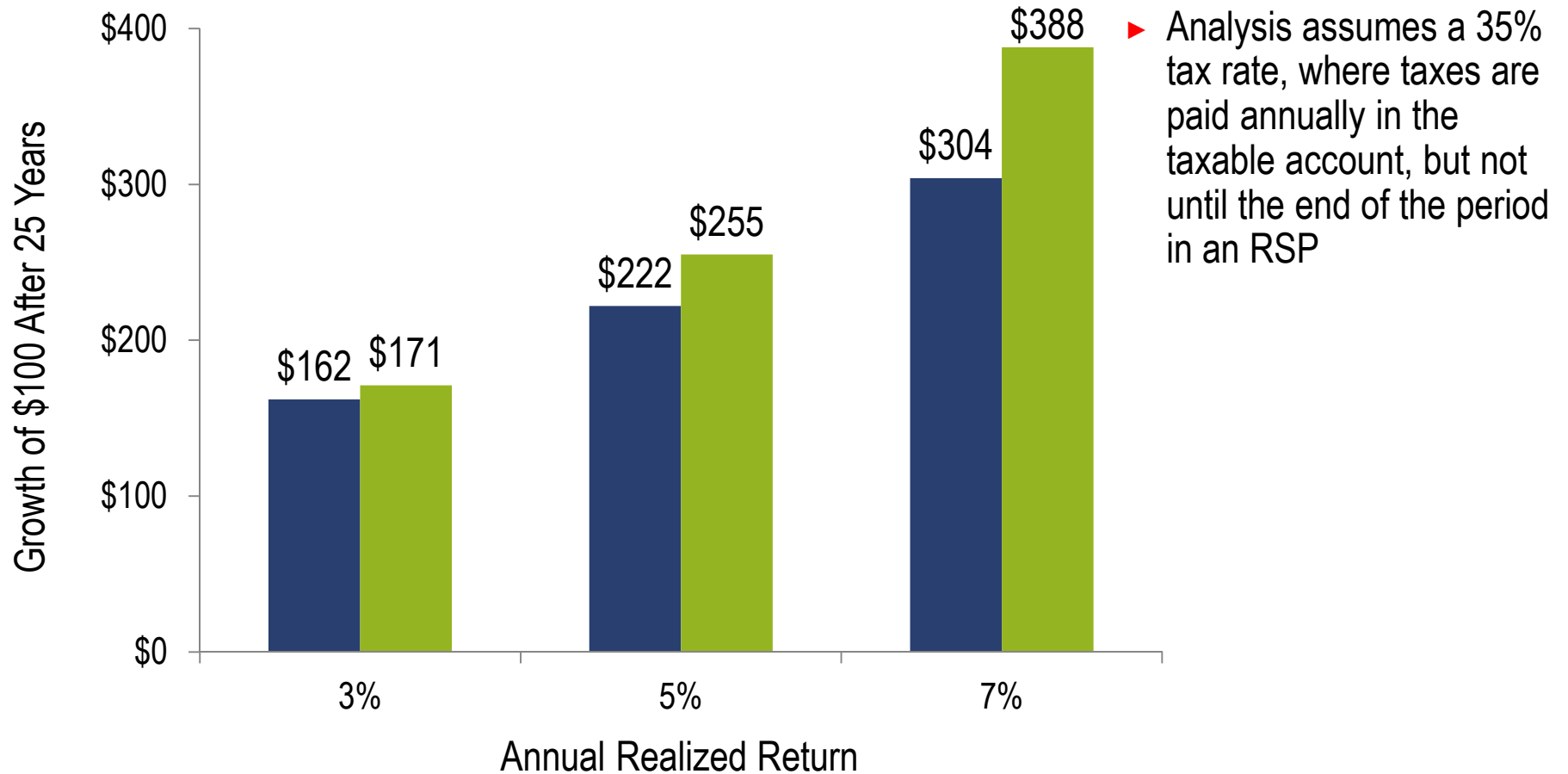
Asset Location and Withdrawal Sourcing

Alpha Spectrum



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Tax Drag and Account Growth



Asset Location and Withdrawal Sourcing

Inefficient Asset Location



Efficient Asset Location



Asset Location and Withdrawal Sourcing

Inefficient

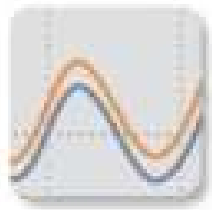
Allocating and withdrawing stock from RSP first

