
Intelligent Financial Planning Decisions



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Why Do people Seek Help?



Alpha, Beta and Now...Gamma



Alpha, Beta, and Now...Gamma





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August 28, 2013



Different Types of Gamma

-  Total Wealth Asset Allocation
-  Dynamic Withdrawal Strategy
-  Annuity Allocation
-  Tax Alpha
-  Liability-Relative Optimization



Total Wealth Asset Allocation

No Portfolio is an Island

- ▶ Isolated focus on financial assets (e.g. stock and bonds)
- ▶ Objective: Find most efficient combination of available financial assets



One Size Does Not Fit All



A Total Wealth View

Financial Capital

Human Capital

Housing Wealth

Pension Wealth



+



+

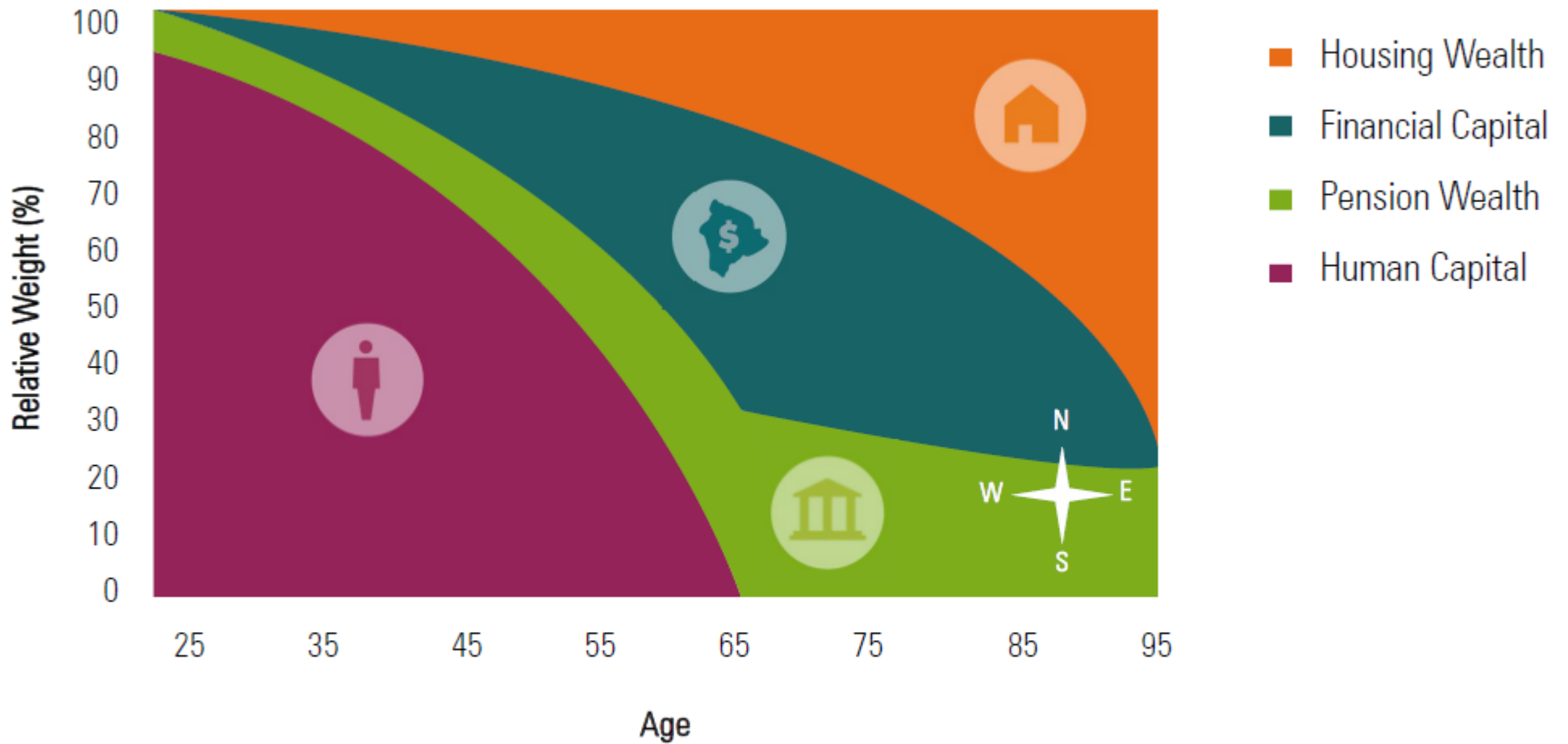


+



= Total Economic Wealth

A Total Wealth Perspective Over the Lifecycle



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Thailand

- ▶ Know Your Client Process— Standard risk questionnaire
 - ▶ Focus primarily on risk preference (i.e., an investor's aversion to risk) and ignore risk capacity (i.e., an investor's ability to assume risk)
- ▶ A combination of risk preference and risk capacity is an ideal



