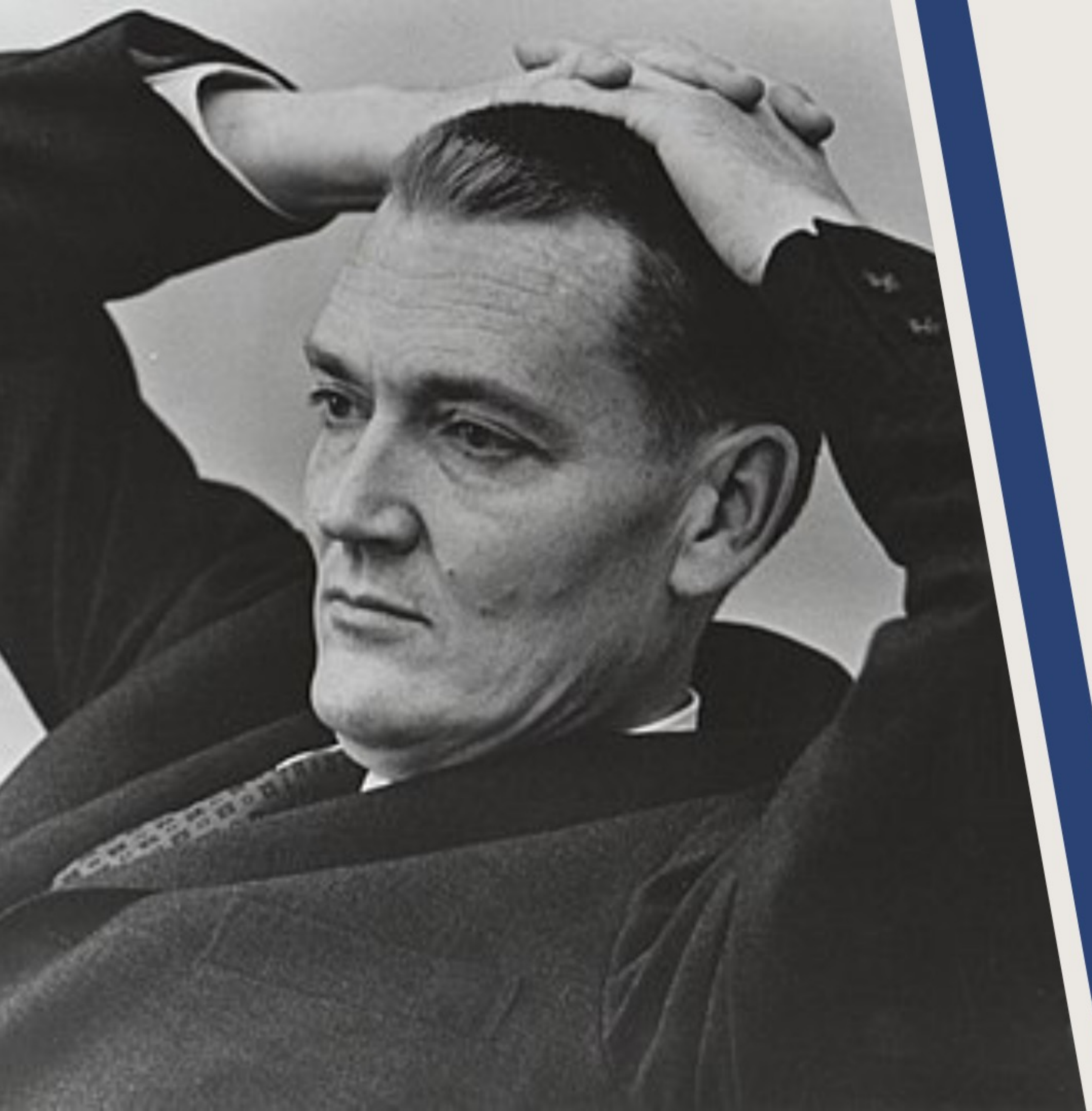


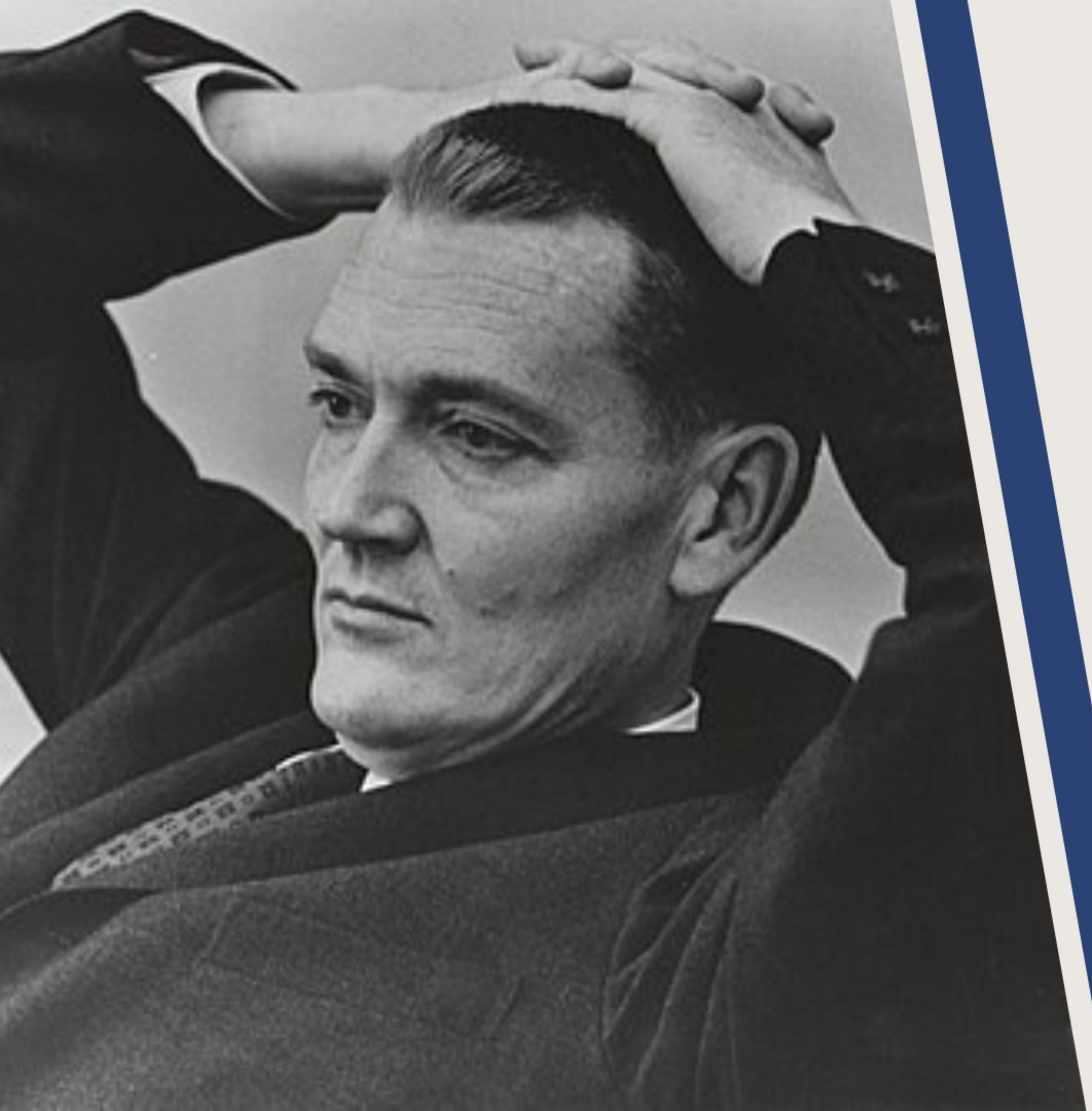
Bogleheads University

501 Track

The John C. Bogle
Center for Financial Literacy

Agenda

- 1:00-1:05 **Welcome and introduction**
- 1:05-1:25 Getting the Most Out of Social Security—**Mary Beth Franklin**
- 1:30-2:00 Structuring Your Retirement Portfolio—**Dana Anspach**
- 2:00-2:10 Break
- 2:10-2:35 Roth Conversions and Tax-efficient Withdrawals in Retirement—**Wade Pfau**
- 2:35-2:55 Real Estate: Can (and Should) It Be Added to a Boglehead Portfolio—**Jim Dahle**
- 2:55-3:00 Break
- 3:00-3:20 The Case for Factor Investing—**Paul Merriman**
- 3:20-3:40 The Case Against Factor Investing–**Rick Ferri**
- 3:40-4:00 Q&A With the Faculty



Making the Most of Social Security

Mary Beth Franklin

The John C. Bogle
Center for Financial Literacy

Learning Objectives

- **LEARN** how claiming age, marital status, and earnings limits can affect Social Security benefits amounts.
- **DISCOVER** how to apply Social Security claiming strategies to maximize benefits for some married couples and eligible divorced spouses.
- **UNDERSTAND** that Social Security retirement and survivor benefits represent two different pots of money and may be claimed at different times.

The John C. Bogle
Center for Financial Literacy

Eligibility for Benefits

- You must work at least 10 years to earn a minimum of 40 credits needed to qualify for Social Security retirement benefits or be married to (or divorced from) someone who is eligible to claim Social Security.

- Benefits are based on the top 35 years of indexed earnings and your age at time of claim. If you work fewer than 35 years, the calculation will include some zeroes, resulting in reduced future benefits.

Your Age Matters

- You can collect Social Security retirement benefits as early as 62, but they will be permanently reduced by up to 30%. If you are married, SSA must pay you your own benefits first, topped off by a spousal amount if larger.

- If you wait until your full retirement age (FRA), which ranges from 66 to 67 depending on birth year, you can collect your full retirement benefit even if you continue to work.

- If you delay collecting retirement benefits beyond your FRA, you can increase the amount by 8% per year up to age 70.

