

Making Retirement Income Work

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Agenda

- × Key Retiree Risks
- × Annuities
- × Non-Guaranteed Options
- × Modeling Considerations
- × Dynamic Withdrawal Strategies
- × Conclusions
- × Questions

Published Research

Probability-of-Failure-Based Decision Rules to Manage Sequence Risk in Retirement

By Larry R. Frank, Sr., CFP®, John E. Mitchell, D.B.A., and David M. Blanchett, CFP®, CLU, AIFP, CPA, CFA

Larry R. Frank, Sr., CFP®, is a registered investment advisor in California.

Executive Summary

ARTICLE

While the majority of research has focused on the accumulation phase of retirement planning, new information is being developed regarding the distribution phase. Numerous studies have shown that equity exposure is essential for maintaining a sustainable withdrawal rate over an extended period. This article explores the benefits of Equity Floor Investments for a distribution phase portfolio and also incorporates the impact of possible future rates on the Equity Floor investment decision.

Introduction

The challenge over the past three decades from predictably managed defined benefit (DB) plans to participant-directed defined contribution (DC) plans has raised questions about benefit adequacy and the quality of portfolio choices made by 401(k) plan participants. While most research has focused on the accumulation phase, new information is being developed regarding the distribution phase. The distribution phase is not a "retiree trap" of the accumulation phase, but instead has special requirements to allow for sustainability. Just because an investment returns more wealth for the increase in the accumulation phase does not mean it will result in a higher probability of success for a retiree.

A new metric can have a considerable impact on a distribution portfolio that is faced with withdrawal rates of market conditions. While limiting a portfolio's equity exposure reduces the potential impact of negative market movements, numerous studies have shown that equity exposure is essential for maintaining a sustainable withdrawal rate over an extended period. Equity Floor Investments, or investments that provide investors with both principal and equity exposure, may be a more effective way to address the distribution portfolio because they enable an investor to partially obtain equity-like returns while limiting downside risk. This article explores the benefits of Equity Floor Investments for a distribution phase portfolio and also incorporates the impact of possible future rates on the Equity Floor investment decision.

Equity Floor Investments

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Joint Life Expectancy and the Retirement Distribution Period

By David M. Blanchett, CFP®, CLU, AIFP, CPA, CFA, and Brian C. Blanchett, CPA, CFP®, AIFP, CPA

David M. Blanchett, CFP®, CLU, AIFP, CPA, CFA, is a former Vice President and Chief Investment Officer of the Retirement Plan Consulting Group in Chicago.

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The Expected Value of a Guaranteed Minimum Withdrawal Benefit (GMWB) Annuity Rider

By David M. Blanchett, CFP®, CLU, AIFP, CPA, CFA

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A Dynamic and Adaptive Approach to Distribution Planning and Monitoring

By David M. Blanchett, CFP®, CLU, AIFP, CPA, CFA, and Larry R. Frank, Sr., CFP®

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Data Dependence and Sustainable Real Withdrawal Rates

By David M. Blanchett, CFP®, CLU, AIFP, CPA, CFA, and Brian C. Blanchett, CPA, CFP®, AIFP, CPA

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Dynamic Allocation Strategies for Distribution Portfolios: Determining the Optimal Distribution Glide Path

By David M. Blanchett, CFP®, CLU, AIFP, CPA, CFA

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Equity Floor Investments Increase the Probability of Retirement Success for 401(k) Participants in the Distribution Phase

By David M. Blanchett and Gregory W. Kasten

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Gregory W. Kasten, MS, MBA, CFP®, CFA, is a former Vice President and Chief Investment Officer of the Retirement Plan Consulting Group in Chicago.

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Selected Working Papers

Optimal Portfolio Allocations with GMWB Annuities

Working Paper

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Exploring the Benefits of Immediate Annuities

Working Paper

David M. Blanchett, CFA
Research Consultant

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Determining the Optimal Portfolio Withdrawal Strategy Using Perfect Information

Working Paper

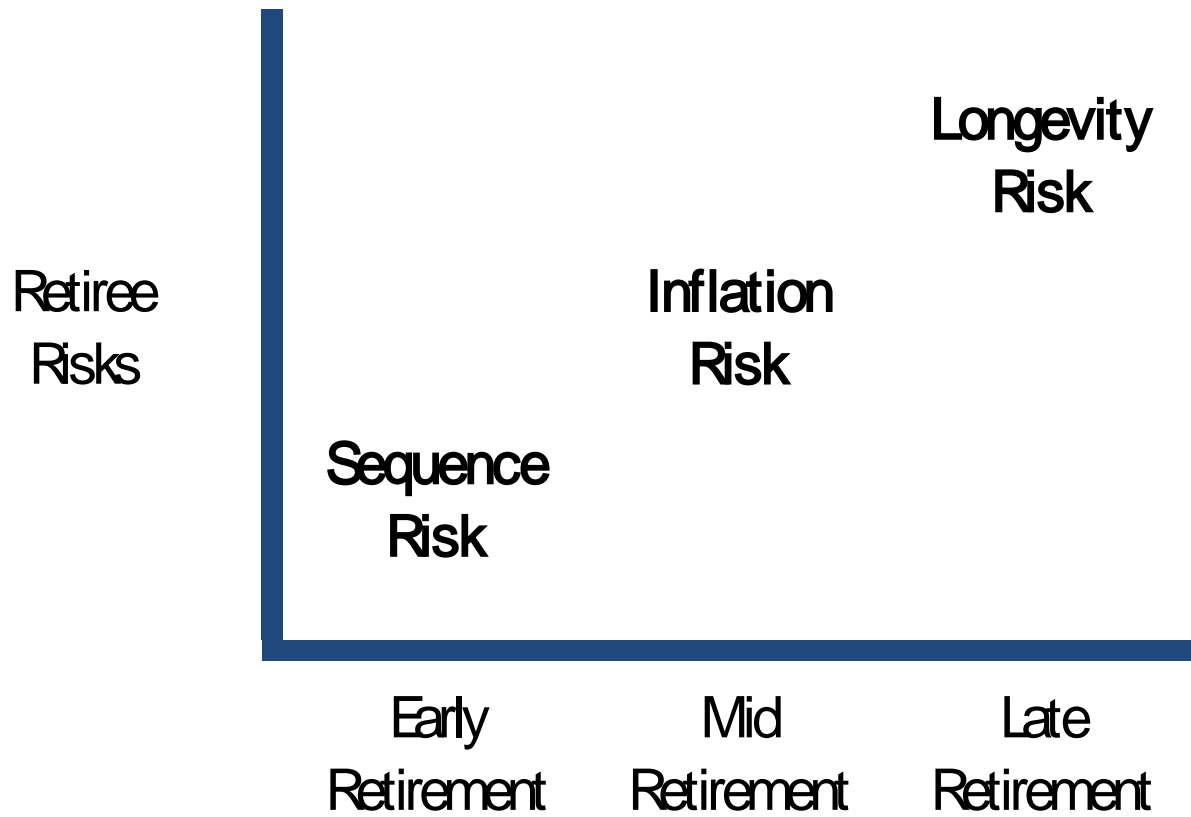
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Key Retiree Risks