Moderate

Allocating stocks to taxable account and withdrawing from RSP first

Efficient

Allocating and withdrawing stocks from taxable account

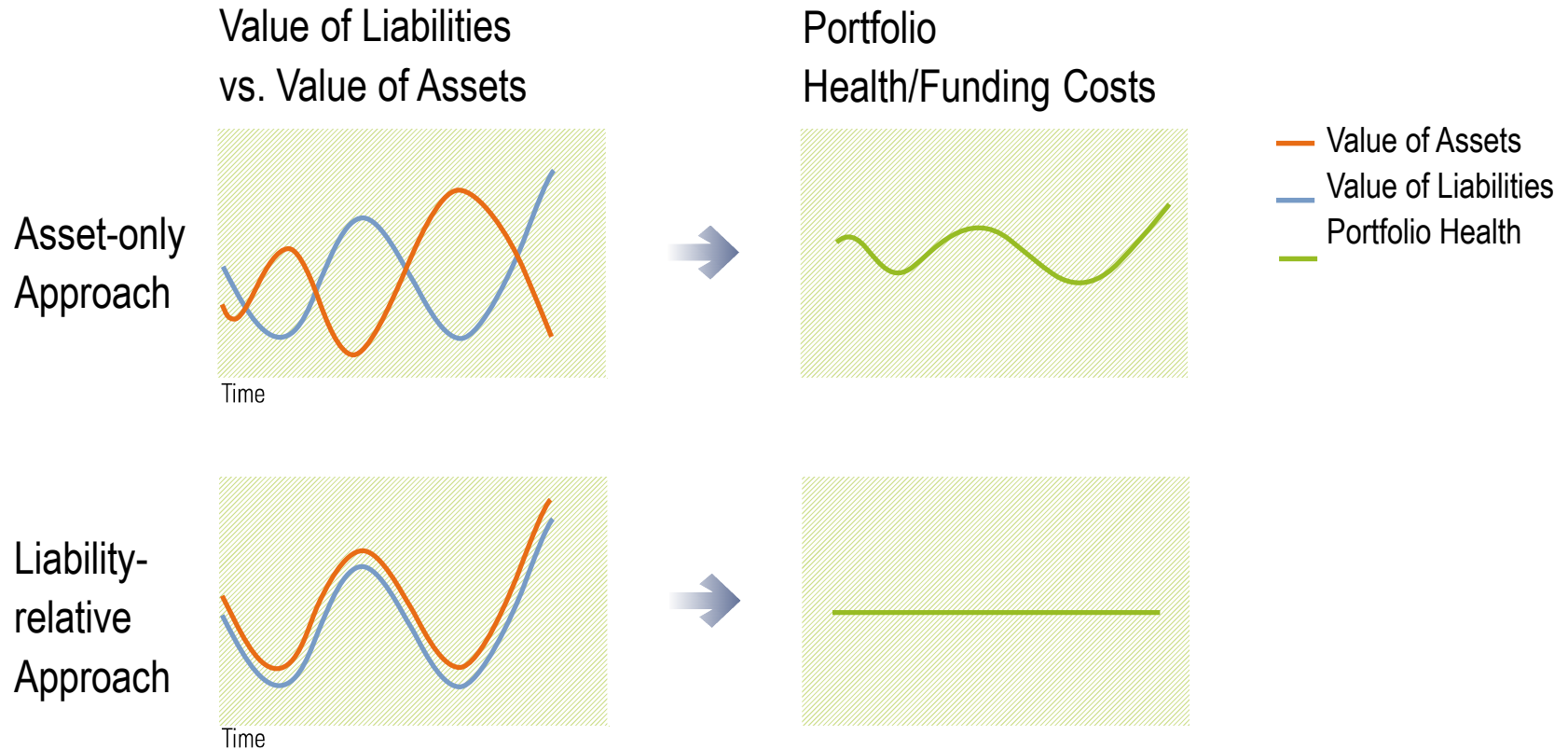


Liability Relative Optimization

What is Risk?

- ▶ What is the TRUE risk for a portfolio that exists to fund (pay for) a liability?
 - ▶ It is NOT the standard deviation of the asset portfolio
 - ▶ It is NOT the performance of your asset portfolio relative to the asset portfolios of your peers
 - ▶ The TRUE risk is that it won't be able to pay for the liability