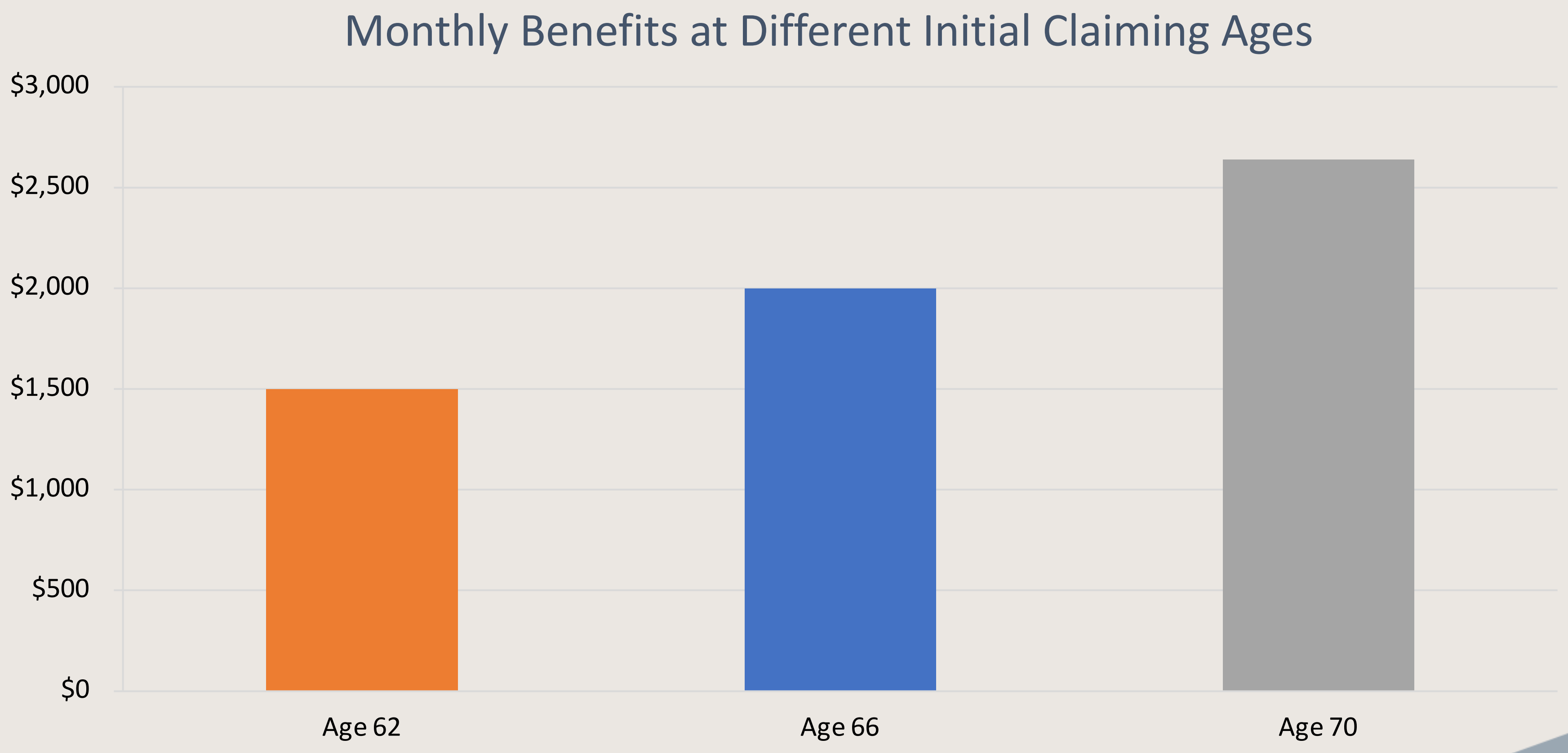
Find Your Full Retirement Age*

Birth Year	Full Retirement Age	Benefit Reduction at 62
1943 – 1954	66	25.00%
1955	66 and 2 months	25.83%
1956	66 and 4 months	26.67%
1957	66 and 6 months	27.505
1958	66 and 8 months	28.33%
1959	66 and 10 months	29.17%
1960 and later	67	30.00%

* Your FRA for survivor benefits may be different

The John C. Bogle
Center for Financial Literacy

The Value of Waiting:
76% Increase in Monthly Benefits for Life



The John C. Bogle
Center for Financial Literacy

Delayed Retirement Credits

- The 8%-per-year increase in benefits between FRA and 70 applies *only* to the worker's retirement benefit. It does not apply to a spousal benefit. The maximum spousal benefit is worth 50% of the worker's full retirement age (FRA) benefit amount if the spouse claims at her FRA or later.

- But if one spouse (or ex-spouse) delays benefits until 70 and later dies, the surviving spouse or surviving ex-spouse is entitled to a survivor benefit worth 100% of the deceased worker's benefit—including any delayed retirement credits. At that point, the smaller retirement benefit would end.

Should You Delay Social Security?

Pros	Cons
• Bigger benefit for each year you postpone claiming between 62 and 70 • Creates a larger base for future COLAs (Cost of Living Adjustments) • Provides a potentially larger survivor benefit	• Reduced cash flow now • Higher breakeven age to make delaying worthwhile • Could die before claiming

The John C. Bogle
Center for Financial Literacy

Earnings Cap

- If you collect Social Security benefits before FRA and continue to work, you lose $1 in benefits for every $2 earned over $21,240 in 2023.

- Higher limits apply in the year you reach FRA, losing $1 in benefits for every $3 earned over $55,520 in 2023 in the months before FRA.

- The earnings cap disappears at FRA.

The John C. Bogle
Center for Financial Literacy

#1 Rule

- In most cases it makes no sense to claim Social Security benefits before FRA if you work.

- All types of benefits—retirement, spousal and survivor—are subject to income limits on earnings if collected before FRA.

- Benefits lost to excess earnings are not gone forever. They will be restored in the form of higher monthly benefits after FRA.

The John C. Bogle
Center for Financial Literacy

Strategies for Married Couples

- In most cases, it makes sense for the higher-earning spouse to delay benefits up to age 70 to lock in the maximum retirement benefit as well as the largest survivor benefit for the spouse left behind.

- The lower-earning spouse may want to claim reduced benefits early at 62, assuming she or he is no longer working, or at FRA if still working (when earnings restrictions end). This split strategy increases household cashflow while the other spouse delays benefits.