Dynamic Withdrawal Strategy

Where did the 4% rule come from

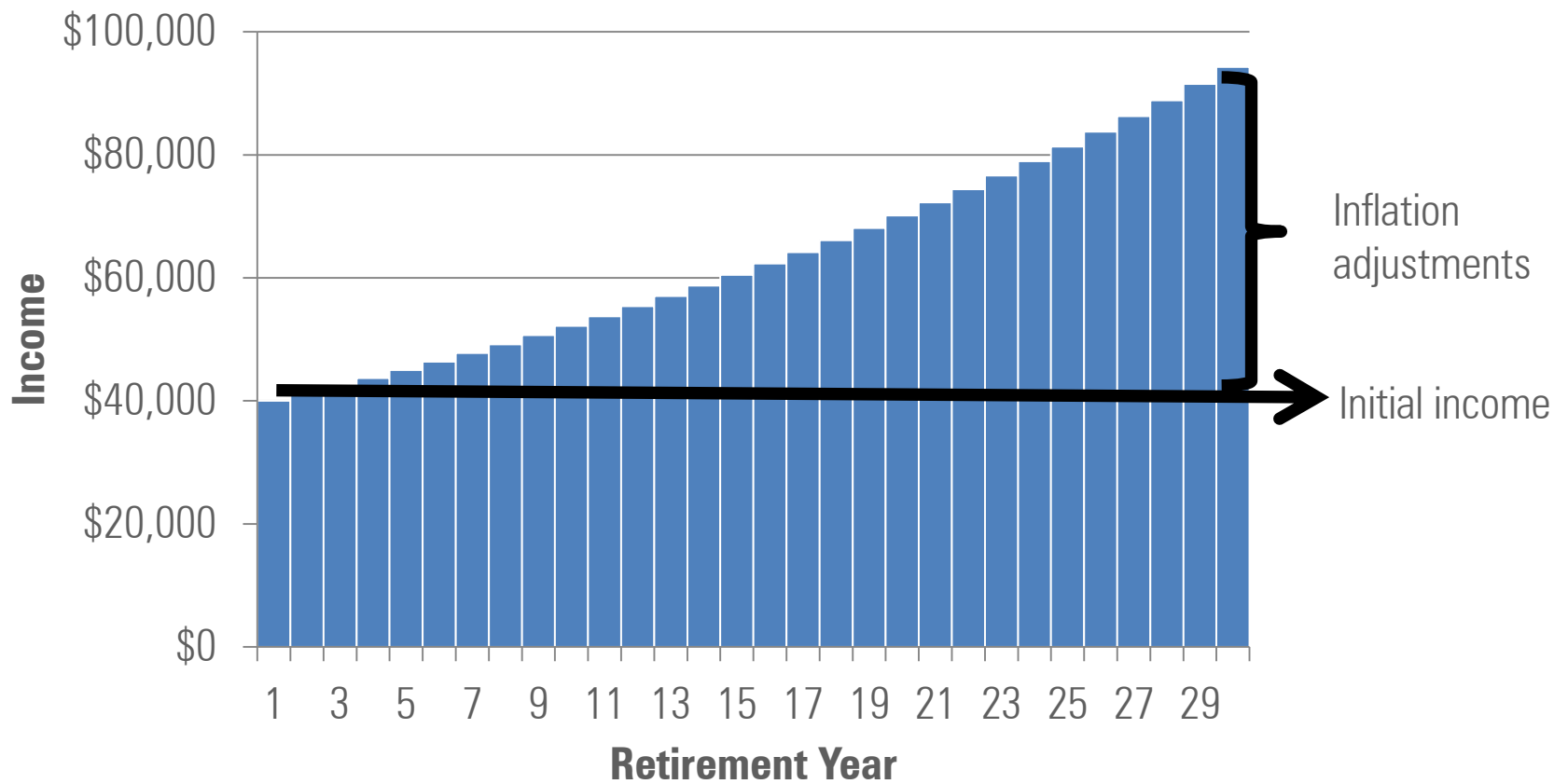


Bengen, William P. 1994. "Determining Withdrawal Rates Using Historical Data." *Journal of Financial Planning*, vol. 7: 171–180.

- ▶ "At the onset of retirement, investment advisors make crucial recommendations to clients concerning asset allocation, as well as dollar amounts they can safely withdraw annually, so clients will not outlive their money."
- ▶ "... it pays to look not just at averages, but at what actually has happened, year-by-year, to investment returns and inflation in the past."
- ▶ What is the best strategy if you don't know:
 - ▶ how long the clients are going to live
 - ▶ how much money they'll spend each year
 - ▶ what asset returns or inflation will be