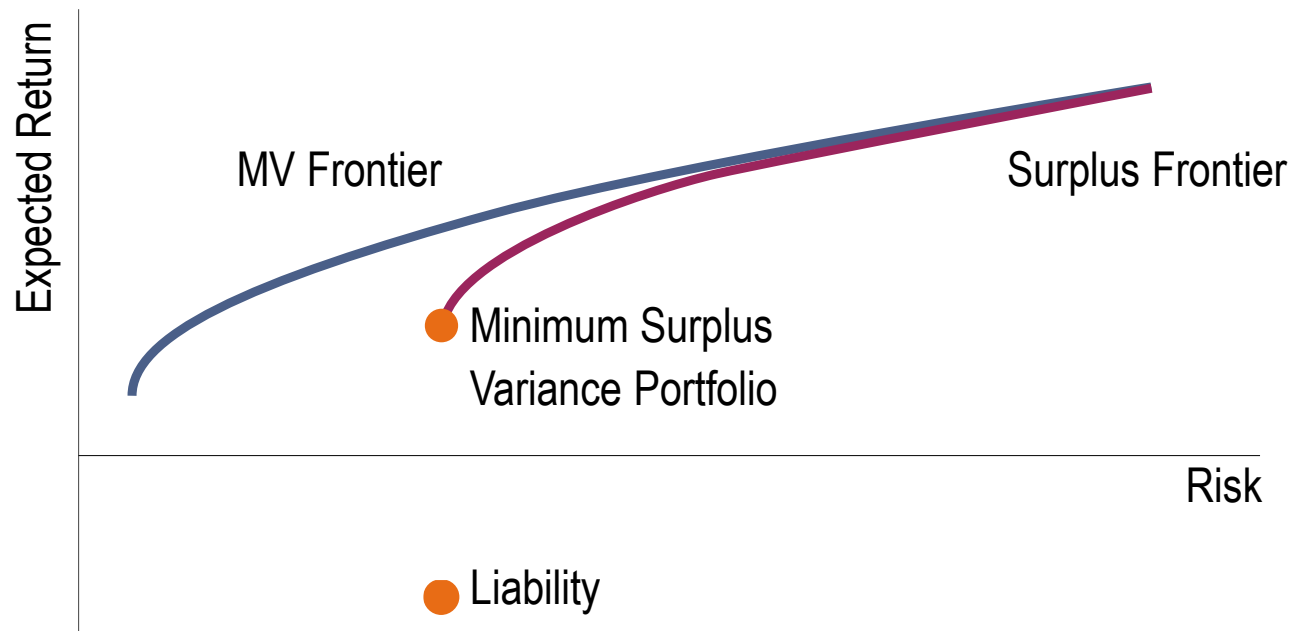
Improving Portfolio Health



What is Surplus Optimization?

- ▶ A special case (or extension) traditional mean-variance optimization in which the optimizer is constrained to hold a combination of assets representing the liability short
- ▶ One element of broader approach called liability-relative investing or asset-liability management (ALM), which can include
 1. duration matching (a.k.a. immunization)
 2. convexity matching
 3. cash flow matching
- ▶ Focuses on the entire portfolio—assets and liabilities—not just the assets of a portfolio

Different Efficient Frontiers

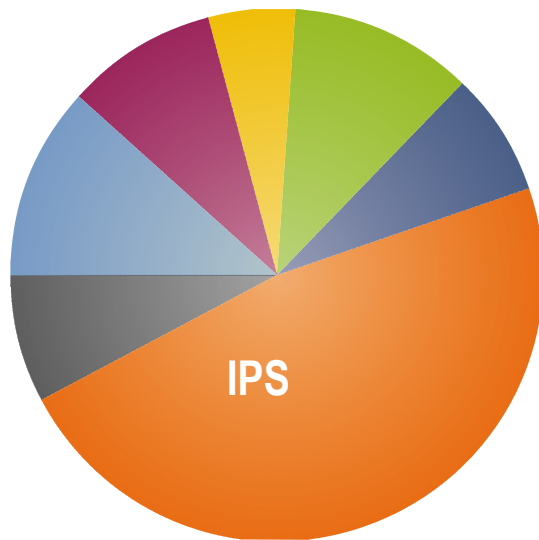


- ▶ Surplus optimization considers both the amount and investment characteristics of the liability (funding ratio)

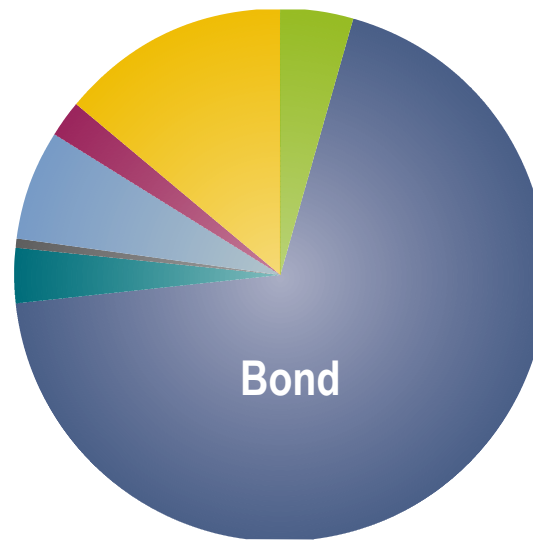
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Different Portfolios