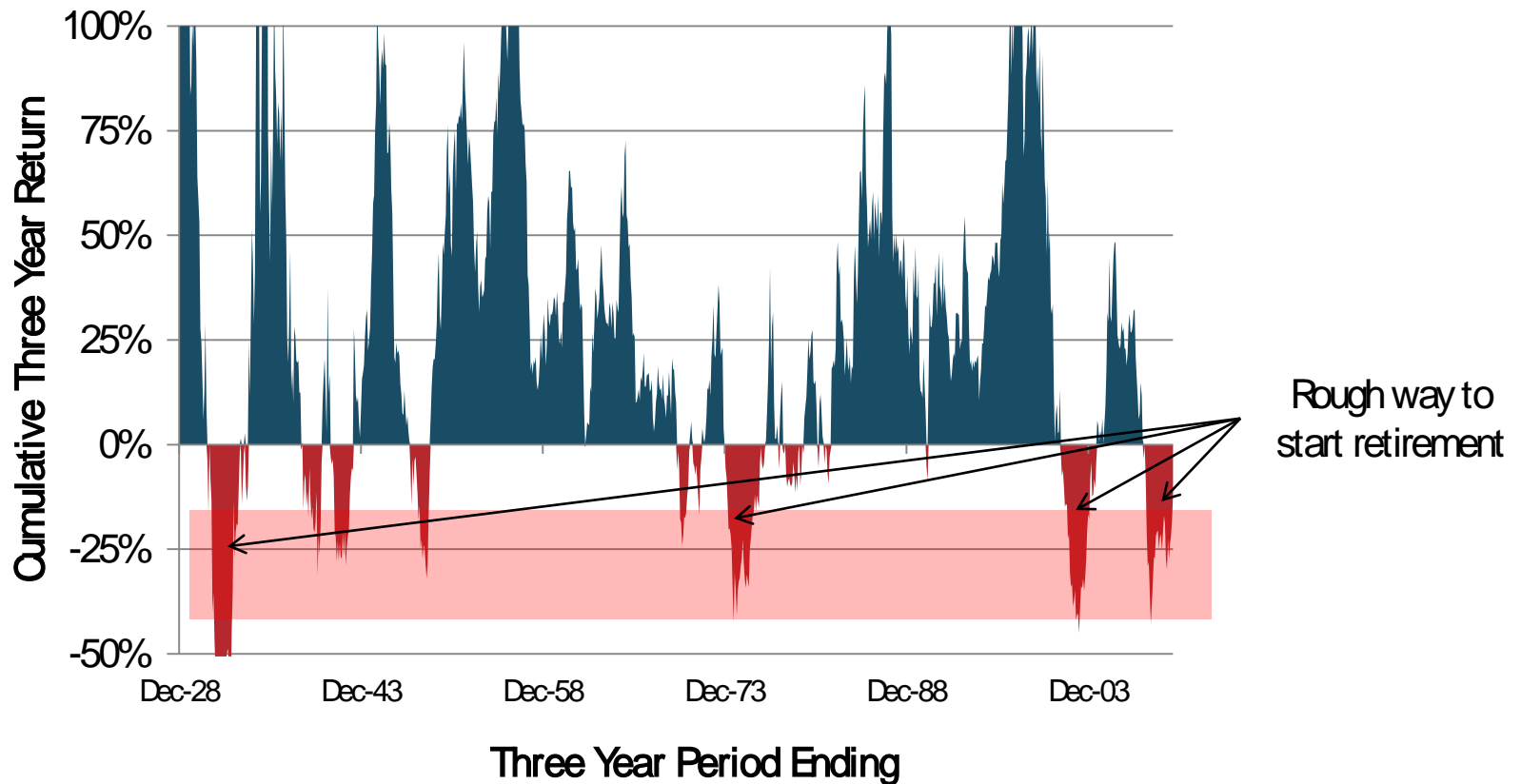
Retiree Risks



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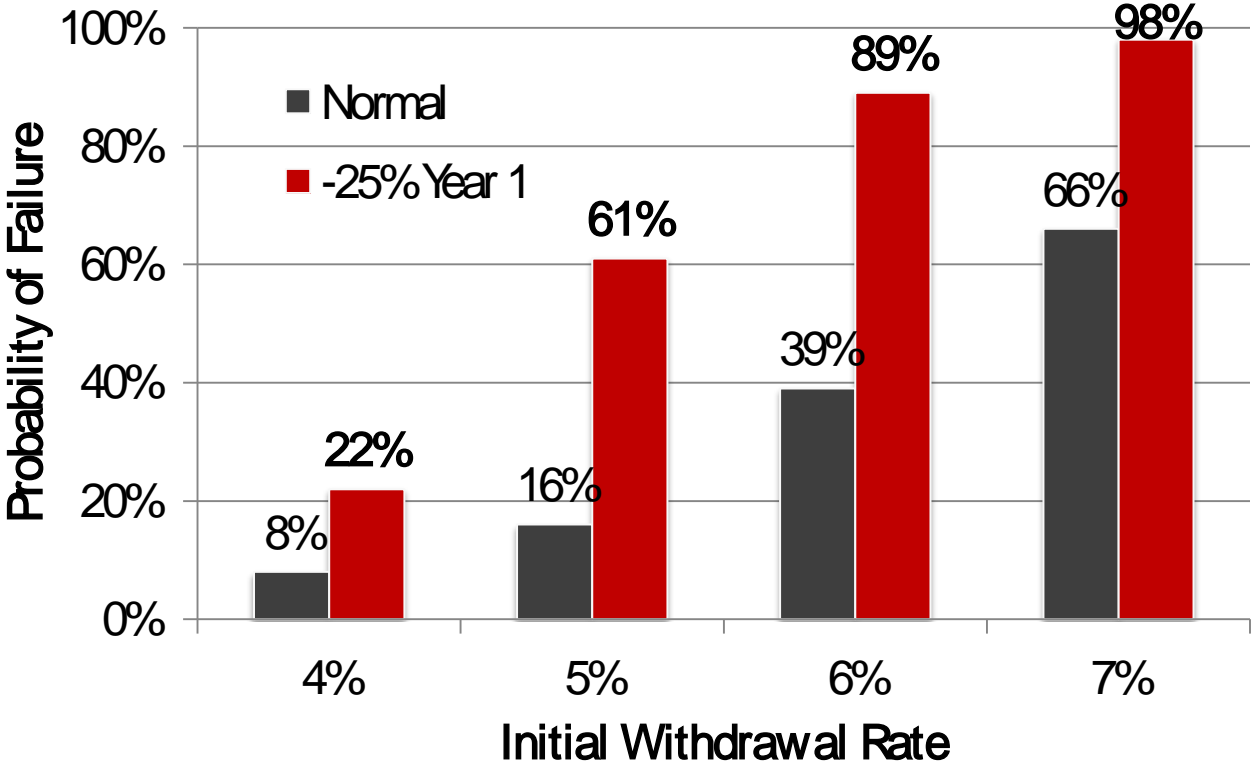
Sequence Risk

Sequence Risk: S&P 500 Historical Returns



Source: Morningstar Direct For illustration only. Indexes shown are unmanaged and not available for direct investment. Although index performance data is gathered from reliable sources, Ibbotson Associates cannot guarantee its accuracy, completeness or reliability. Except as otherwise required by law.

When Things Start Poorly

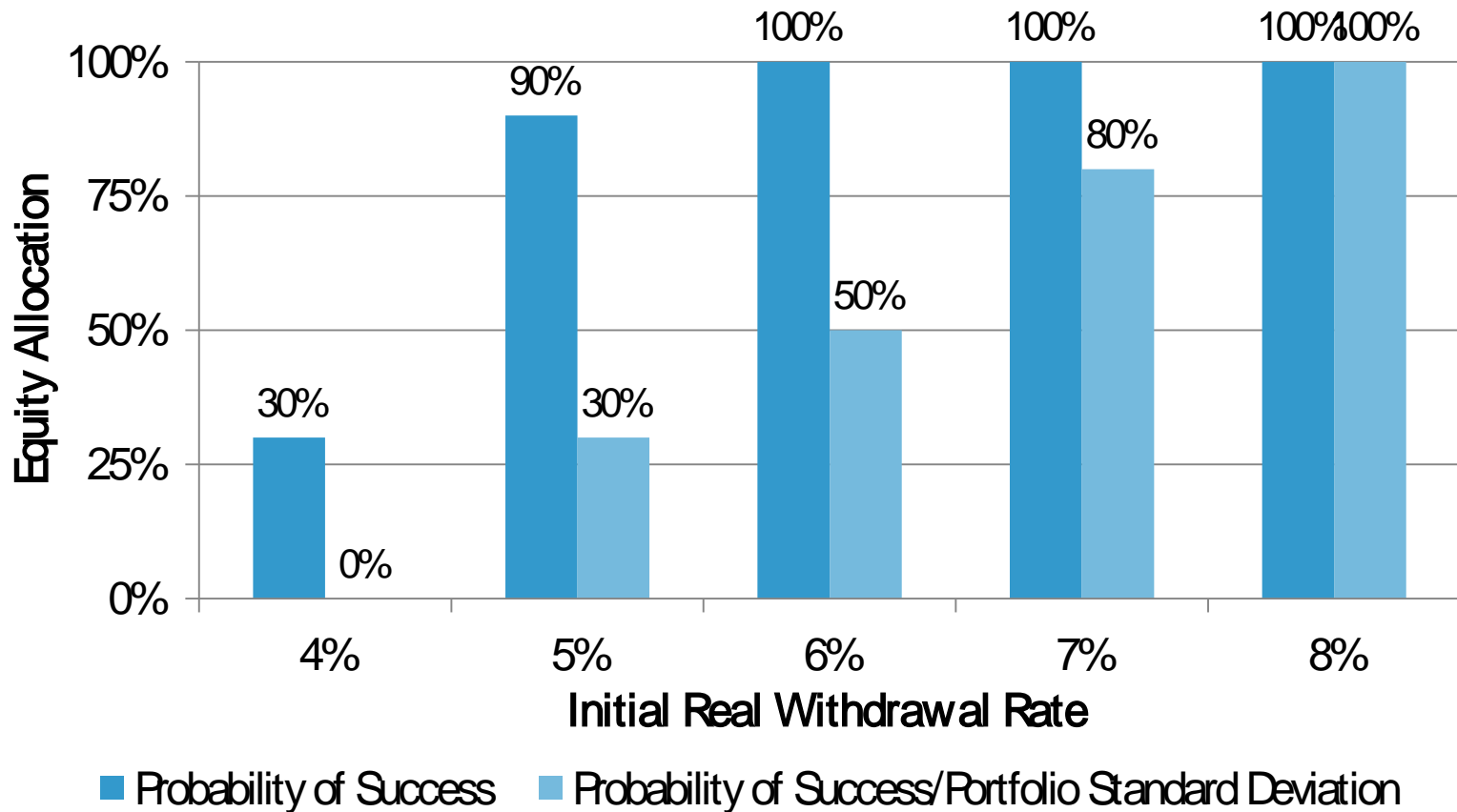


30 Year distribution period with a 60/40 portfolio. For illustration only.

Why Are Retirement Portfolios Aggressive?

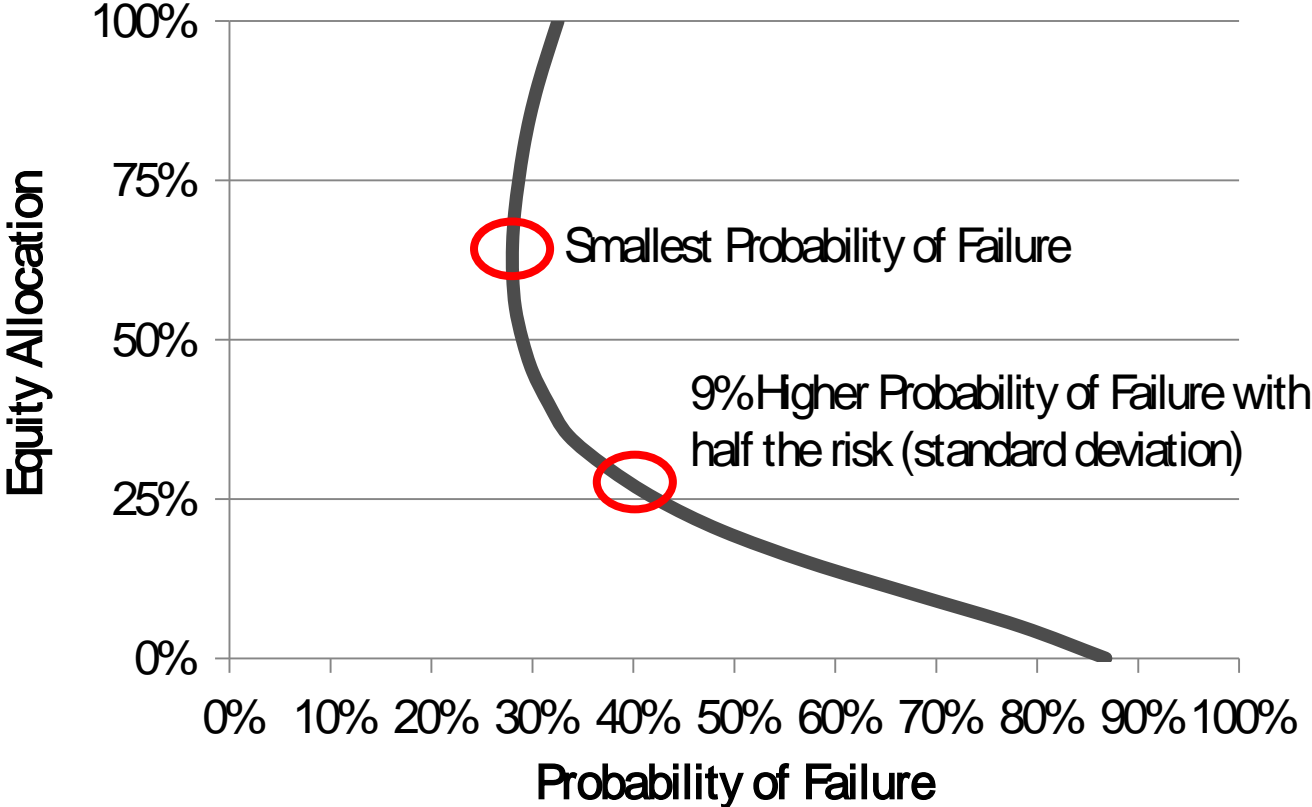
- × Allocations are “optimized” where optimal is based on achieving some “probability of success”
- × “Probability of success” is an incomplete measure because it does not include the potential risk of a portfolio and does not distinguish in magnitude of failure
- × A very “black and white” perspective of a very colorful decision

Optimal Equity Allocation Using Different Definitions of “Optimal”



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A Trade-Off



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Acceptable Success Rates?