Initial Sustainable Withdrawal Rate %—Where the 4% Rule Comes From

The % withdrawal rate applies for first year only, then increased by inflation



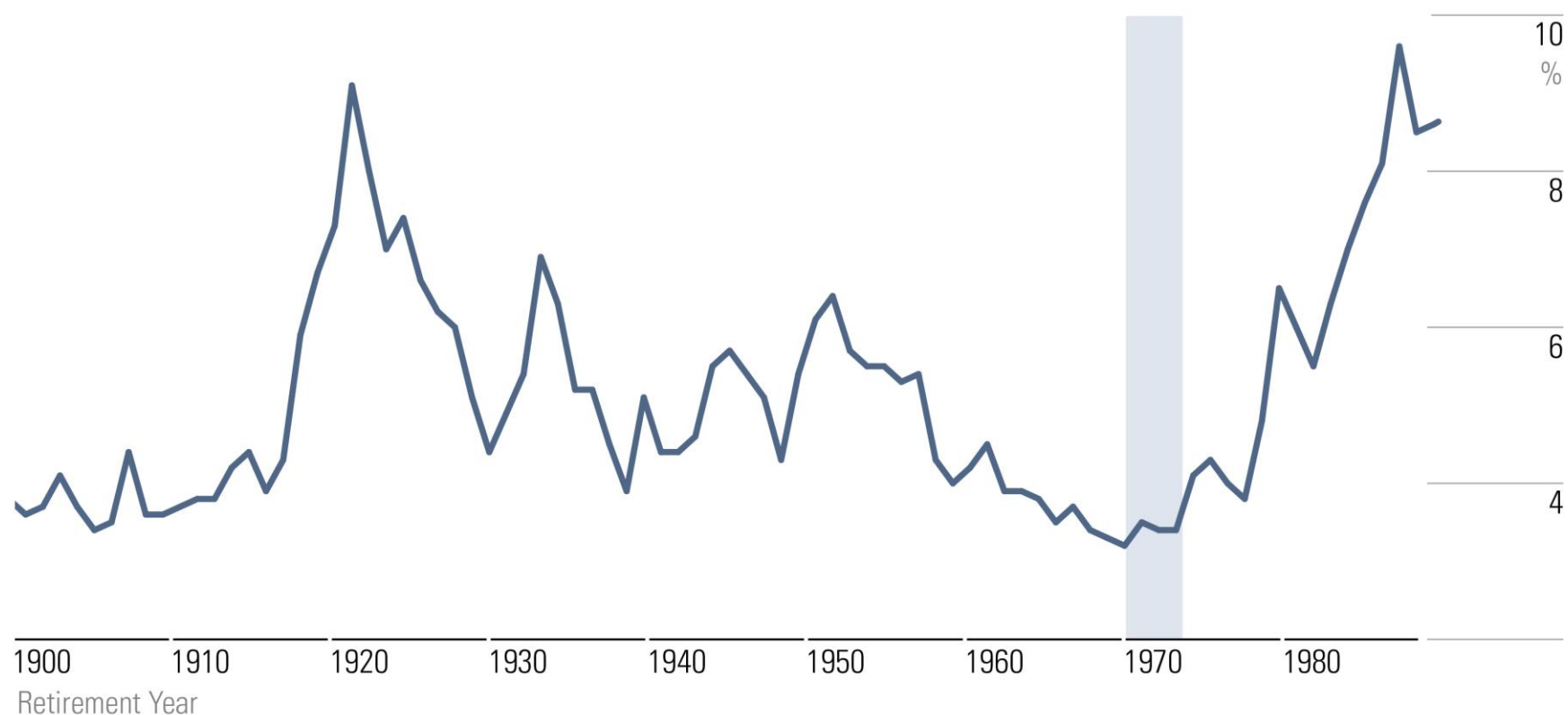
For illustrative purposes only. Data is hypothetical and used as an example only.

Initial Sustainable Withdrawal Rate %—Where the 4% Rule Comes From

Portfolio of 50% US shares and 50% US bonds, using historical returns

Maximum Withdrawal rate for a 30 year period, with the starting point varying by year

The idea of “safe” was measured by the likelihood that you would still have money left after 30 years.



Low Bond Yields and Safe Portfolio Withdrawal Rates

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Bond yields today are well below historical averages. This has significant implications because portfolio returns in the earliest years of retirement have a larger impact on the likelihood that a retirement income strategy will succeed than returns later in retirement. The majority of research on sustainable withdrawal strategies has used a stochastic (Monte Carlo) simulation process based on long-term averages, where the expected return of an asset class is the same for each year of the simulation. While this approach is reasonable when markets are near long-term averages, we believe it is less useful when there is a significant and sustained deviation such as the current low bond yield market.

In this article we introduce a model that takes into account current bond yields and allows them to "drift" toward a higher value during retirement, using an autoregressive model. This approach can better replicate the actual bond returns a current or near retiree can expect during retirement both now and in the future. Using this model, we find that a 4% initial real withdrawal rate has approximately a 50% probability of success over a 30-year period. This success rate is materially lower than past studies and has significant implications on the likelihood of success for retirees today as well as how much near retirees may

need to have saved to ensure a successful retirement.

BOND YIELDS TODAY

These are trying times for bond investors. The yield on 10-year government bonds is approximately 1.8%, and the yield for the High Quality Market Corporate Bond Yield Curve at 10 years is approximately 3.2%. These are both considerably below long-term averages.

Low bond yields have important implications for different types of investors, especially older investors who tend to invest more conservatively than younger investors. This concept is depicted visually in Exhibit 1, which includes the median equity allocation for household's financial assets (FIN), given different asset levels and ages.

A high allocation to low-yielding bonds limits a retiree's ability to generate income from retirement wealth. Unfortunately for today's retiree, there is a very strong historical relationship between bond yields and the future returns realized by bond investors, even over prolonged periods. Exhibit 2 demonstrates the relationship between bond yields and the future average annualized total return of bonds using the Ibbotson Intermediate-Term Bond Index.

CONTRIBUTIONS | Finke | Piau | Blanchett

The 4 Percent Rule Is Not Safe in a Low-Yield World

by Michael Finke, Ph.D., CFP®, Wade D. Piau, Ph.D., CFA, and David M. Blanchett, CFP®, CFA

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At the start of 2013, real bond yields were much lower than historical averages. Investors in inflation-protected Treasury bonds (TIPS) were willing to accept a negative real return on bond investments for maturities below 20 years, which is a period of negative real yields longer than any that has occurred in the United States. Treasury rates of return have been, and as of this writing are, below current and projected near term inflation rates; even the nominal rate of return on 10-year Treasuries is below 2 percent.

For data used in pioneering studies of safe withdrawal rates using historical rolling time periods (Bengen 1994; Cooley, Hubbard, and Walz 1998), the average real return on bonds was 2.6 percent. Previous analyses did not include a long period of low real bond yields. Bengen focused on the worst case scenario in history, in which a retiree in 1960 could sustainably support an inflation-adjusted withdrawal amount of just more than 4 percent of retirement date assets over

the subsequent 30 years. Interestingly, from 1966, the average real bond returns over the subsequent five, 10, and 30 years were 0.7 percent, 0.15 percent, and 3.1 percent, respectively.