Liability Relative Optimization



Asset-Only Optimization



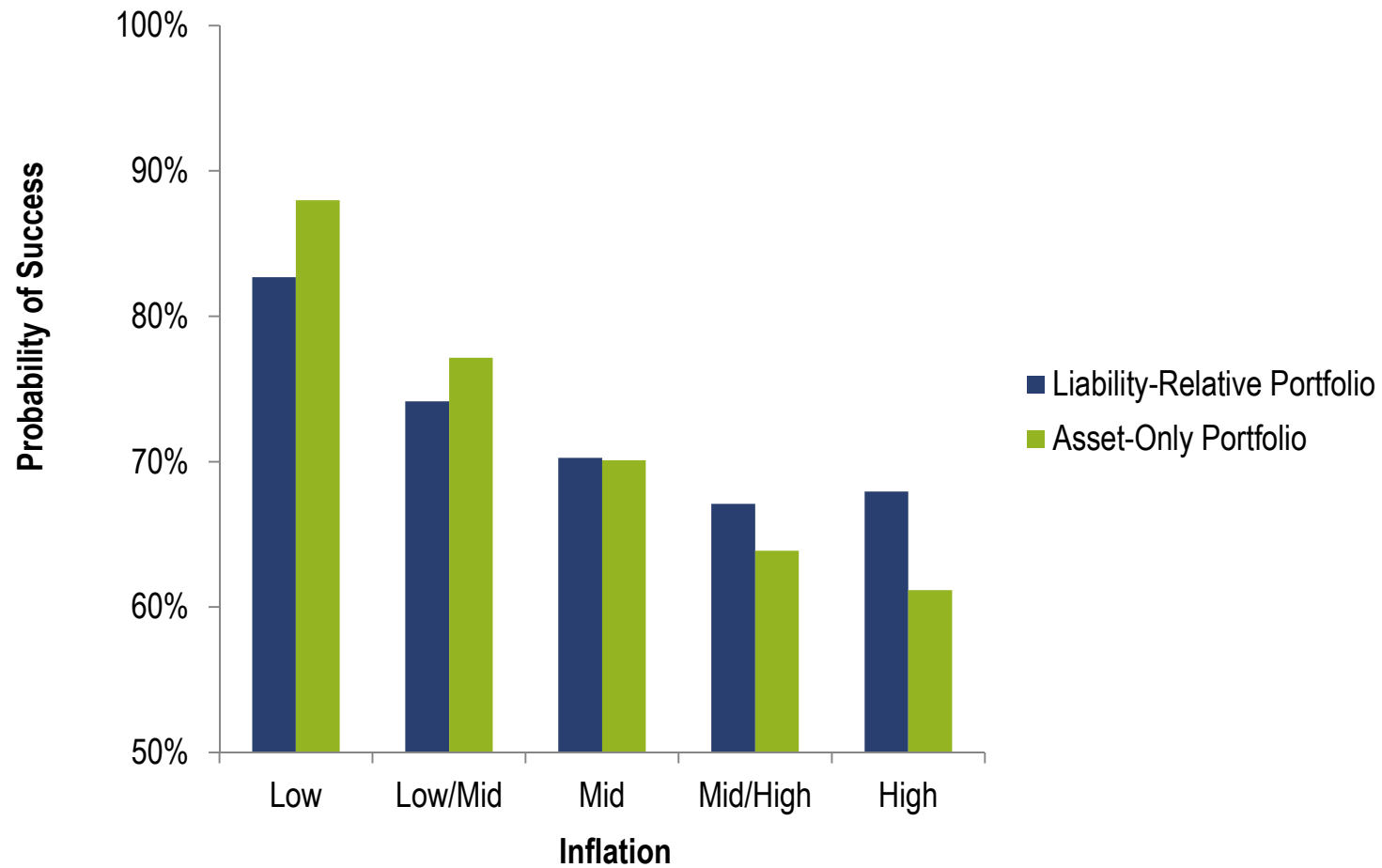
Return and Risk Impact

| | Asset Only | | Surplus | |
|---------------------------------|------------|------|---------|------|
| | Return | Risk | Return | Risk |
| Liability-Relative Optimization | 6.00 | 7.45 | 3.74 | 6.79 |
| Asset-Only Optimization | 6.00 | 6.71 | 3.66 | 7.38 |

For illustration purposes only.