More Income

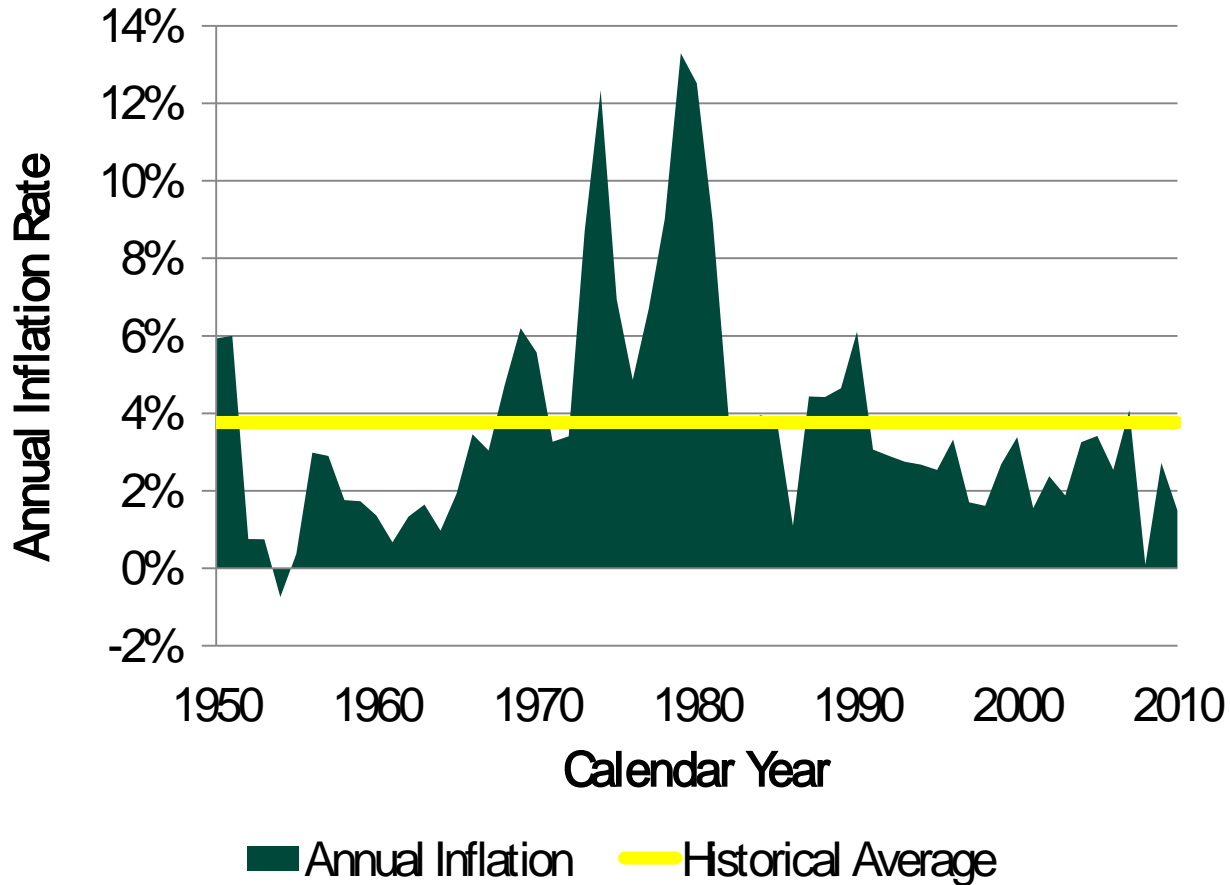
vs



More Safety

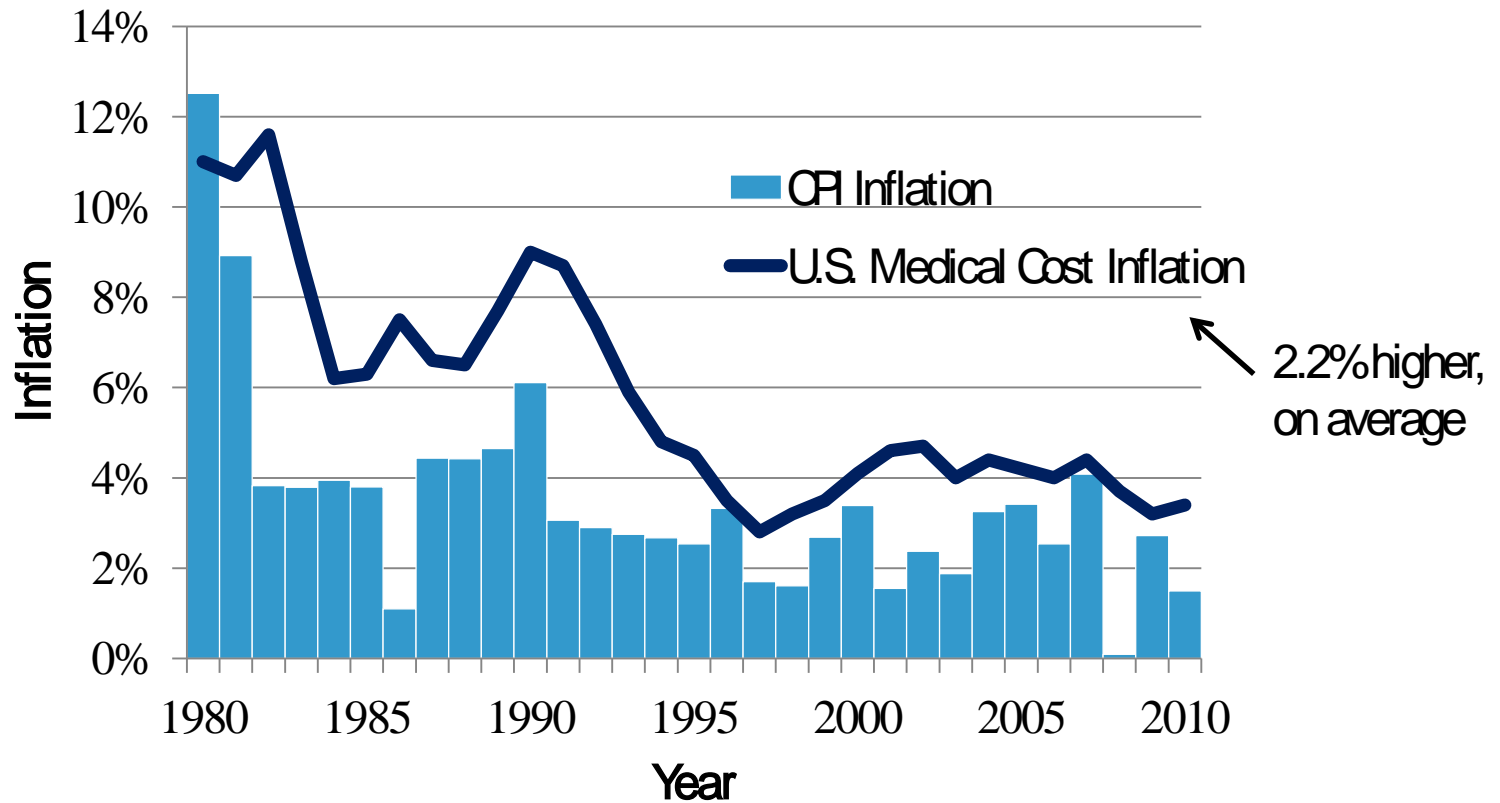
Inflation Risk

Inflation Risk



Source: Bureau of Labor Statistics. For illustration only.

Defining Inflation



Source: Bureau of Labor Statistics. For illustration only.

The Three “Stages” of Retirement



- × **Go-Go:** Retirees maintain lifestyle, travel, the group that does not consider themselves "old".



- × **Slow-Go:** Between the ages of 70 and 84, brought on by the body saying “Slow Down,” 20%-30% budget decline.



- × **No-Go:** 85+ , significant changes in retirement lifestyle is generally brought on by health issues.






Source: "The Prosperous Retirement, Guide to the New Reality", Michael Stein

Longevity Risk

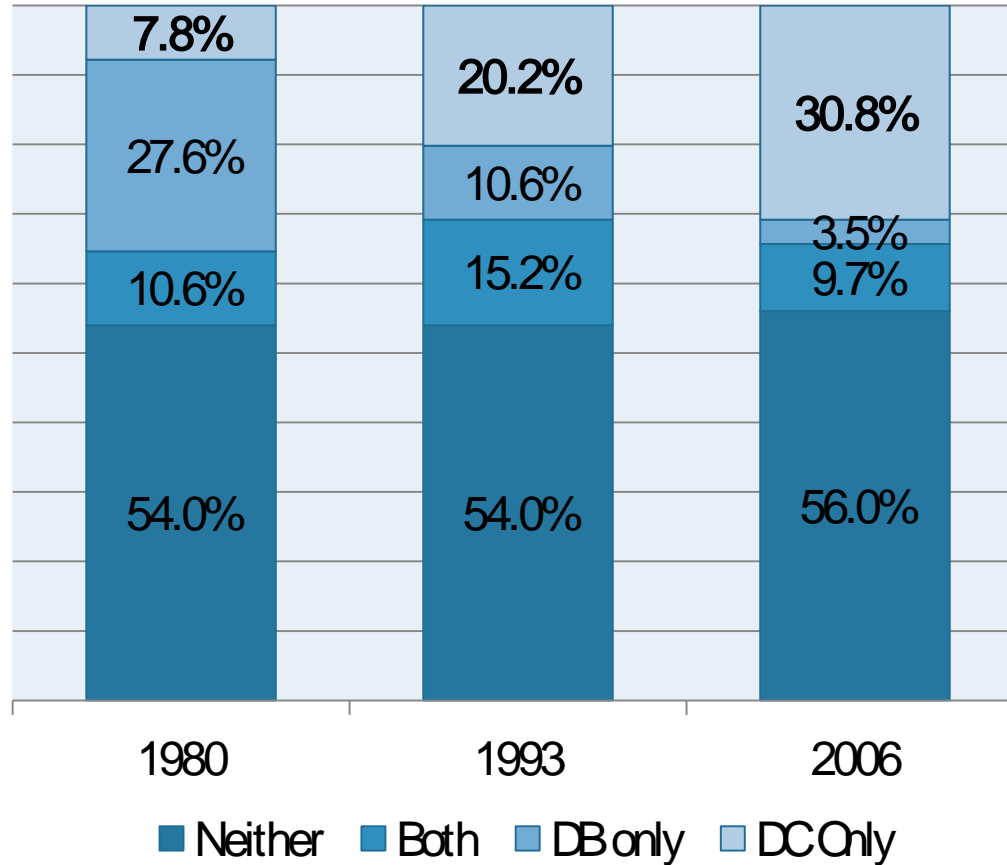
Longevity Risk



Impact of Using Different Mortality Tables

Scenarios	 1	 2	 3	 4	 5
Type	Male	Female	Joint	Joint	Joint
Current Age(s)	65	65	65	75	85
Target Age(s)	95	85	95	95	100
Probabilities					
Social Security Table	6%	53%	18%	21%	7%
Annuity 2000 Table	17%	65%	36%	40%	23%

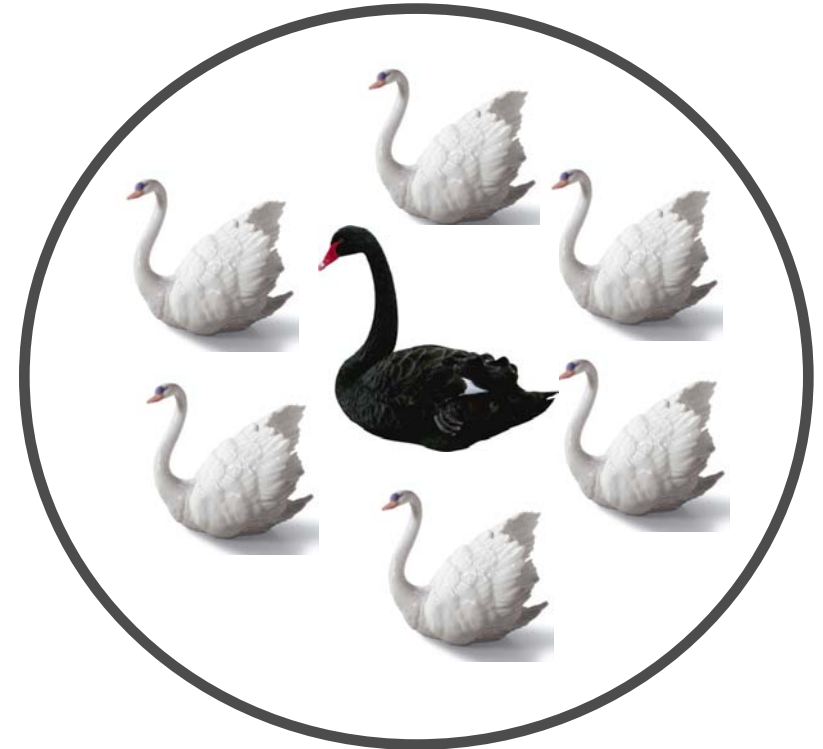
Decline of the Defined Benefit Plan



Sources: "Notes," February 2009, Vol. 30, No. 2, www.ebri.org and "The Financial Crisis and Private Defined Benefit Plans," Center for Retirement Research at Boston College, November 2008.