Cooley, Hubbard, and Walz (1998) later introduced the concept of failure rates within the historical data, which shows how often in history a strategy would have failed. Because these

Executive Summary

- The safety of a 4 percent initial withdrawal strategy depends on asset return assumptions. Using historical averages to guide simulations for failure rates for retirees spending an inflation-adjusted 4 percent of retirement date assets over 30 years results in an estimated failure rate of about 6 percent. This modest projected failure rate rises sharply if real returns decline.
- As of January 2013, intermediate-term real interest rates were about 4 percent less than the historical average used in previous simulations. Calibrating bond returns to the January 2013 yields offered on five-year TIPS to match the duration of bond investments used in previous simulations, while maintaining the historical equity premium, causes the projected failure rate for retirement account withdrawals to jump to 57 percent. Results from this analysis suggest that the 4 percent rule cannot be treated as a safe initial withdrawal rate.

- Some financial planners may wish to assume that today's low interest rates are an aberration and that higher real interest rates will return in the medium-term horizon. Although there is little evidence to support this assumption, we estimate how a reversion to historical real yields will affect failure rates.
- Because of sequence of returns risk, portfolio withdrawals can cause the events in early retirement to have a disproportionate effect on the sustainability of an income strategy. We simulate failure rates if today's bond rates return to their historical average after either five or 10 years and find that failure rates are much higher (88 percent and 82 percent, respectively, for a 50 percent stock allocation) than many retirees may be willing to accept.
- The success of the 4 percent rule in the United States may be a historical anomaly, and clients may wish to consider their retirement income strategies more broadly than relying solely on systematic withdrawals from a volatile portfolio.

Asset Valuations and Safe Portfolio Withdrawal Rates

BY DAVID BLANCHETT, CFA, CFP®, MICHAEL FINKE, Ph.D., CFP®, AND WADE D. PIAU, Ph.D., CFA



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Abstract

Bond yields today are well below and stock market valuations are well above their historical average. There are no historical periods in the United States where comparable low bond yields and high equity valuations have occurred simultaneously. Both current bond yields and stock values have been shown to predict near-term returns. Portfolio returns in the first decade of retirement have an outsized impact on retirement income strategies. Traditional Monte Carlo simulation approaches generally do not incorporate market valuations into their analysis. In

order to simulate how retirees will fare in a low return environment for both stocks and bonds, we incorporate the predictive ability of current valuations to simulate its impact on retirement portfolios.

We estimate bond returns through an autoregressive model that uses an initial bond yield value where yields drift in the future. We use the cyclically adjusted price-to-earnings (CAPE) ratio as an estimate of market valuation to predict short-run stock performance. Our simulations indicate that the safety of a given withdrawal strategy is significantly affected by the initial bond yield and CAPE value at retirement, and that the relative impact varies based on the portfolio equity allocation. Using valuation measures current as of April 15, 2013, which is a bond yield of 2% and a CAPE of 22, we find the probability of success for a 40% equity allocation with a 4% initial withdrawal rate over a 30-year period is approximately 48%. This success rate is materially lower than past studies and has sobering implications on the likelihood of success for retirees today, as well as how much those near retirement may need to save to ensure a successful retirement.

Asset Valuations and Safe Portfolio Withdrawal Rates

The growth in defined contribution savings and low rates of private annuitization mean that retirees must estimate how best to allocate savings over an uncertain lifetime. The primary risk of depleting assets in order to generate income is that the retiree will outlive his savings – also known as shortfall risk. Estimating the risk of running out of money involves projecting idiosyncratic longevity risk and portfolio returns. For portfolio returns, projections are centered around their historical averages. This