The John C. Bogle Center for Financial Literacy

Spouse’s Benefit Amount

- Based on your age at time of claim and comparison of your own benefit to spouse’s benefit amount.
- If your own benefit is larger than half of your spouse’s FRA benefit, you will receive a retired worker’s benefit on your own earnings record. You will not collect a spousal benefit.
- If your retirement benefit is smaller, your benefit will be topped off by excess spousal amount to bring the combined total up to half of your ex-spouse’s FRA, assuming you are at least full retirement age; less if you claim Social Security before FRA. The worker must claim Social Security to trigger benefit for spouse.

The John C. Bogle
Center for Financial Literacy

Some Spouses Must Wait to Claim

- Spouses with no Social Security benefits of their own must wait for the working spouse to claim retirement (or disability) benefits before they can collect. Spousal benefits are worth up to 50% of worker's FRA amount.

- Different rules apply to eligible divorced spouses.

Couples' Goal: Maximize Survivor Benefits

- Spousal benefits = 50% of worker's FRA benefit. Survivor benefits = 100% of worker's benefit, including any delayed retirement credits, if surviving spouse is at least FRA; less if collected earlier.

- Even if one spouse claimed reduced retirement benefits early, it will have no impact on her survivor benefits if she is at least FRA when she claims them.

Social Security Rules for Divorced Spouses

- Must be married at least 10 years before divorcing.

- Must be currently single (different rules for survivor benefits).

- Both ex-spouses must be at least 62 years old.

- Plus, if divorced at least 2 years, you may be able to claim benefits on your ex even if your former spouse has not yet filed for Social Security.

The John C. Bogle
Center for Financial Literacy

You Can Collect on Your Ex

If your Social Security benefit as an ex-spouse is larger than your own retirement benefit, you would collect the larger of the two amounts.

Although you must be single to collect on a living ex, if you wait until age 60 or later to remarry, you can collect survivor benefits on your deceased ex even if you're married to someone else!

The John C. Bogle
Center for Financial Literacy

Survivors Can Switch Benefits

- Survivor benefits and retirement benefits represent two different pots of money. Eligible survivors who are also entitled to their own retirement benefit may be able to switch benefits.
- Widows, widowers and surviving ex-spouses can collect survivor benefits as early as age 60 but are subject to benefit reductions if claimed before FRA and the earnings cap if they continue to work.
- They can collect survivor benefits initially—worth up to 100% of the deceased spouse's benefit—and then switch to their own benefit that continues to grow at 8% per year until age 70. Or they could collect their own reduced retirement benefit first and switch to maximum survivor benefits at FRA.

Strategies for Singles

For those who never married or who were divorced before 10 years of marriage:

- Benefits based on age at time of claim.
- Delaying claiming benefits until age 70 will result in a larger monthly payment but it may not be worth waiting that long since no one will collect a survivor benefit if you die before claiming Social Security.

Public Employees Must Pay to Play

- If you receive a pension from work in the public sector where you did not pay FICA payroll taxes, your Social Security benefits may be reduced or eliminated.
- The Windfall Elimination Provision (WEP) can reduce a worker's Social Security benefit by up to half of the amount of his or her pension, but not by more than $557 per month in 2023.
- The Government Pension Offset (GPO) rule can reduce or eliminate Social Security spousal or survivor benefits. Social Security benefits are reduced by two-thirds of the amount of the non-covered pension with no dollar limit.

Two Do-Over Strategies

- If you change your mind within 12 months of first claiming retirement benefits, you can withdraw your application for benefits and repay the money you have already received and then restart your benefits later at a higher rate.

- Or, if you wait until FRA or later, you can suspend your benefits—but not repay them—and earn 8% per year up to age 70. Be careful not to disenroll from Medicare when you suspend benefits.

Lump Sum Option

Anyone who claims Social Security after their full retirement age (FRA) can request a lump sum payout of up to six months of retroactive benefits beginning no sooner than FRA.

For example, if you FRA is 67 and you claim benefits at 68, you can request six months of retroactive benefits payable in a lump sum. Going forward, your monthly benefit would be based on your claiming age of 67 ½.

You cannot receive Delayed Retirement Credits for the same period that you received retroactive benefits. Social Security benefits are subject to federal income taxes and in some cases, state taxes.

Will Social Security Be There For Me?

The Social Security trust funds are expected to be depleted in 2033. That does not mean the system is bankrupt. There would be enough money from ongoing FICA taxes to pay about 80% of promised benefits.

Congress must act before then to prevent benefit cuts. Reforms could include increased payroll taxes, higher full retirement ages or changes to the benefit formula.

Should You Rush to Claim Benefits Now?

Worried that Social Security is going broke? Claiming benefits early out of fear is like selling stocks in a down market: the only thing you have guaranteed is that you have locked in a loss.