Inefficient Retirement Periods

- × Defined benefit plans allow for longevity risk pooling
- × 401(k) participants have to deal with longevity risk on an individual basis, this is inefficient from a pure income perspective
- × Annuities represent one possible solution

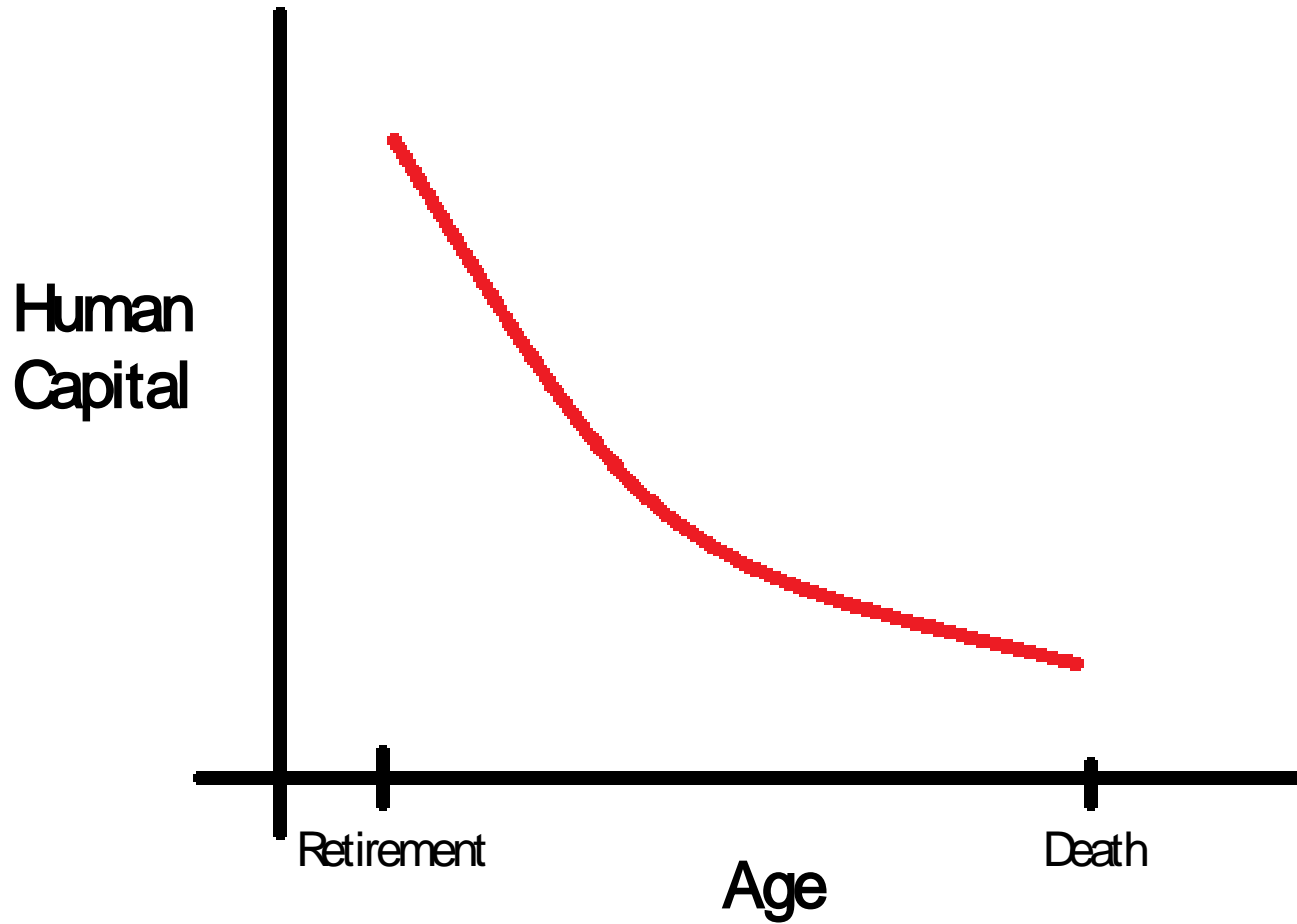


Annuities

Who Cares About Lifetime Income?

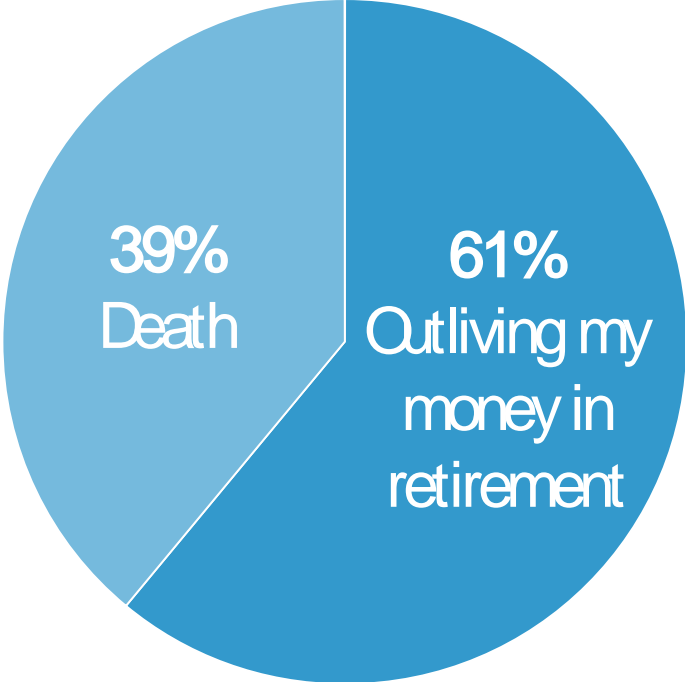


Human Capital



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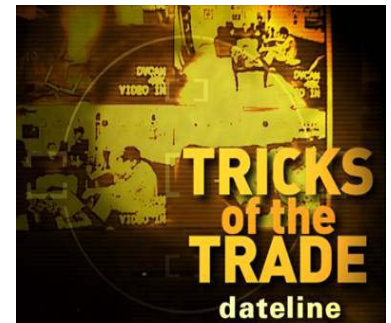
Which Do You Fear the Most?



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

The Annuity Puzzle

- × Franco Modigliani noted the “annuitization puzzle” in his 1985 Nobel acceptance speech
- × A survey conducted by Allianz Life Insurance Company of North America (Allianz Life) noted that more than half (nearly 54%) of Americans aged 44-75 expressed distaste for the word “annuity”
- × This is despite the fact 80% of the more than 3,200 surveyed preferred a product with four percent return and a guarantee against losing value over a product with eight percent return and subject to market risk.



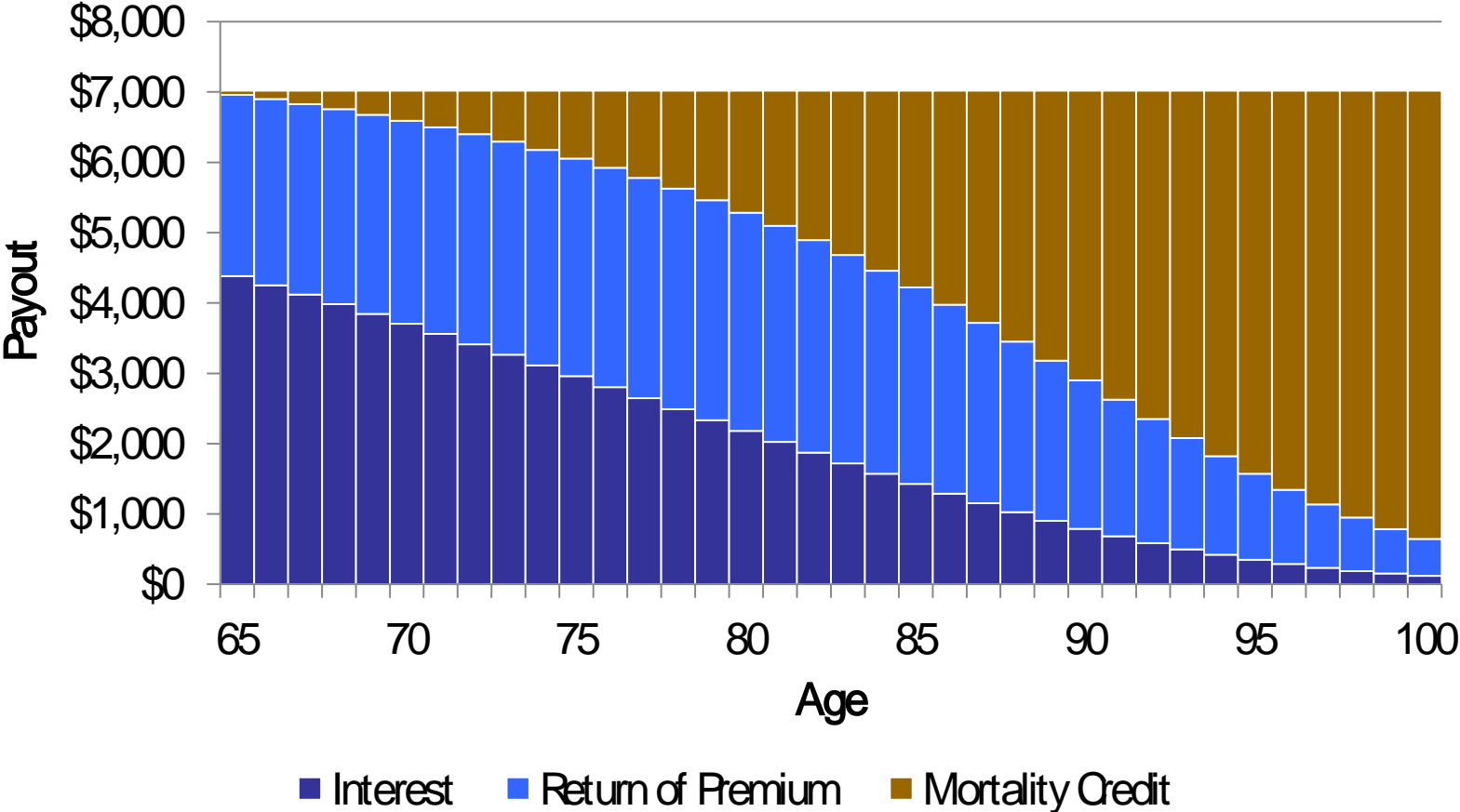
Source: Modigliani, Franco. 1986. “Life Cycle, Individual Thrift, and the Wealth of Nations.” *American Economic Review*, 76(3): 297–313.

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

Do You Feel Lucky?



The Mortality Premium for an Immediate Fixed Annuity



Source: <http://www.immediateannuities.com/information/rates.html> and author's calculations. For illustration only.