Source: "Alpha, Beta, ... and Now Gamma" by David Blanchett and Paul D. Kaplan

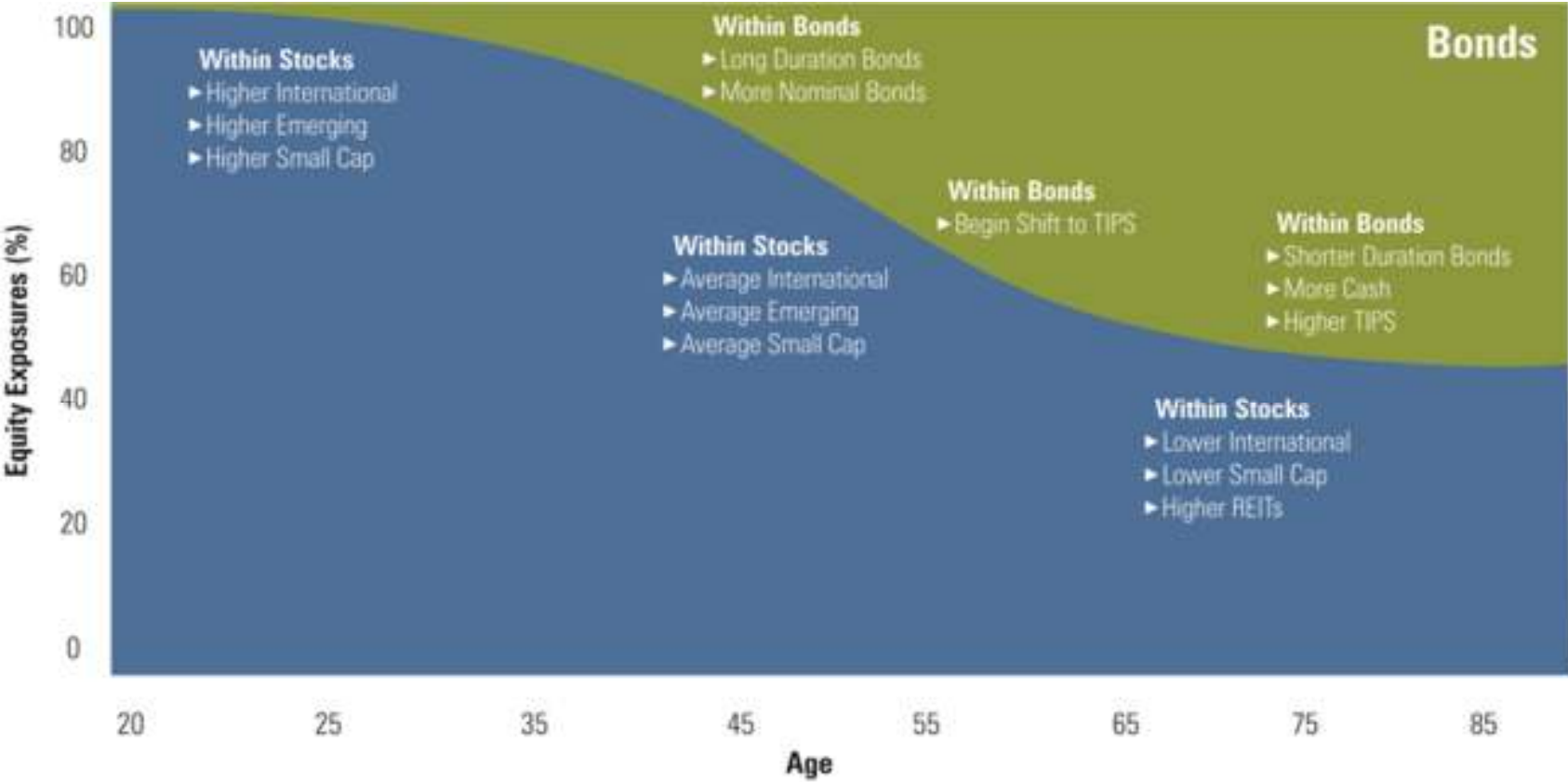
More Consistent Success Rates



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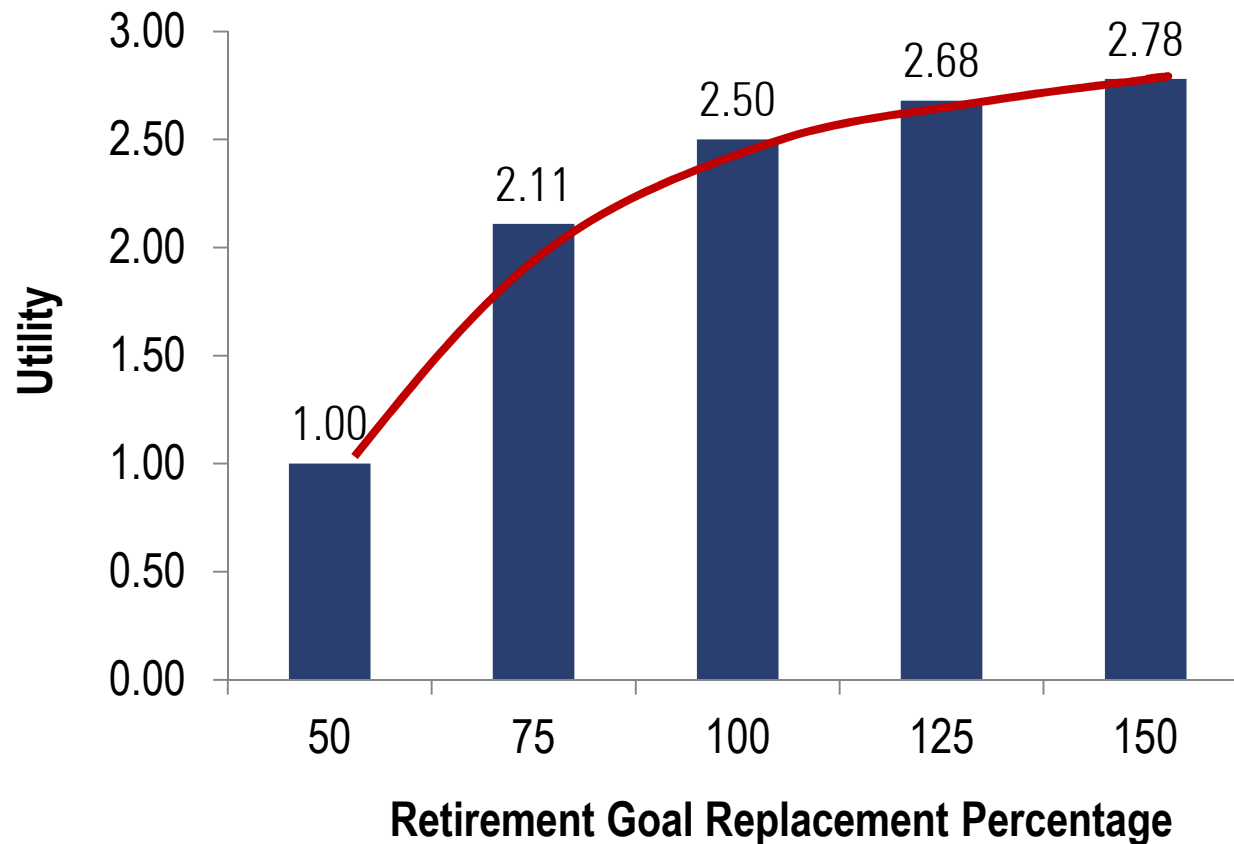
Source: "Alpha, Beta, ... and Now Gamma" by David Blanchett and Paul D. Kaplan

Generalized Ibbotson Target Maturity Glide Path



Results

Using Utility to Estimate Retiree Preferences



- ▶ 50% (1.00 utils) and 150% (2.78 utils) results in average utility of 1.89 versus 2.50 for a consistent 100% replacement