VOLUME 4, NUMBER 1

FALL 2013

THE JOURNAL OF WEALTH MANAGEMENT | 1

46 Journal of Financial Planning | June 2013

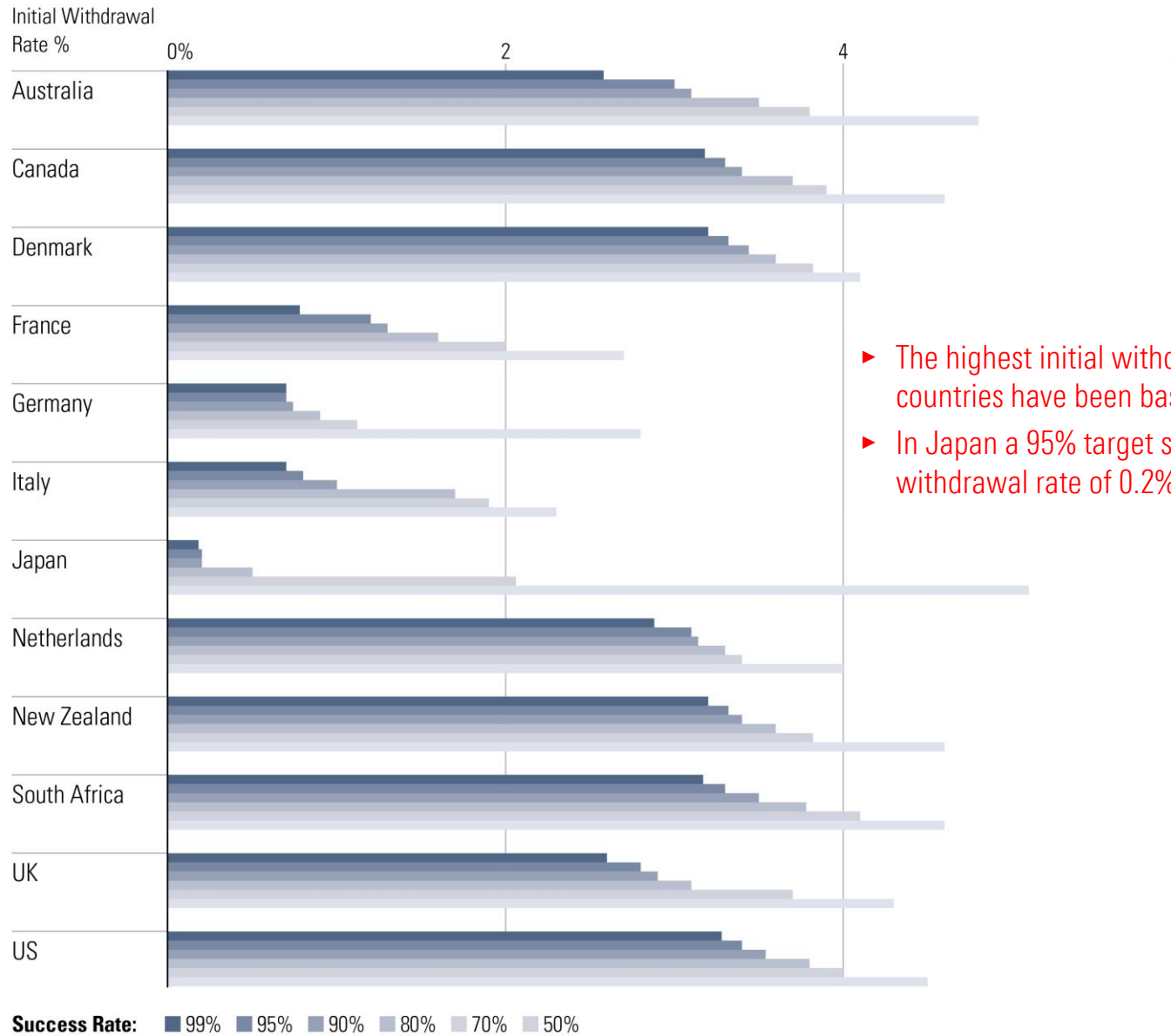
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Safe Initial Withdrawal Rates at Various Target Success Rates by Country



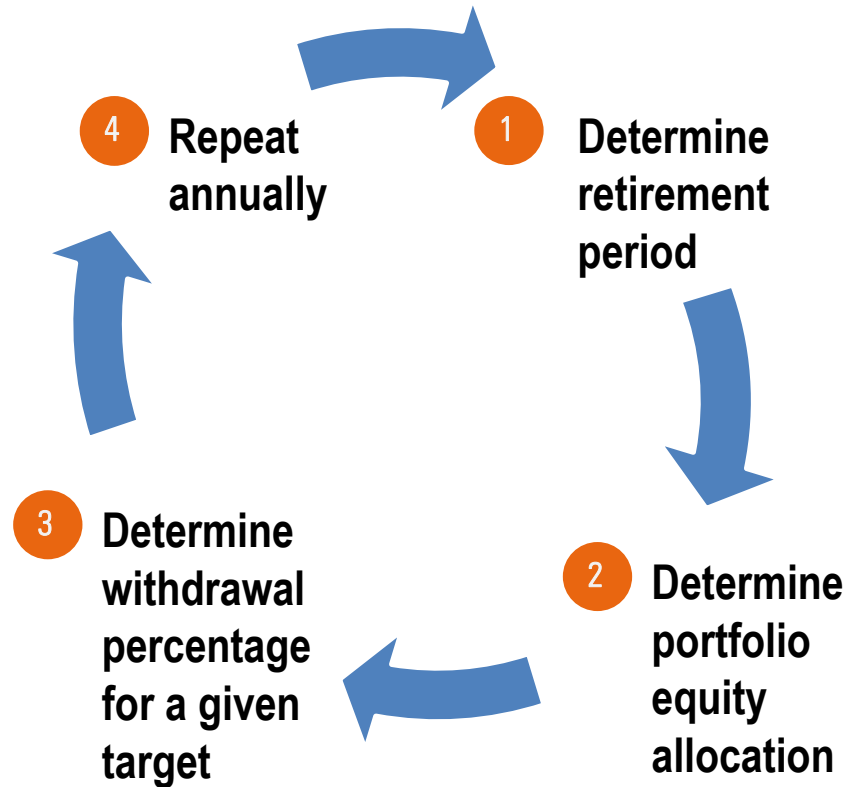
- ▶ The highest initial withdrawal rates across the 20 countries have been based on U.S. returns.
- ▶ In Japan a 95% target success rate would yield an initial withdrawal rate of 0.2% versus 3.0% for Australia.