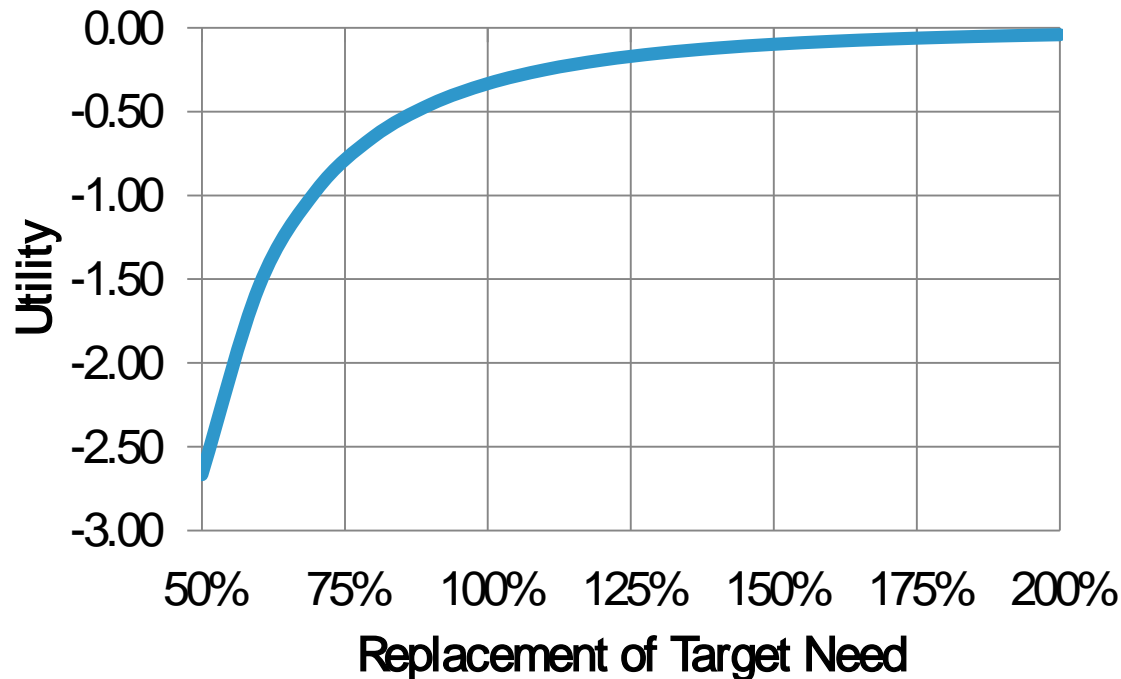
Different Frameworks to Estimate the Relative Cost/Benefit

1. **Net present value:** compare discounted, mortality weighted cash flows (typically within a Monte Carlo environment)
2. **Utility:** determine preferences of a retiree, use a utility function to quantify the “happiness” associated with different potential outcomes and select the strategy the maximizes utility

$$\text{Utility}(x) = \frac{x^{1-\gamma}}{1-\gamma}$$

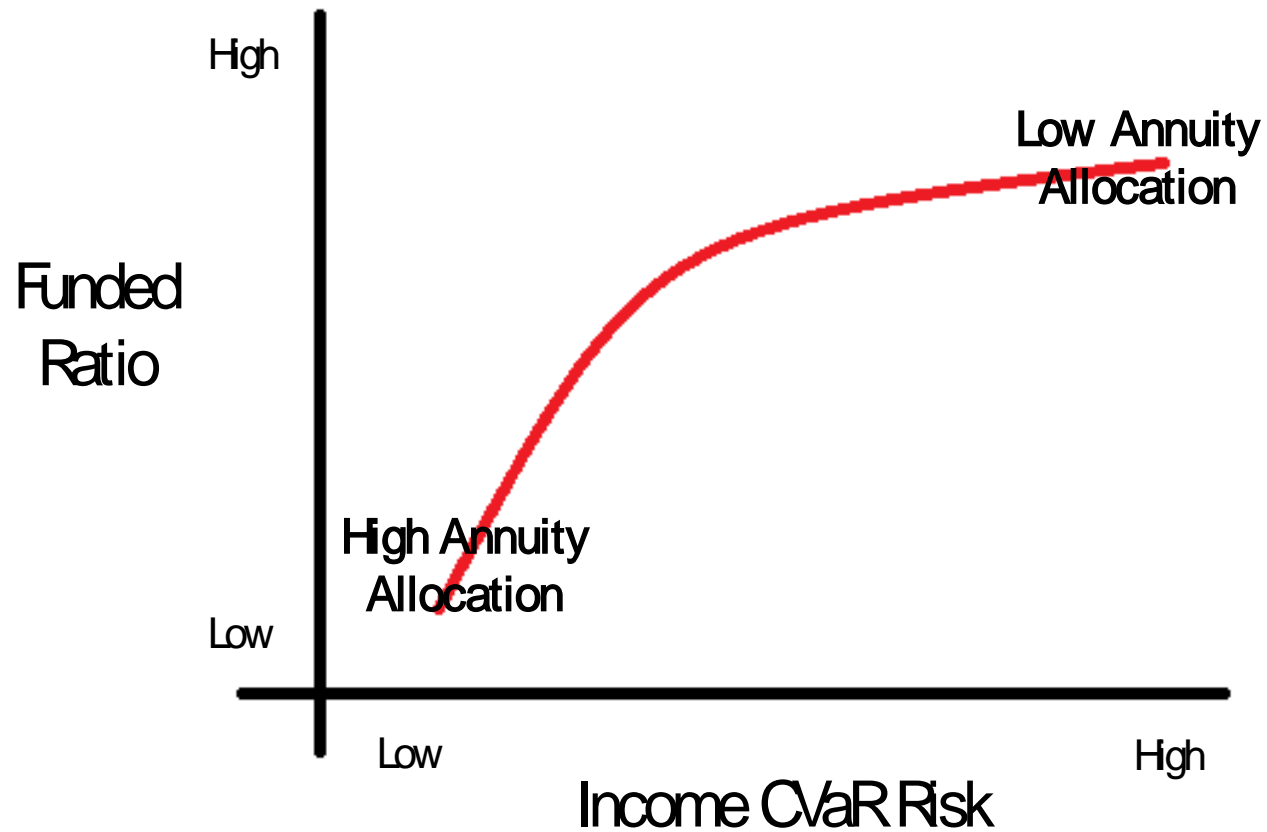
Utility Framework Example

- × Goal is to maximize the total income replaced during retirement.
- × Excess income is good, but a shortfall is penalized more:



Source: Author's calculations. For illustration only.

Retirement Income Efficient Frontier



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Alpha < Beta < “Gamma”

Most investment advisors think in terms of alpha and beta, a new mentality, “gamma”, needs to be added to the framework:

- × **Alpha:** add value by either picking funds that outperform their peers or selecting passive (thereby beating the “average” mutual fund)
- × **Beta:** add value by selecting an asset allocation that has superior risk-adjusted performance
- × **Gamma:** add value by building a portfolio that creates a lifetime income stream that best accomplishes the client’s goals gives various preferences

Accumulation vs Distribution

Accumulation

Beta (Asset Allocation)

Alpha (Active/Passive)

Distribution

Gamma (Product Allocation)

Beta (Asset Allocation)

Alpha (Active/Passive)

Annuity Summary Thoughts

- × All annuities are not bad, but most annuities are expensive
- × Annuities are different, and different annuities work better/best in different scenarios for different retirees
- × The majority of annuitants cannot “make money”, so any type of “average” analysis will yield unfavorable results
- × A better approach to estimate the “cost” is to take total portfolio approach and incorporate some type of preference model (like utility)
- × Given the current interest rate environment (historic lows), I think GMWB annuities are probably more attractive than immediate annuities and longevity insurance, although this is an apples to oranges to bananas comparison

Non-Guaranteed Managed Options

Money Back Guarantee?

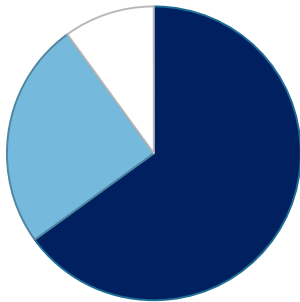


"We offer a money-back guarantee,
assuming we have the money."

Vanguard's Managed Payout Funds

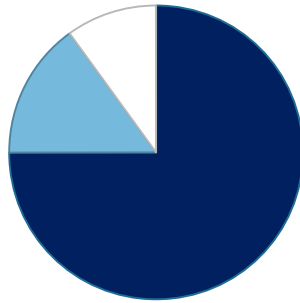
- × An “endowment” approach to lifetime income with a “built in” systematic withdrawal plan (SWP)
- × Monthly payout rate is applied to the average daily balance of a hypothetical account over the prior 3 years
- × Three types:
 1. Growth focus: ~ 3%payout
 2. Growth and distribution: ~ 5%payout
 3. Distribution focus: ~ 7%payout

Risky...



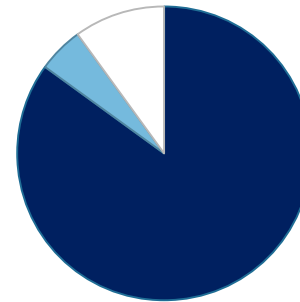
- Stocks 65%
- Bonds 25%
- Other 10%

Distribution Focus



- Stocks 75%
- Bonds 15%
- Other 10%

**Growth and
Distribution Focus**



- Stocks 85%
- Bonds 5%
- Other 10%

Growth Focus

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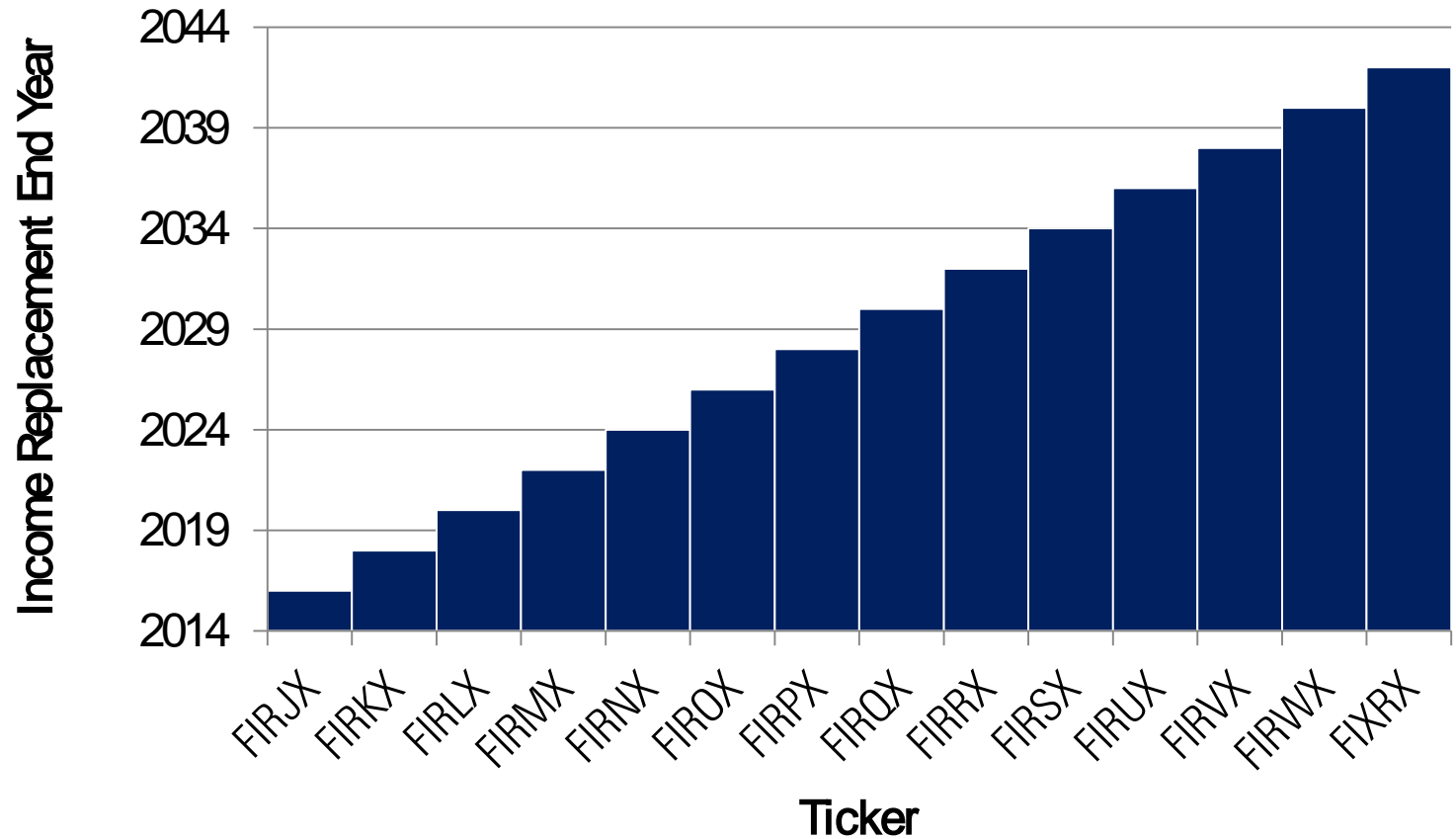
Fidelity Income Replacement Funds

Hypothetical Example



Source: http://personal.fidelity.com/myfidelity/InsideFidelity/NewsCenter/mediadocs/firf_at_a_glance.pdf. For illustration only.