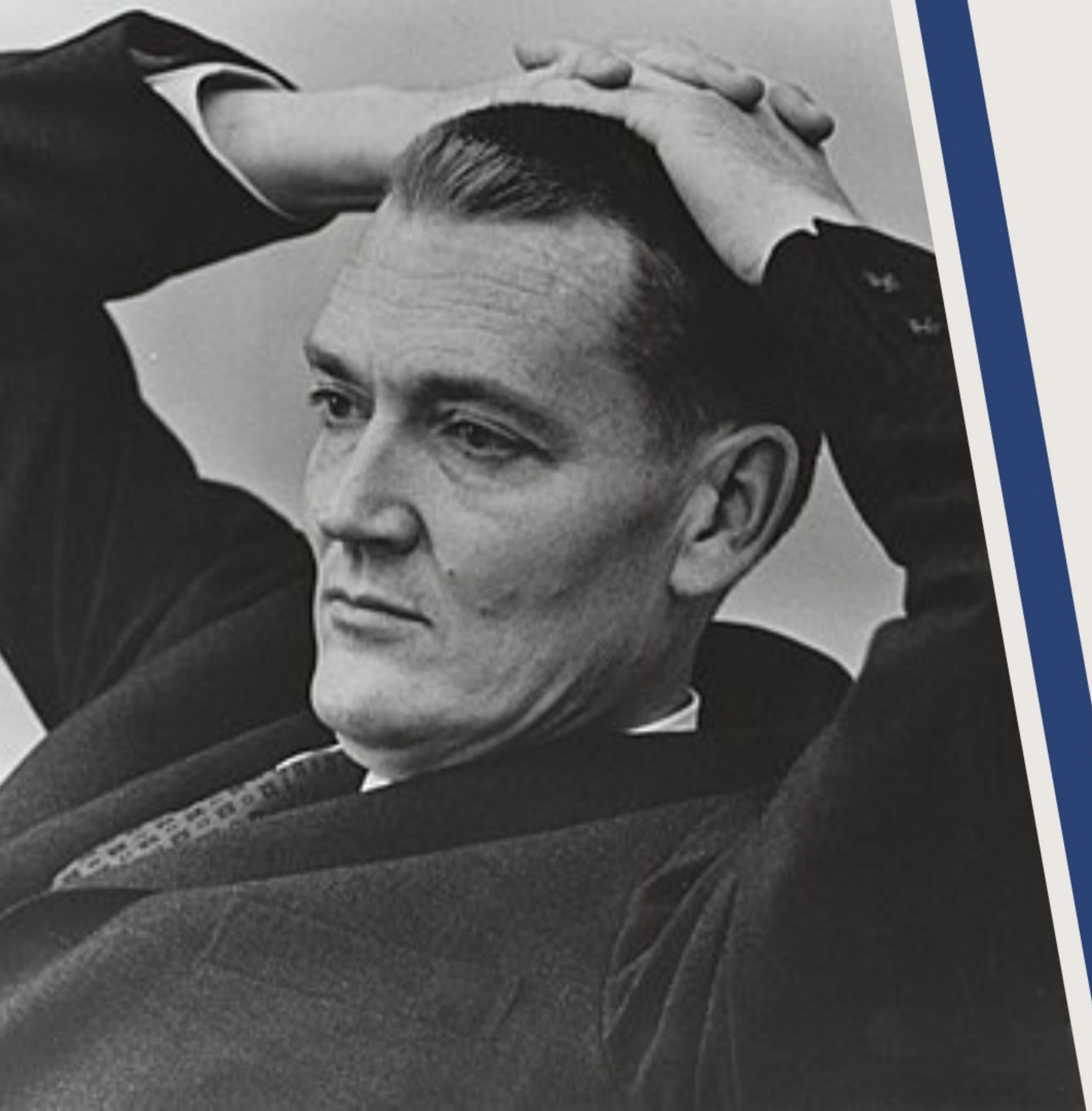
Benefits would be reduced if claimed before FRA, and if the worst-cast scenario occurred—and future benefits had to be cut—your benefits could be reduced even further.

The John C. Bogle
Center for Financial Literacy

Questions?

www.MaryBethFranklin.com

The John C. Bogle
Center for Financial Literacy



Structuring Your Retirement Portfolio

Dana Anspach

The John C. Bogle
Center for Financial Literacy

Disclosures:

- ✓ This presentation contains general information that is not suitable for everyone and was prepared for informational purposes only. Nothing contained herein should be construed as a solicitation to buy or sell any security or as an offer to provide investment advice.

- ✓ Sensible Money, LLC (“SM” or "the Firm") is a registered investment adviser. Registration is a legal requirement – it does not imply approval or endorsement. For additional information about SM, including its services and fees, you can request a copy of SM’s disclosure brochure by emailing us at info@sensiblemoney.com or visit www.advisorinfo.sec.gov.

- ✓ Any charts in the presentation are not meant to show the performance of SM strategies or to imply the performance of any model portfolios. Any charts or examples are meant to show the Firm’s belief in sticking to a plan over time, but there is no guarantee that you will have the same or positive results. Any results portrayed in these cases or examples are not representative of all of SM’s clients or the clients’ experiences. No portion of this presentation should be interpreted as a testimonial or endorsement of SM’s investment advisory services.

- ✓ Past performance is not a guarantee of future results. When investing, depending on your timing, you could lose money. There is no guarantee that the prevailing market and economic conditions during the time frames in the graphs will continue, and performance may be negatively impacted by a shift in such conditions.

Which factors have the

BIGGEST IMPACT

on your retirement income outcomes?

The John C. Bogle
Center for Financial Literacy

Retirement Date?

Inflation?

Savings?

Investment Returns?

Withdrawal Rate?