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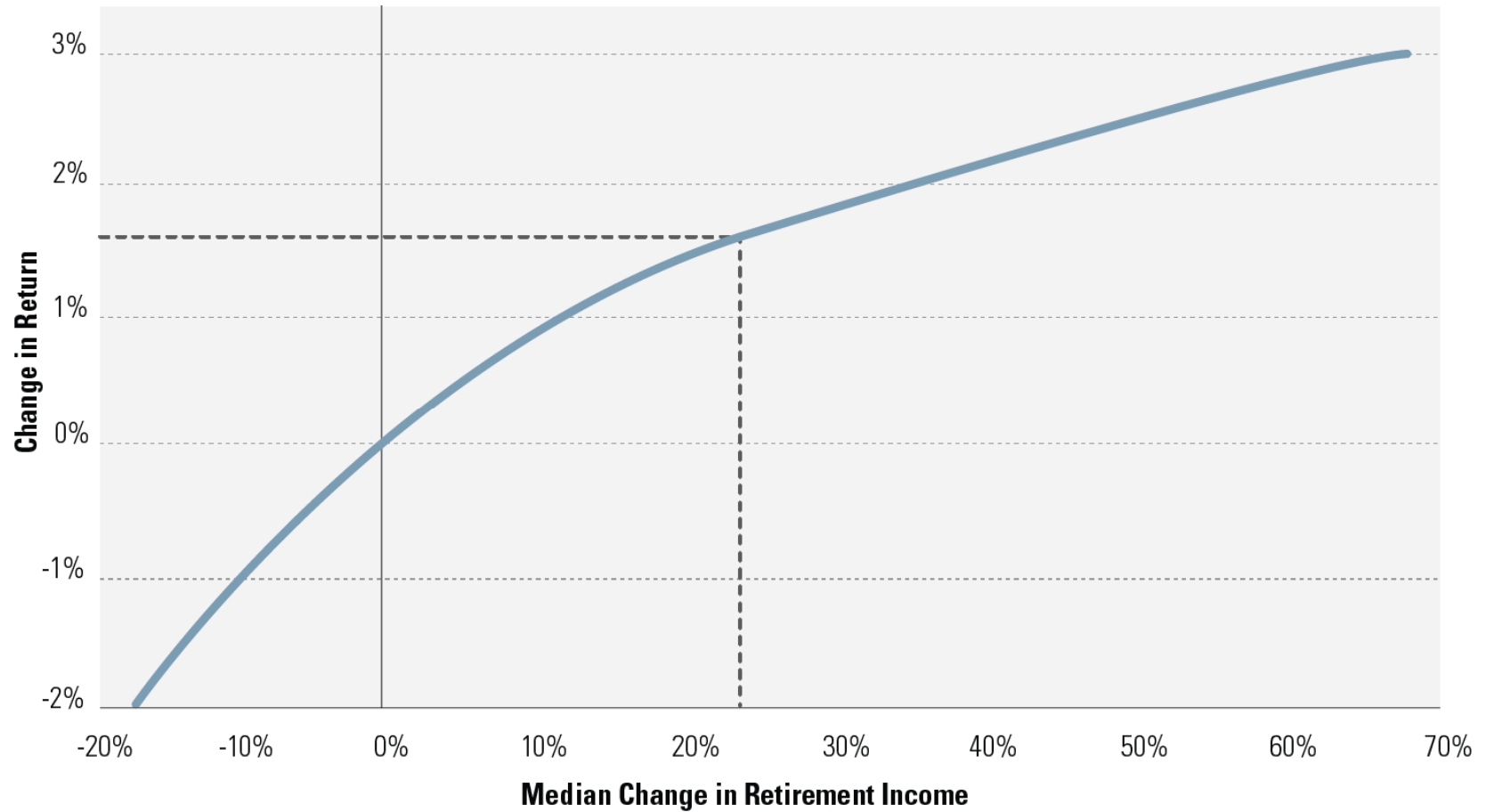
Different Types of Gamma

-  Total Wealth Asset Allocation
-  Dynamic Withdrawal Strategy
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Impact



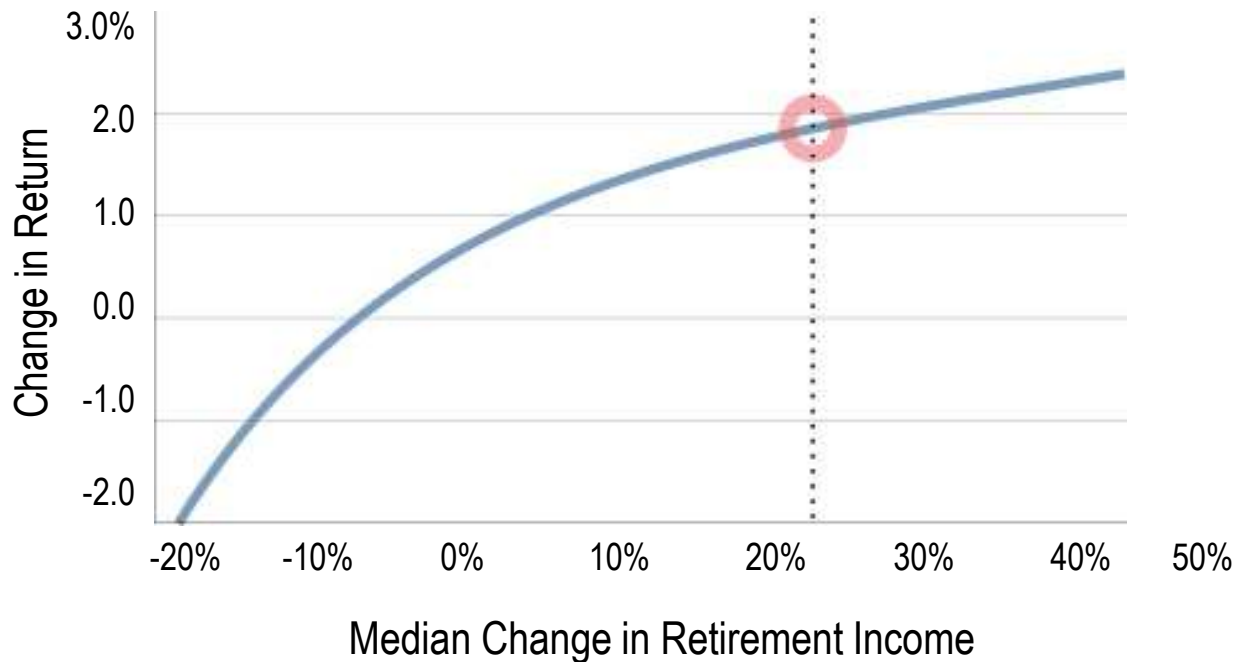
More Income



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Source: "Alpha, Beta, ... and Now Gamma" by David Blanchett and Paul D. Kaplan