Fidelity Income Replacement Funds



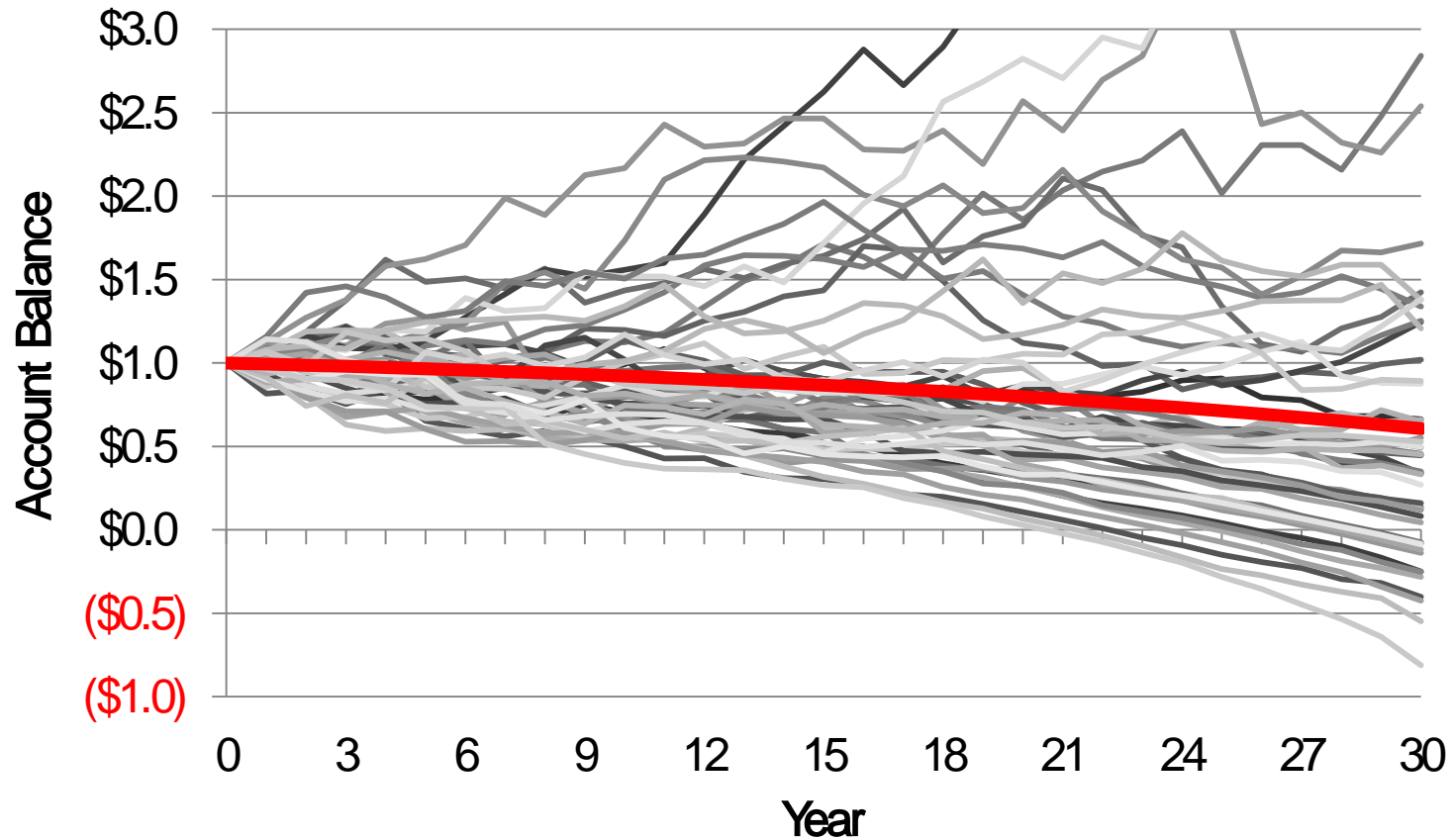
Source: http://personal.fidelity.com/myfidelity/InsideFidelity/NewsCenter/mediadocs/firf_at_a_glance.pdf. For illustration only.

Thoughts on Managed Payout Funds

- × Attractive low cost solution
- × “That’s what we (financial planners) do”
- × Most likely viable for:
 - ✓ “do-it-yourself” retirees
 - ✓ retirees with fewer assets that can’t/won’t get personalized portfolios
 - ✓ retirement plans seeking to offer a non-annuity distribution option
- × Likely more to come in this space

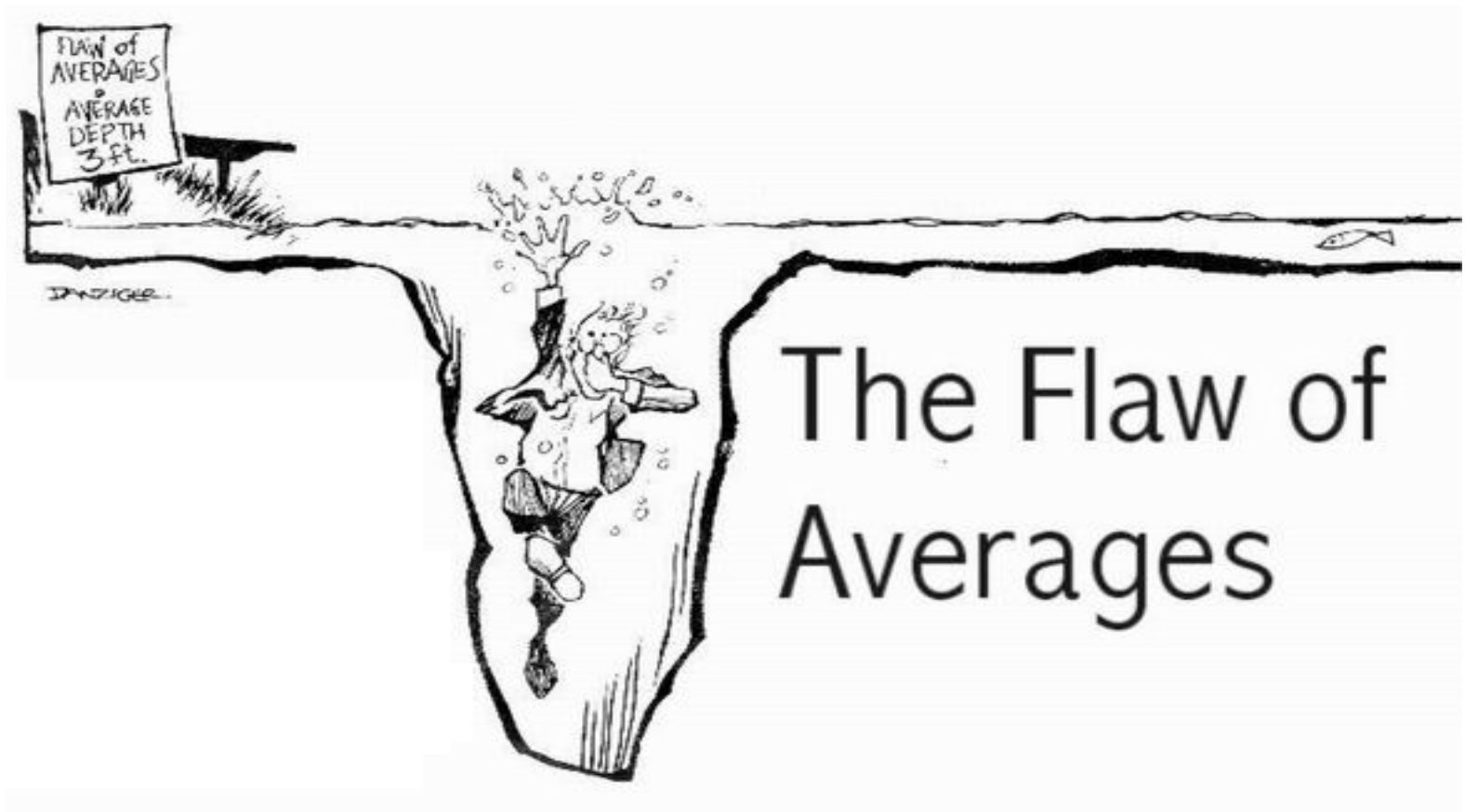
Modeling Considerations

Monte Carlo versus Time Value of Money



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Beware of the Average



The Long-Term Average...



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Is 4% “Safe”?

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USA is # 1: Average 60/40 Portfolio Real Return: 1900 - 2010