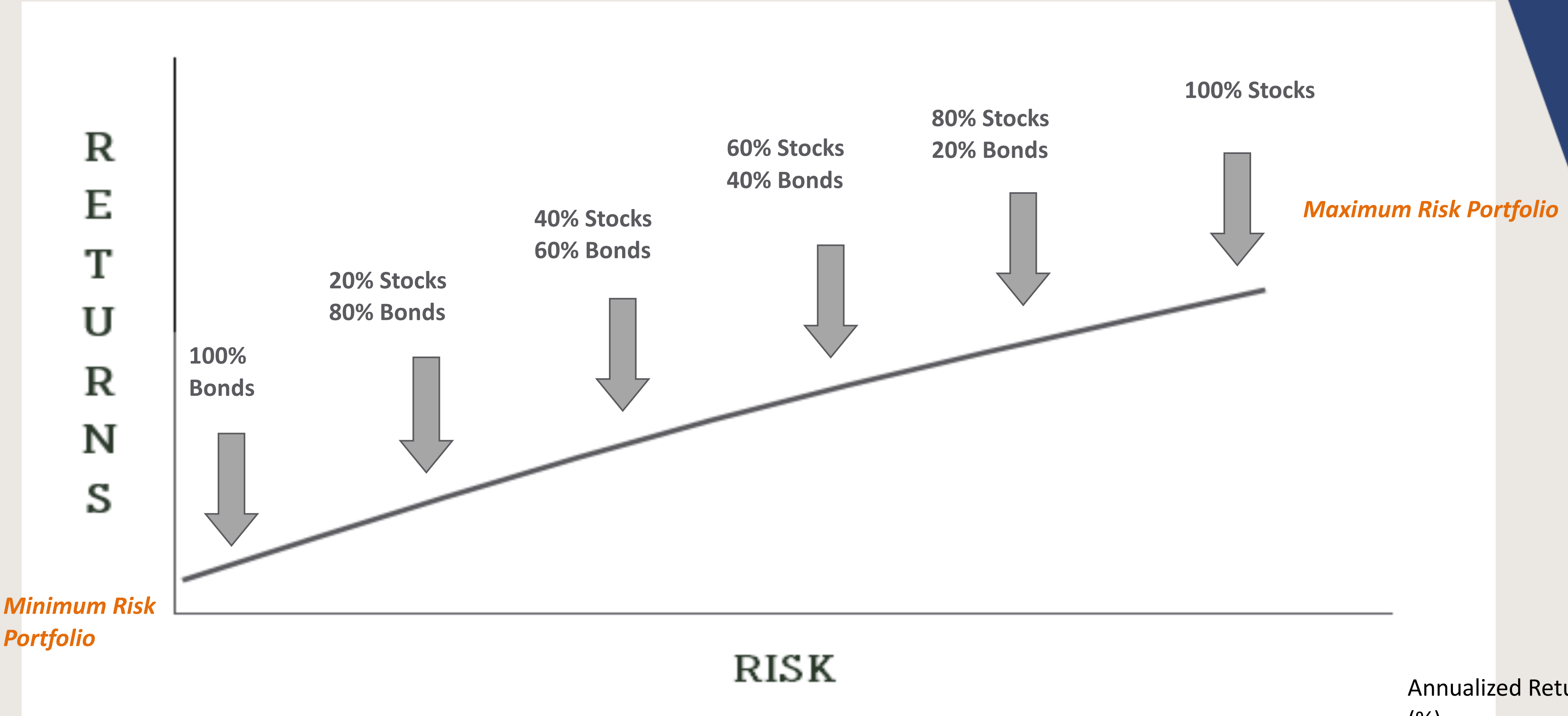
John C. Bogle

r Financial Literacy

First, how do we define

OUTCOMES?