Key Unknowns

- ▶ Life expectancy
- ▶ Returns
- ▶ Actual spending



“Rebalancing” the Portfolio Withdrawal

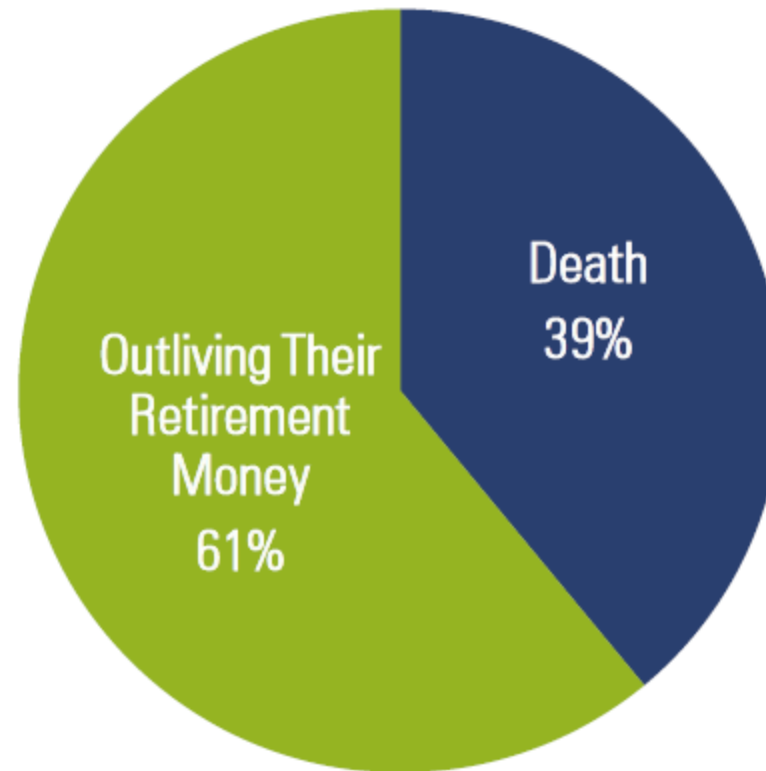


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Annuity Allocation

Annuity Allocation: What Do Retirees Fear More?



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

Taking a Holistic Perspective

Collect Inputs



Human Capital



Financial Capital
and Current Savings



Life Insurance
Annuities



Determine Asset Allocations



Traditional Funds, ETFs



Life Insurance/Annuities

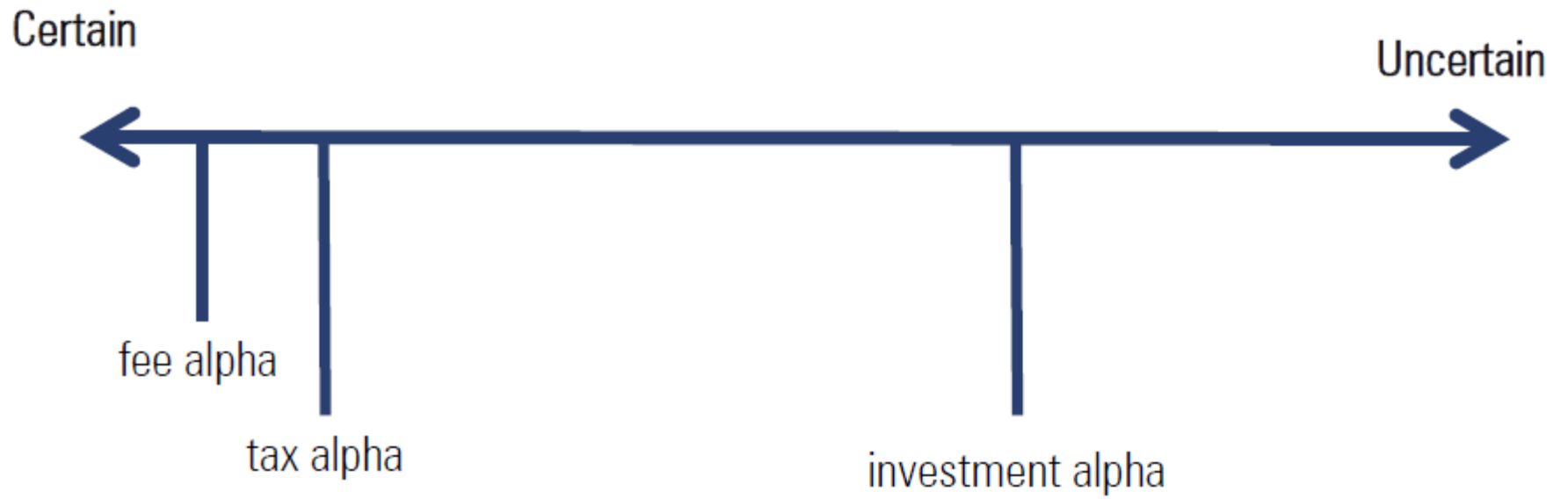
Thailand

- ▶ Individuals underestimate their life expectancy
- ▶ Not many aware of longevity risk
- ▶ Lacking of popularity and choice of annuity products



Tax Alpha

The Alpha Spectrum



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Asset Location



Asset Location and Withdrawal Sourcing

Inefficient

Allocating and withdrawing stock from IRA first

Moderate

Allocating stocks to taxable account and withdrawing from IRA first

Efficient

Allocating and withdrawing stocks from taxable account

Thailand Tax Benefit Investment Instrument

- ▶ Money market fund over saving deposit
- ▶ Long Term Equity Fund and Retirement Mutual Fund
- ▶ Provident Fund
- ▶ Annuity product