1.28%



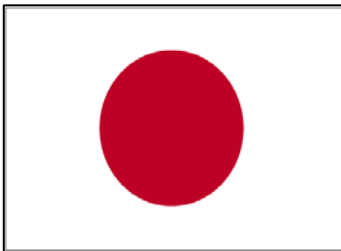
1.84%



2.34%



2.72%



4.06%

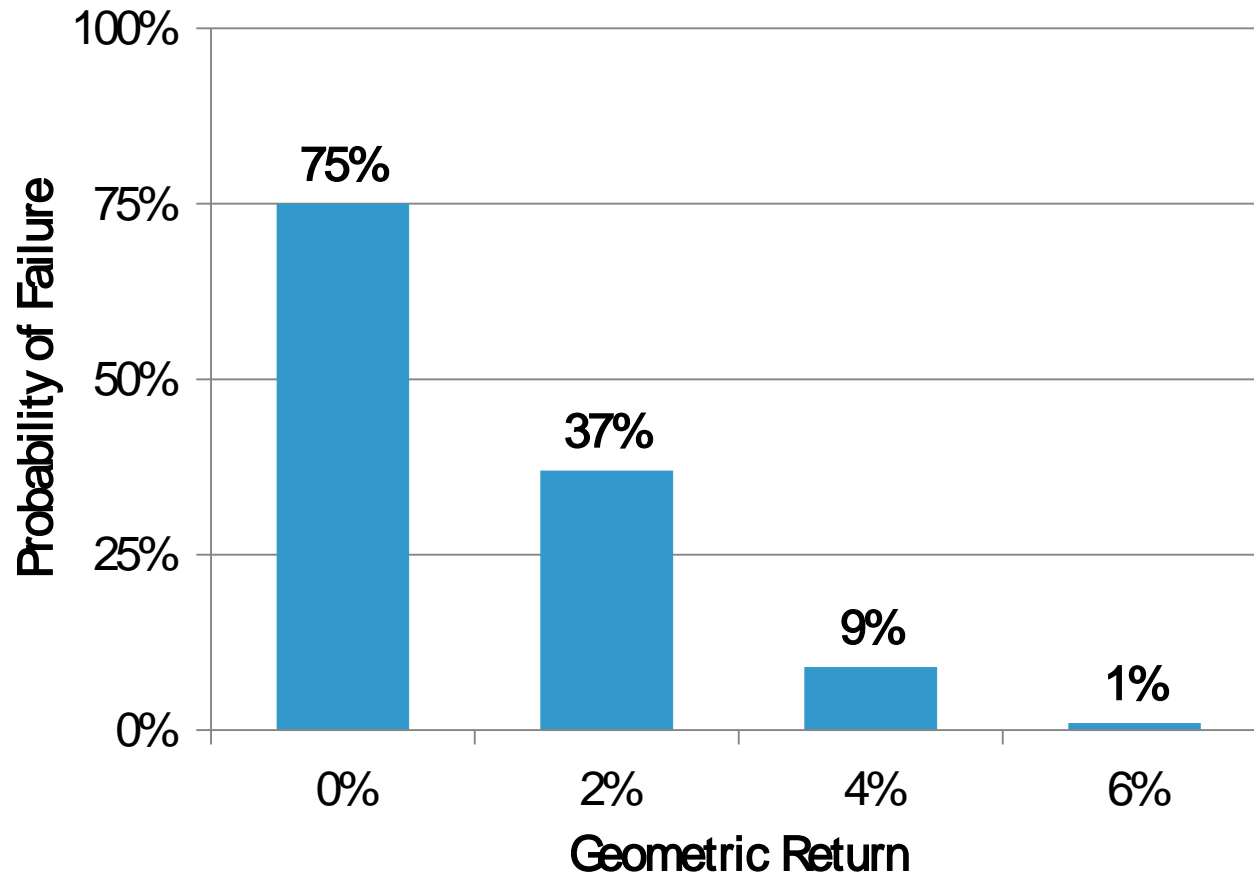


5.01%



Source: Dimson, Marsh, and Stauton

Return Assumptions Matter: 4% Withdrawal Rate over 30 Years



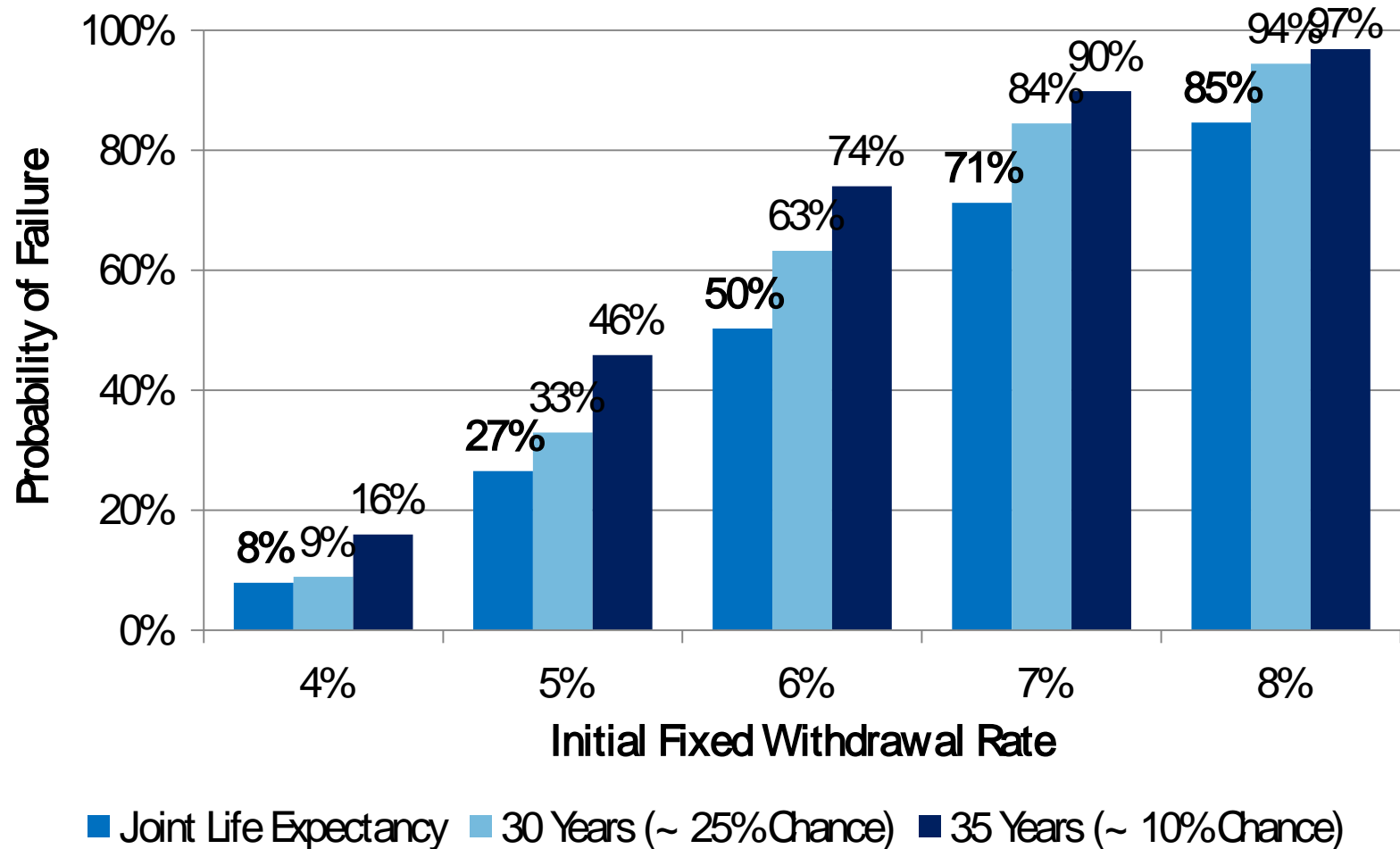
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What is Failure?

		Client Living Status	
		Alive	Dead
Portfolio Balance	≥ \$0	Not Failure	Not Failure
	< \$0	Failure	Not Failure

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Impact of Different Definitions of “Failure”



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Beware of Hindsight Bias

Table 1: Comparison of DIESEL Portfolios

Index	Portfolio 1 DIESEL Allocation	Portfolio 2 1/3 S&P 1/3 B 1/3 I
S&P 500	25%	33%
DFA Small Cap Index	25%	
MSCI EAFE	22.50%	
NAREIT	5%	
GSCI	5%	
Citigroup Composite Bond	15%	33%
T-Bill 3-Month	2.50%	34%
Statistical Summary		
Compounded Annual Return	12.31%	9.8%
Standard Deviation	12.10%	7.0%
Months Until Depletion	Does Not Deplete	287 or 2
Date of Depletion	1/1/20	1/30/20
Randomization Failure Rate	9.10%	64.1%

Overly precise allocations can lead to overly optimistic withdrawal rates (“22.5%”, “2.5%”)

9% probability of failure for a 7% real withdrawal rate... I estimate a ~ **55% probability of failure** the same allocation, the probability of failure increases to **over 80%** if the return in the first year is -25%

Source: Stephan Quirm Cassaday, Journal of Financial Planning, vol.18, no. 5 (May) 2005

Fees

1.00% Advisory Fee
+ .50% Fund Expenses
1.50% Total Cost



× Probabilities of failure for a 60/40 Portfolio and a 30 Year Distribution Period:

@ 4% withdrawal \approx 8% probability of failure

@ 4% withdrawal + 1.5% fee \approx 16% probability of failure

@ 5% withdrawal \approx 15% probability of failure

@ 5% withdrawal + 1.5% fee \approx 35% probability of failure

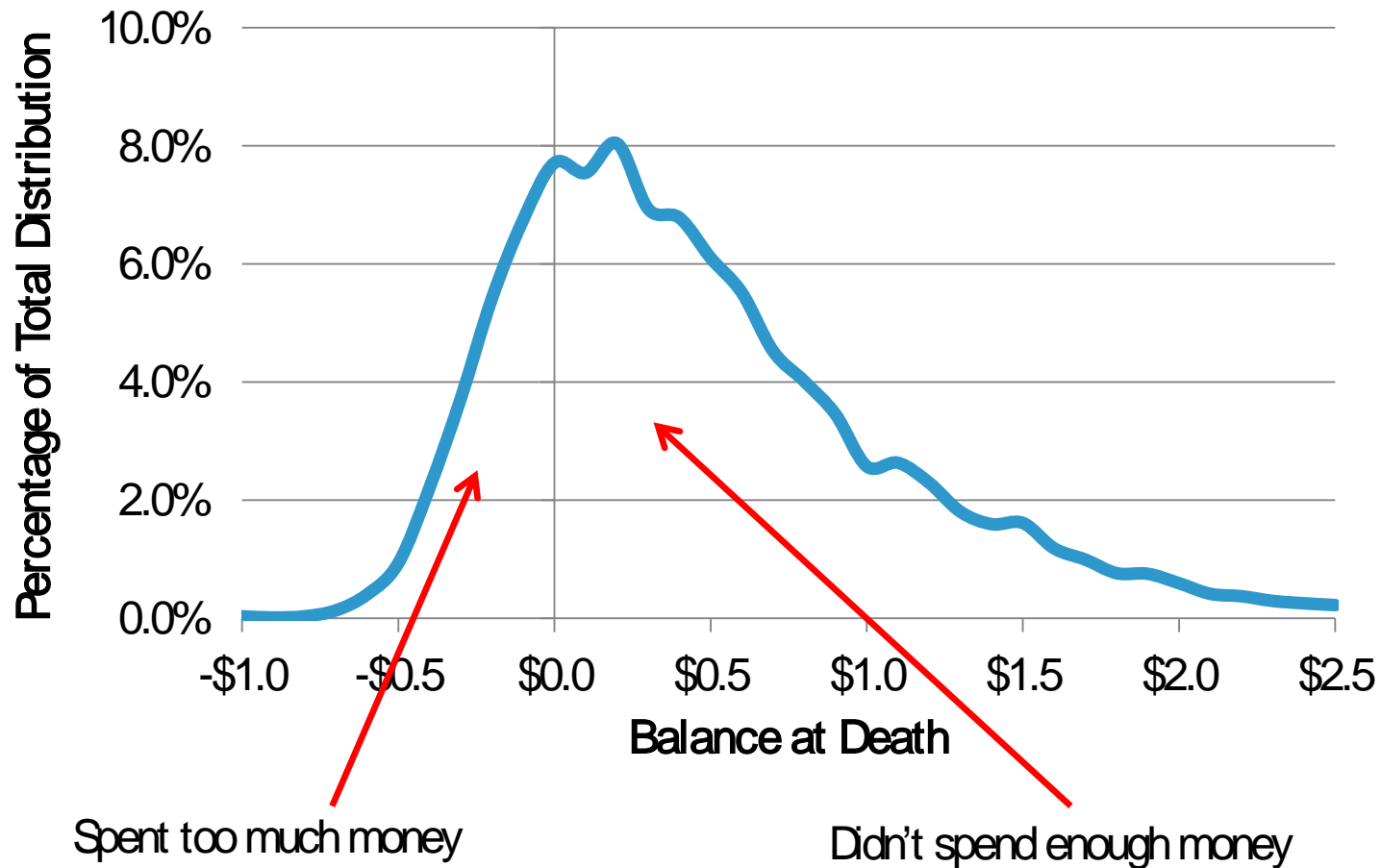
Dynamic Withdrawal Strategies

Dynamic Withdrawal Strategies

- × Most distribution planning research has assumed a constant (static) dollar withdrawal amount,
- × Although this a reasonable simplifying assumption, a constant dollar withdrawal is “inefficient” and somewhat reasonable when/if a retiree were faced with certain failure
- × More recent research has introduced dynamic approaches, where the withdrawal amount varies based on portfolio and survivorship experience