An Alpha Perspective of More Income

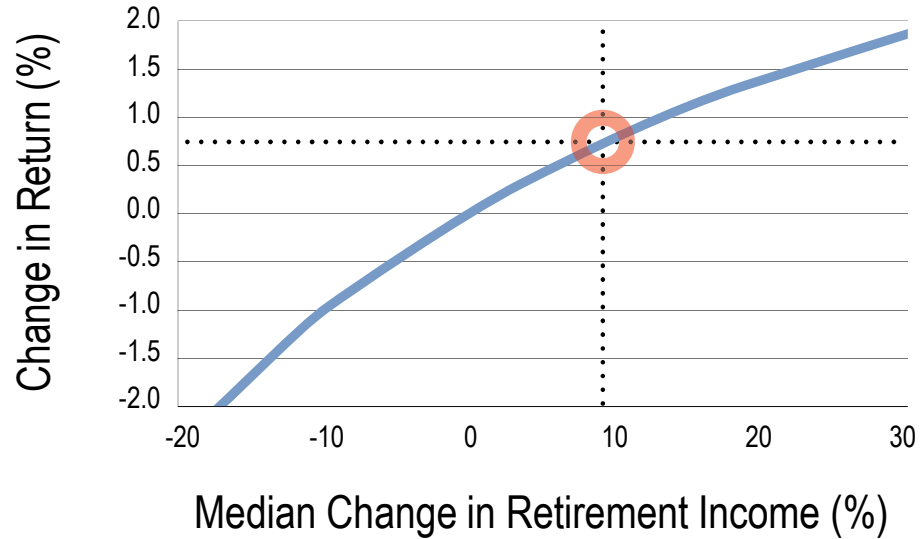


- ▶ +28.8% in retirement income is equivalent to a return increase of +1.82% (i.e., "Gamma equivalent alpha")

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Source: "Alpha, Beta, ... and Now Gamma" by David Blanchett and Paul D. Kaplan

Other Types of Gamma: Social Insurance



- ▶ Optimal social insurance benefit claiming can increase income by 9.15%, which creates "Gamma equivalent alpha" of +0.75%

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Gamma Conclusions

- ▶ Value is more than Alpha and Beta
- ▶ Creating retirement income from a portfolio is complicated
- ▶ There are a number different risks that need to be considered when building an “optimal” retirement income portfolio
- ▶ An optimized retirement income plan (i.e., Gamma-optimized) can potentially generate more retirement income than a naïve approach
- ▶ This creates “Gamma equivalent alpha” of ~2.00%, based on the factors considered so far

Our Approach to Those in Retirement

Helping Individuals Make Better Financial Decisions



Holistic View

- ▶ More than risk tolerance
- ▶ Human capital
- ▶ Risk capacity



Dynamic Withdrawal

- ▶ Go beyond the "4% rule"
- ▶ Based on returns and life expectancy
- ▶ Account for all income sources



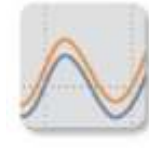
Annuity Recommendation

- ▶ Not a "one-size-fits-all" approach
- ▶ Wealth
- ▶ Time horizon
- ▶ Income sources



Tax-Efficient Investing

- ▶ How to place assets
- ▶ How to withdraw assets



Liability Driven Investing

- ▶ Account for inflation

Potentially **23%** more income

Source: Through a series of simulations, researchers estimate a hypothetical retiree may generate 28.8% more income on a utility-adjusted basis utilizing a Gamma-efficient retirement income strategy that incorporates the concepts total wealth, dynamic withdrawal, annuity allocation, asset location and withdrawal sourcing, and liability-relative optimization, when compared to a base scenario which assumes a 4% withdrawal rate and a 20% equity allocation portfolio. The results from these simulations are hypothetical in nature, not actual investment results, and not guarantees of future results. For more information and to receive a copy of the 2012 study, "Alpha, Beta, and Now Gamma," please contact Nadine Pizarro at nadine.pizarro@morningstar.com.

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