The Traditional Efficient Frontier

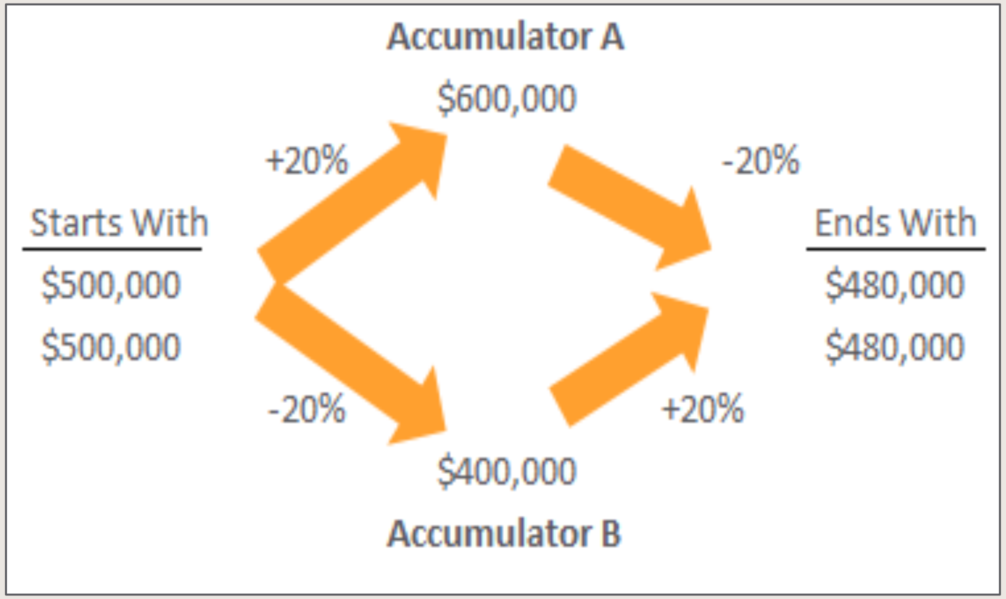


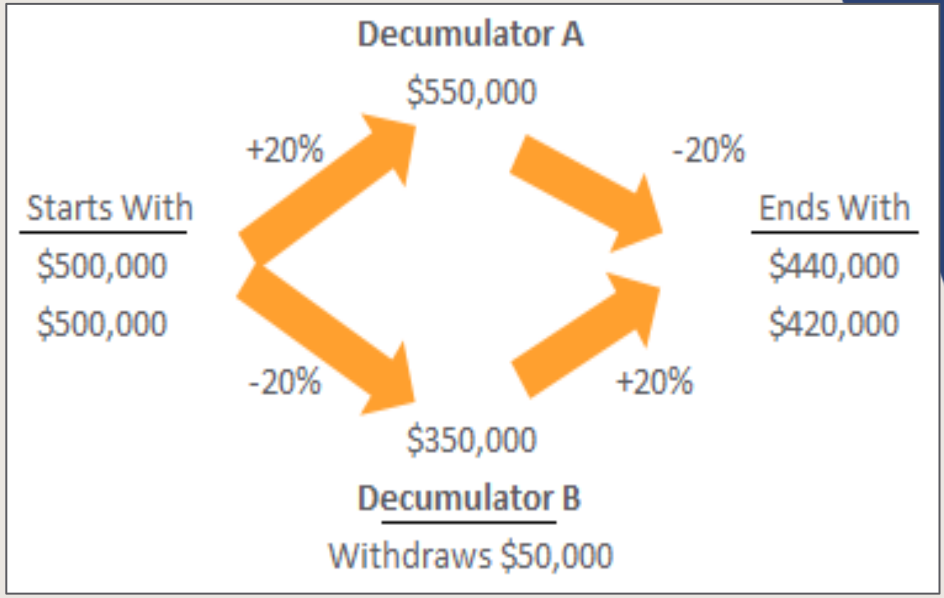
4.91	6.56	8.06	9.33	10.19	10.86	Annualized Return (%) 1985 - 2022
−3.14 (10/21–09/22)	−11.46 (03/08–02/09)	−20.76 (03/08–02/09)	−31.32 (03/08–02/09)	−40.22 (03/08–02/09)	−47.42 (03/08–02/09)	Lowest One Year Return (%)

Source of data: DFA Matrix Book 2023

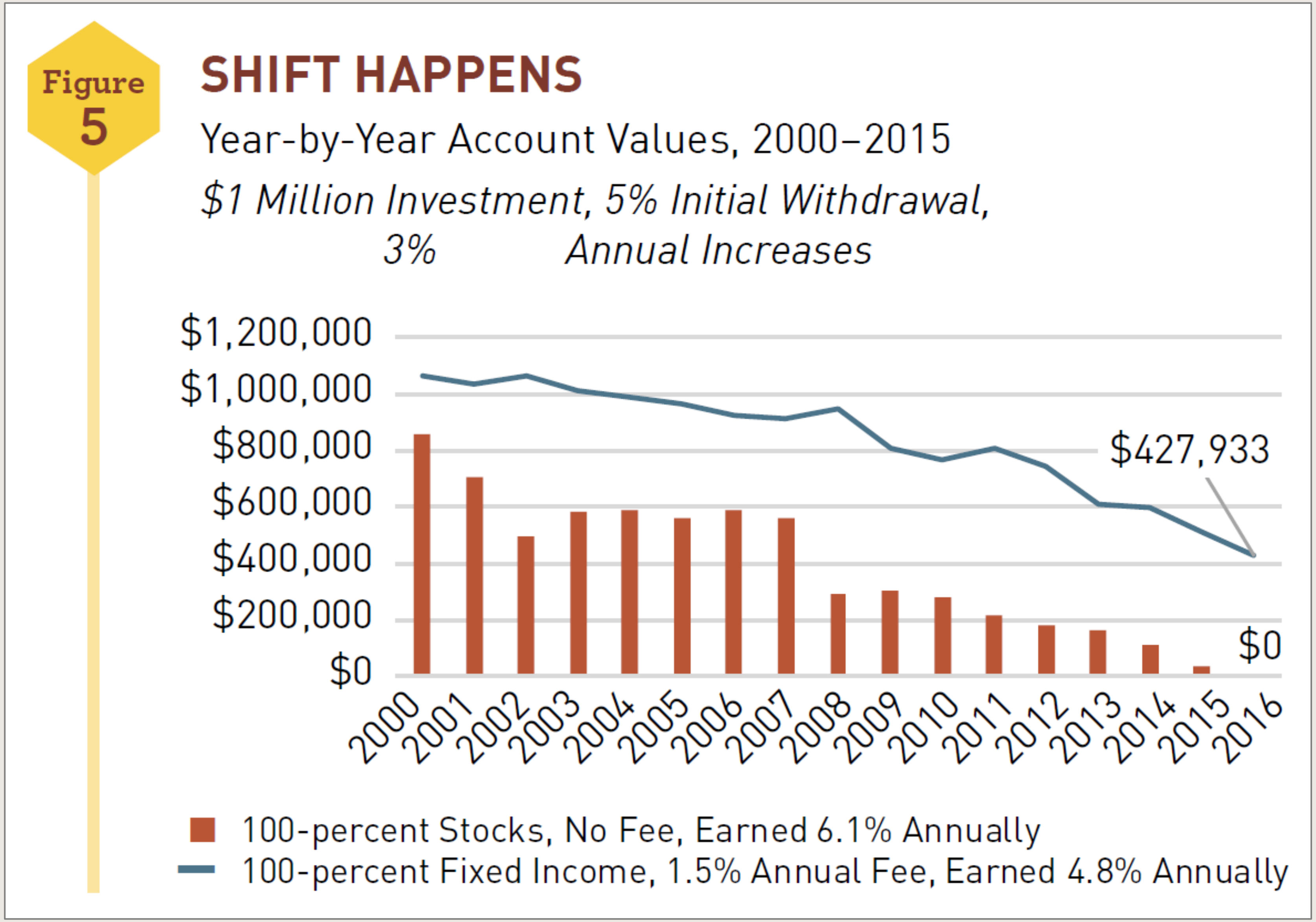
The John C. Bogle Center for Financial Literacy