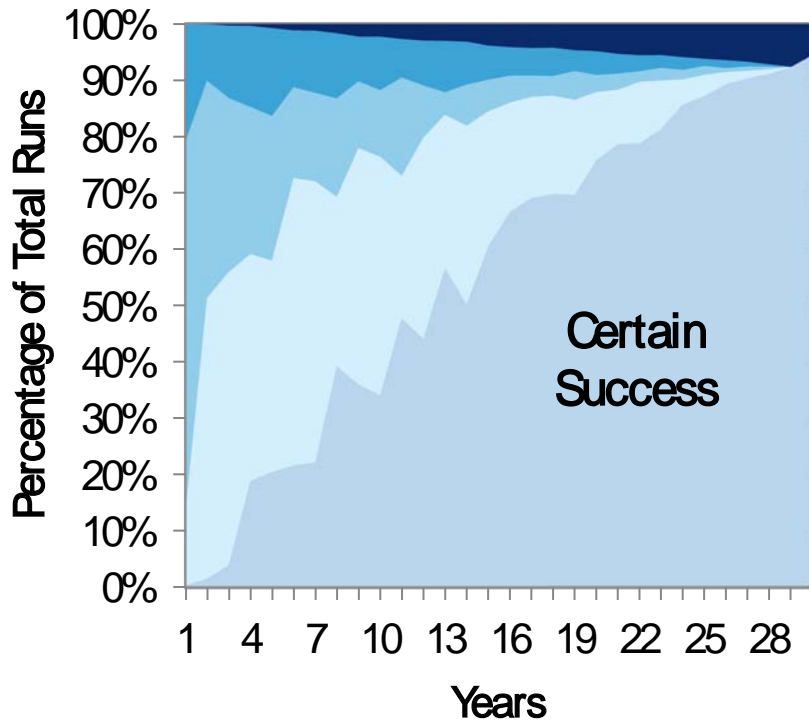
Distribution of Balance at Death with “4% in 30 years”



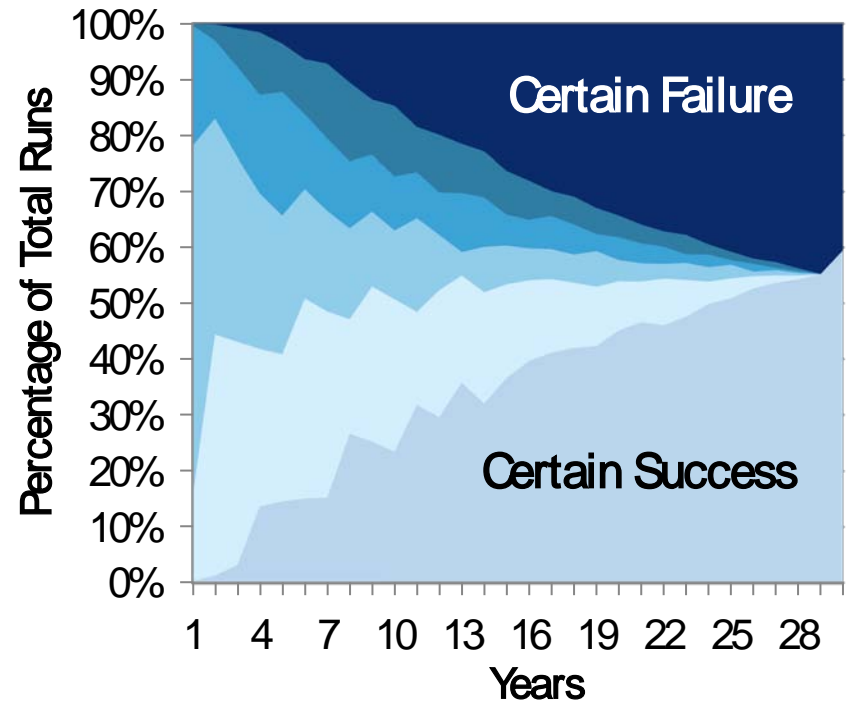
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Intervene When Necessary

Revisiting the Withdrawal Rate



"Fire and Forget"



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Different Withdrawal Approaches

- × **Constant Dollar Amount Based on the Initial Balance (“Constant Dollar”)**
fixed amount, increased annually by inflation, based on the initial balance
- × **Constant Percentage (“Endowment Approach”)**
fixed percentage of portfolio value
- × **Changing Percentage: Probability of Failure Fixed Period (“Constant Failure Percentage”)**
based on maintaining a constant probability of failure over a fixed retirement period
- × **Changing Percentage: 1/Life Expectancy (“RMD Method”)**
1 divided by the remaining retirement duration (life expectancy)
- × **Changing Percentage: Probability of Failure Mortality Updating (“Mortality Updating Failure Percentage”)**
based on maintaining a constant probability of failure over the estimated remaining retirement duration, based on actual survivorship experience

Withdrawal Efficiency Rate (WER)

$$\text{WER} = \frac{1}{1 + \frac{1}{(1+r_1)} + \frac{1}{(1+r_1)(1+r_2)} + \dots + \frac{1}{(1+r_1)(1+r_2)\dots(1+r_{N-1})}}$$

(fancy numbers)

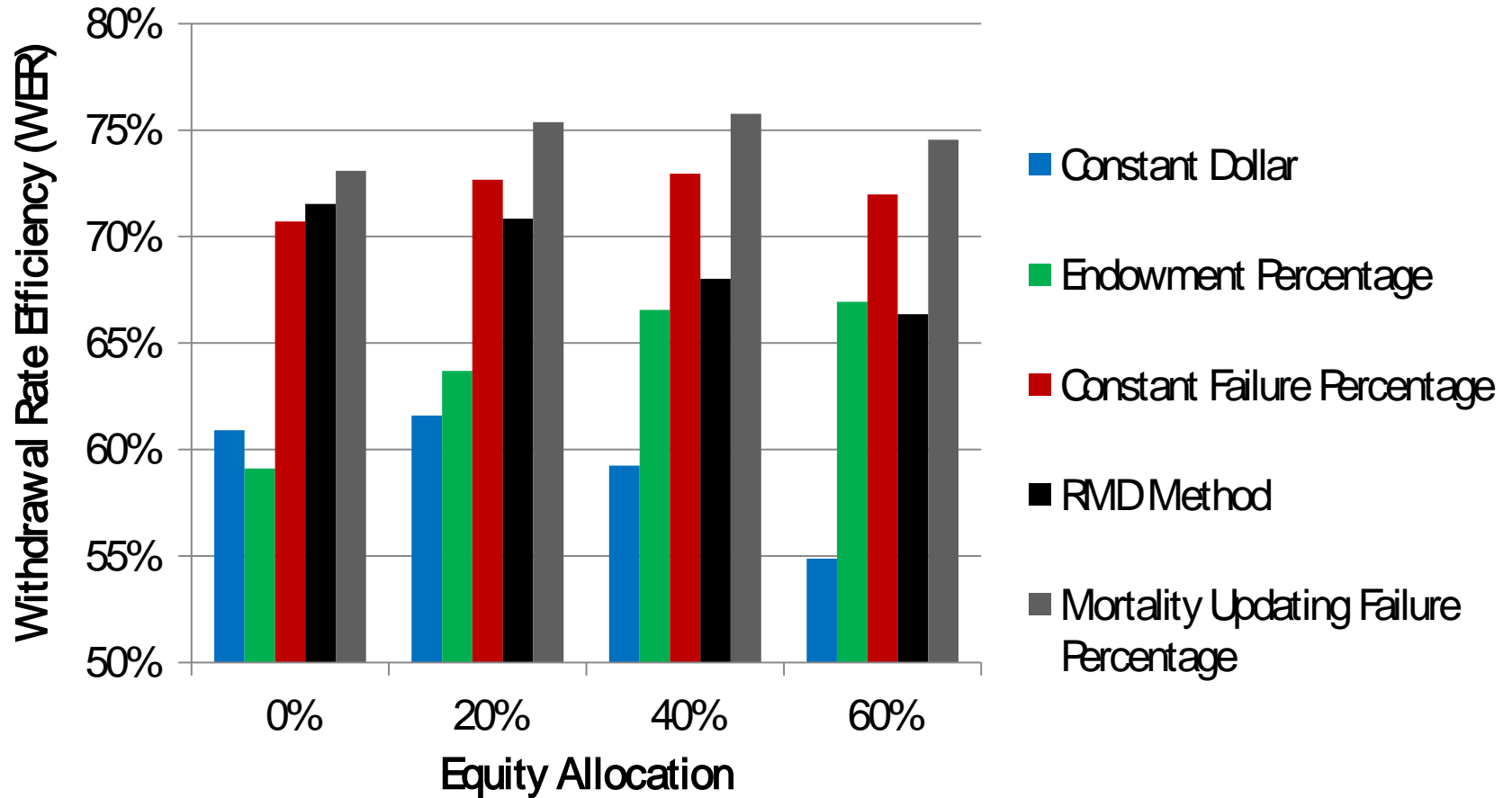
$$\left(\frac{1}{N} \gamma \sum_1^N \frac{C_i^{-\gamma}}{\gamma} \right)^{-\frac{1}{\gamma}}$$

The maximum constant real withdrawal available had you had perfect information upon retirement that leaves a \$0 balance at death

$$\text{WER} = \frac{\text{The maximum constant real withdrawal available had you had perfect information upon retirement that leaves a \$0 balance at death}}{\text{The utility-adjusted withdrawal amount}}$$

(plan English)

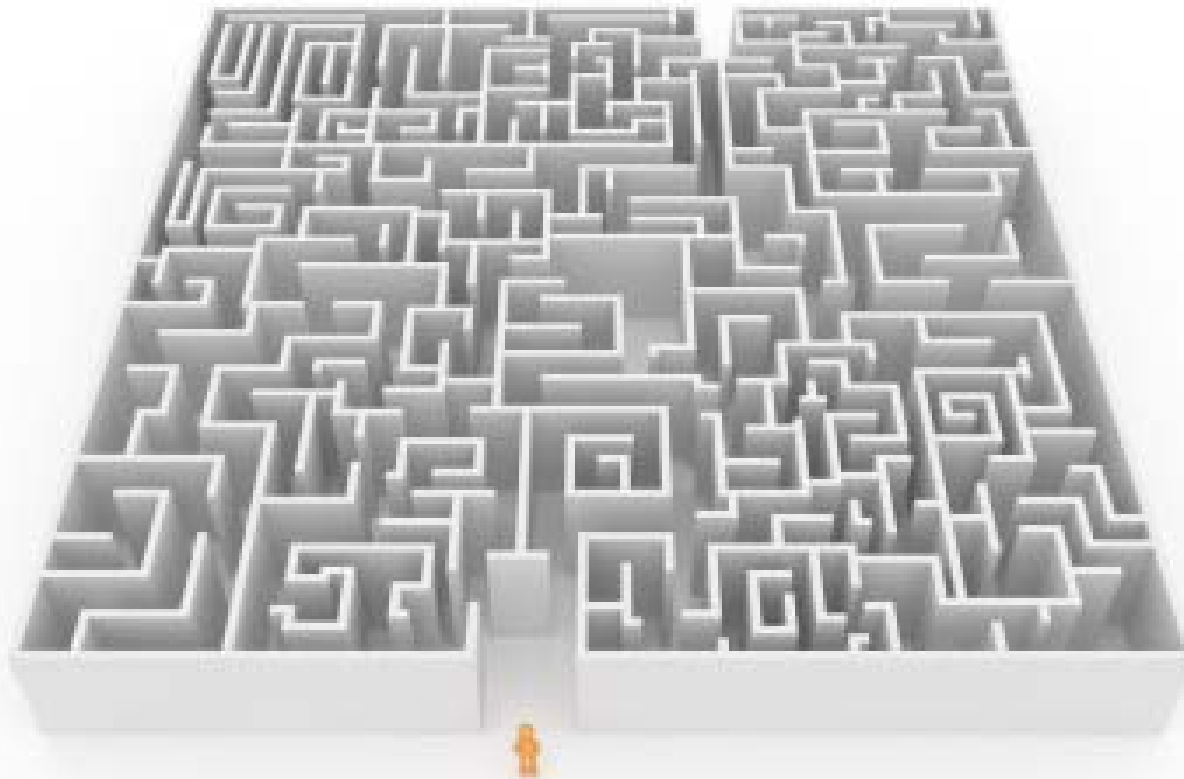
Relative Levels of Efficiency



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Conclusions

Our Task



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Questions?

Contact: david.blanchett@morningstar

Research: <http://corporate.morningstar.com/ib>

www.davidmblanchett.com/research

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