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

- **Human Capital**: An individual’s ability to earn and save
- **Financial Capital**: An individual’s total saved assets
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

For illustrative purposes only.
A Balancing Act: Just Right

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Change is Good Thing

Market

Income
Better Outcomes

1. Determine retirement period
2. Determine portfolio equity allocation
3. Determine withdrawal percentage for a given target
4. Repeat annually
"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

<table>
<thead>
<tr>
<th>Initial Bond Yield</th>
<th>Initial CAPE Ratio</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>10</td>
</tr>
<tr>
<td>1.0%</td>
<td></td>
</tr>
<tr>
<td>2.0%</td>
<td></td>
</tr>
<tr>
<td>3.0%</td>
<td></td>
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<tr>
<td>4.0%</td>
<td></td>
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<tr>
<td>5.0%</td>
<td></td>
</tr>
<tr>
<td>6.0%</td>
<td></td>
</tr>
</tbody>
</table>

Source: “Market Valuations, Bond Yields, and Retirement Success”
Defining “Failure” for a Retiree

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

For illustrative purposes only.
# What is True Failure?

<table>
<thead>
<tr>
<th>Portfolio Balance</th>
<th>Current Living Status</th>
<th>Alive</th>
<th>Dead</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0 ≤ $1</td>
<td>Not Failure</td>
<td>Not Failure</td>
<td></td>
</tr>
<tr>
<td>$0 $1</td>
<td>Failure</td>
<td>Not Failure</td>
<td></td>
</tr>
</tbody>
</table>
Annuity Allocation
Who Cares About Guaranteed Income?

Your Client?
Annuity Allocation: What Do Retirees Fear More?

- Outliving Their Retirement Money: 61%
- Death: 39%

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

Lifetime Financial Advice
Human Capital, Asset Allocation, and Insurance
Roger G. Ibbotson, Mohe A. Milavsky, Peng Chen, CFA and Kevin X. Zhu

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

- Human Capital
- Financial Capital and Current Savings
- Life Insurance and Annuities

Determine Asset Allocations

- Traditional Funds, ETFs
- Life Insurance/Annuities
Asset Location and Withdrawal Sourcing
Alpha Spectrum

Certain

fee alpha

tax alpha

Uncertain

the alpha everyone talks about

For illustrative purposes only.
Analysis assumes a 35% tax rate, where taxes are paid annually in the taxable account, but not until the end of the period in an RSP.
Asset Location and Withdrawal Sourcing

Inefficient Asset Location

- **Bonds** → **Taxable Account**
- **Stocks** → **RSP**

Efficient Asset Location

- **Bonds** → **RSP**
- **Stocks** → **Taxable Account**
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

Value of Liabilities vs. Value of Assets

Asset-only Approach

Value of Liabilities
Value of Assets

Time

Portfolio Health/Funding Costs

Liability-relative Approach

Value of Assets
Value of Liabilities
Portfolio Health

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

For illustrative purposes only.
Different Portfolios

Liability Relative Optimization

Asset-Only Optimization

IPS

Bond
Return and Risk Impact

<table>
<thead>
<tr>
<th></th>
<th>Asset Only</th>
<th>Surplus</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Return</td>
<td>Risk</td>
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<td>Liability-Relative Optimization</td>
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<td>7.45</td>
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<tr>
<td>Asset-Only Optimization</td>
<td>6.00</td>
<td>6.71</td>
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For illustration purposes only.
Source: “Alpha, Beta, … and Now Gamma” by David Blanchett and Paul D. Kaplan
More Consistent Success Rates

For illustration purposes only. 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
- Annuity Allocation
- Asset Location and Withdrawal Sourcing
- Liability Relative Optimization
Impact

$140
$120
$100
$100.00
$80
$60
$40
$20
$0

4% Withdrawal and a 20/80 Portfolio

Gamma Optimized Portfolio

Base Income: $100.00

$122.63

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

$1.65
$9.88
$1.44
$6.43
$3.23

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More Income

For illustration purposes only.
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”)

For illustration purposes only.
Source: “Alpha, Beta, … and Now Gamma” by David Blanchett and Paul D. Kaplan
Optimal social insurance benefit claiming can increase income by 9.15%, which creates “Gamma equivalent alpha” of +0.75%
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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