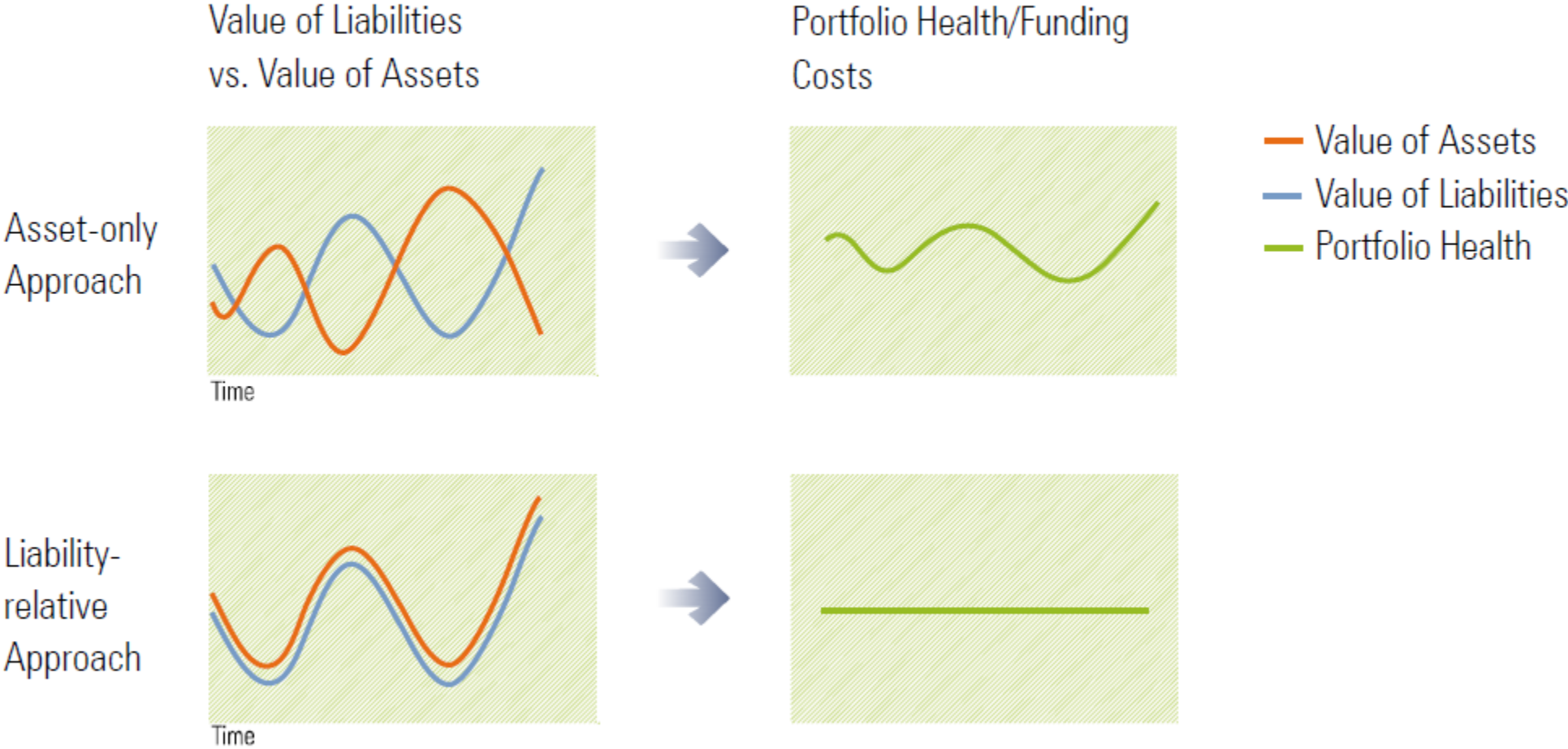
Liability-Relative Optimization

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



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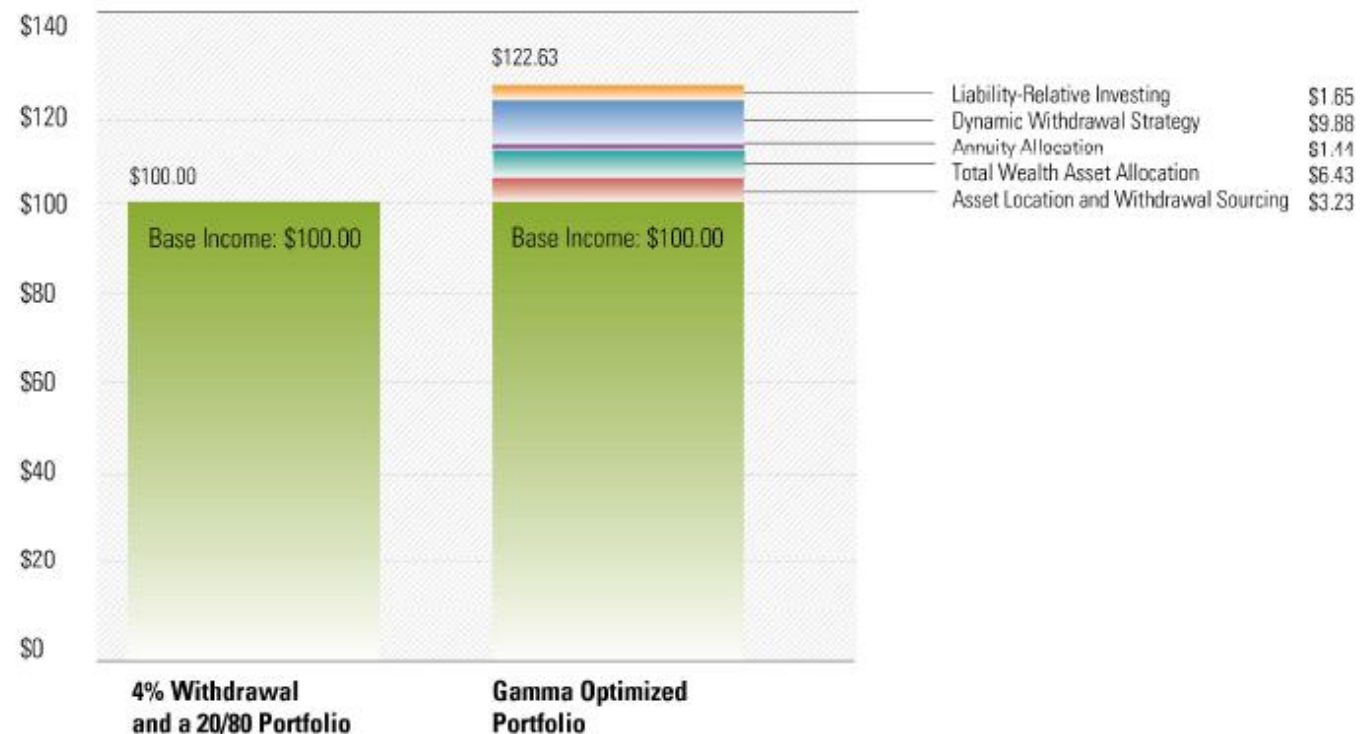
Results

Different Types of Gamma

-  Total Wealth Asset Allocation
-  Dynamic Withdrawal Strategy
-  Annuity Allocation
-  Tax Alpha
-  Liability-Relative Optimization

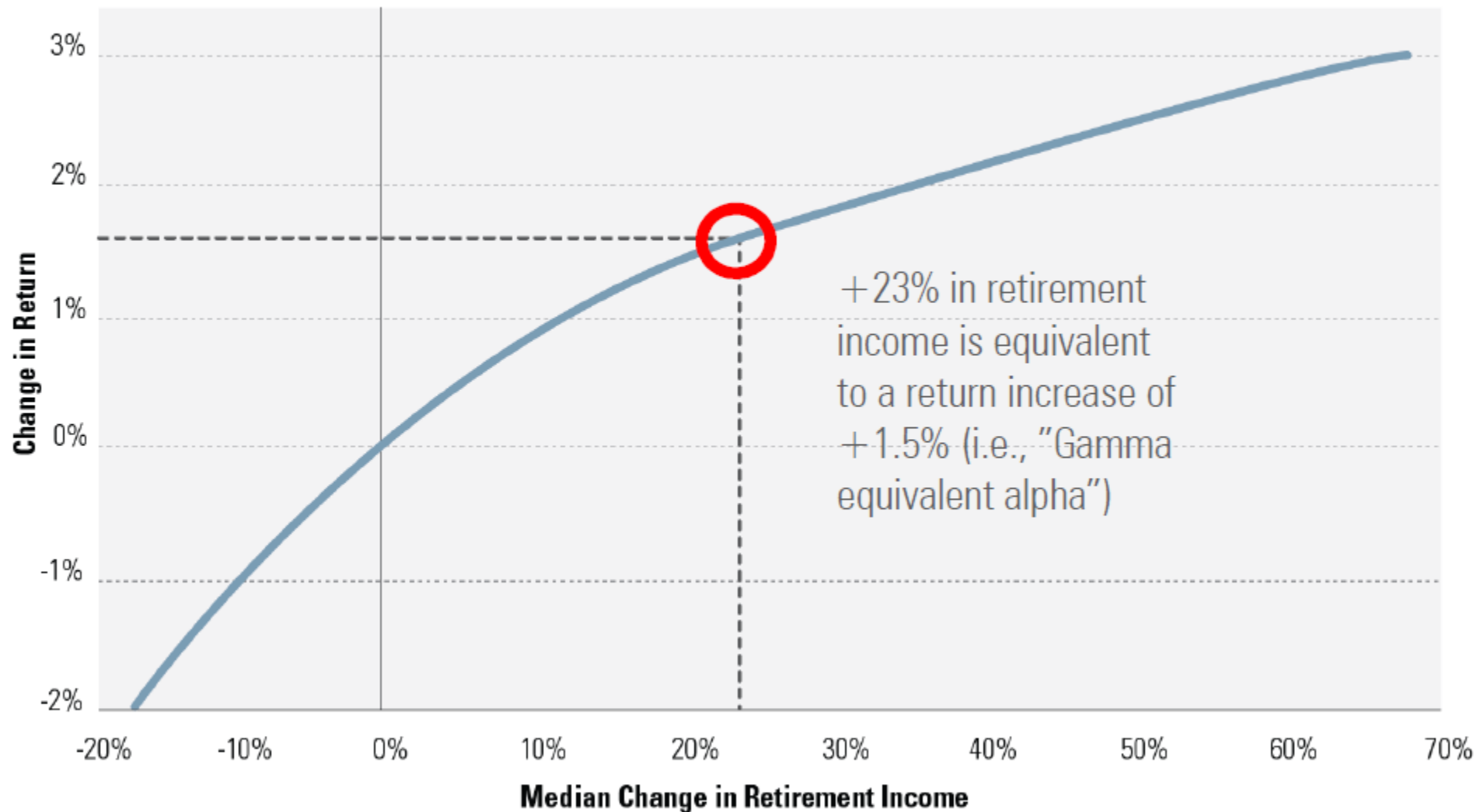
Financial Planning Leads to Better Outcomes

Measuring the Increase in Income for Gamma-Optimized Portfolios



Source: Through a series of simulations, researchers estimate a hypothetical retiree may generate 22.6% 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.

The "Alpha" Benefit of Gamma



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

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

Important Information

The information, data, analyses, and opinions presented herein do not constitute investment advice; are provided as of the date written and solely for informational purposes only and therefore are not an offer to buy or sell a security; and are not warranted to be correct, complete, or accurate. Past performance is not indicative and not a guarantee of future results.

Author's calculations slides are based upon Monte Carlo simulations. Monte Carlo is an analytical method used to simulate random returns of uncertain variables to obtain a range of possible outcomes. Such probabilistic simulation does not analyze specific security holdings, but instead analyzes the identified asset classes. The simulation generated is not a guarantee or projection of future results, but rather, a tool to identify a range of potential outcomes that could be realized. The Monte Carlo simulation is hypothetical in nature and for illustrative purposes only. Results noted may vary with each use and over time.

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