Accumulation vs. Decumulation





The John C. Bogle
Center for Financial Literacy



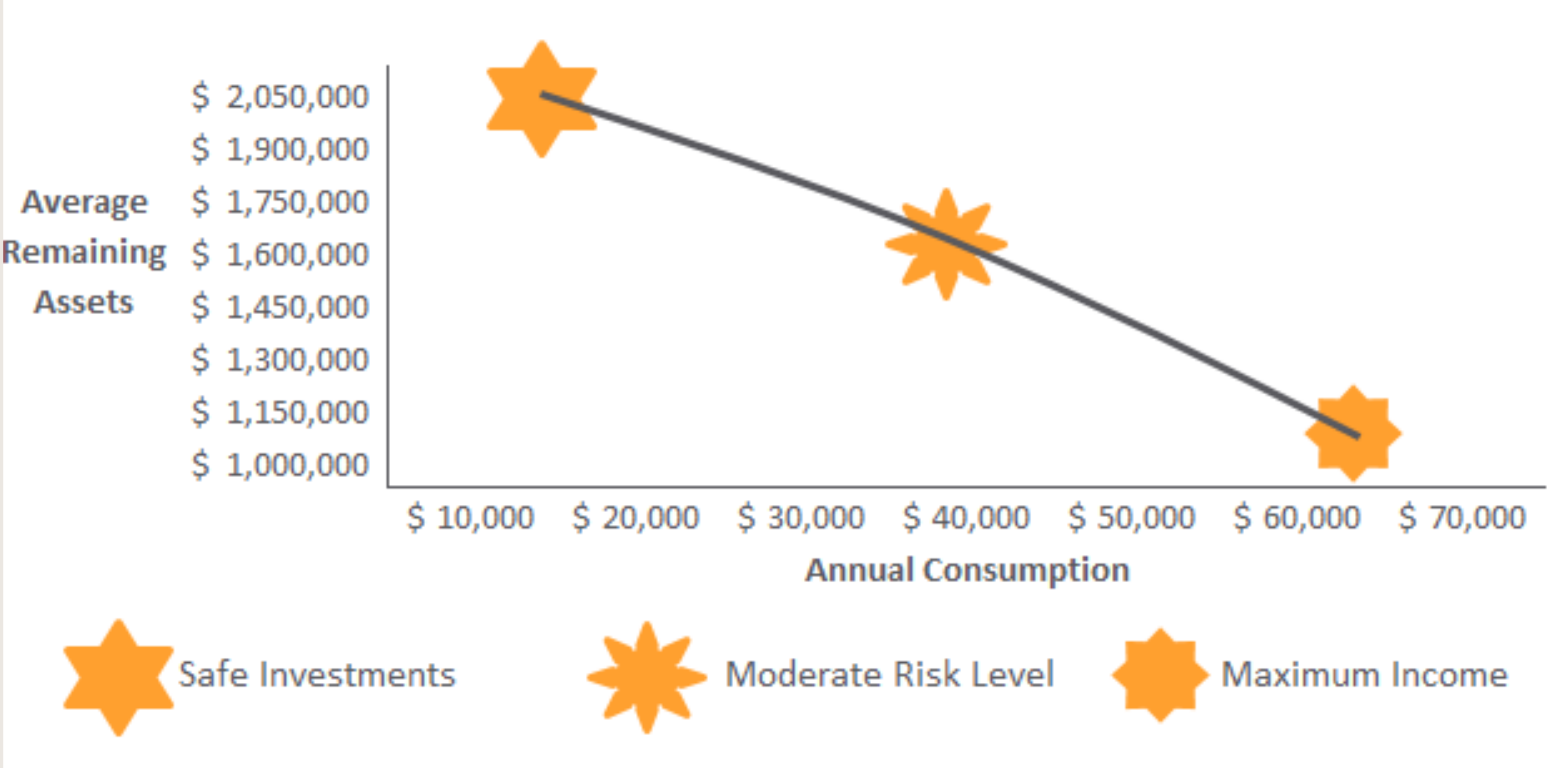
"Trying to solve retirement income using rules for accumulating wealth is dangerous. Expected returns… are not predictors of success for retirees, even if they are higher returns. Volatility… is not a predictor of success. When distributing wealth, trying to beat a long-term average such as the S&P Index or the inflation rate is an irrelevant distraction you should avoid, yet I have never seen the media make that distinction."

Sandidge goes on to say, "Negative returns that happen early in retirement are particularly pernicious. Although beating a long-term average is irrelevant post-retirement, beating the index in negative return years is very important."

Quotes from: Chaos and Retirement Income by Jim Sandidge, 2019

The John C. Bogle Center for Financial Literacy

The Retirement Income Frontier



The Retirement Income Frontier

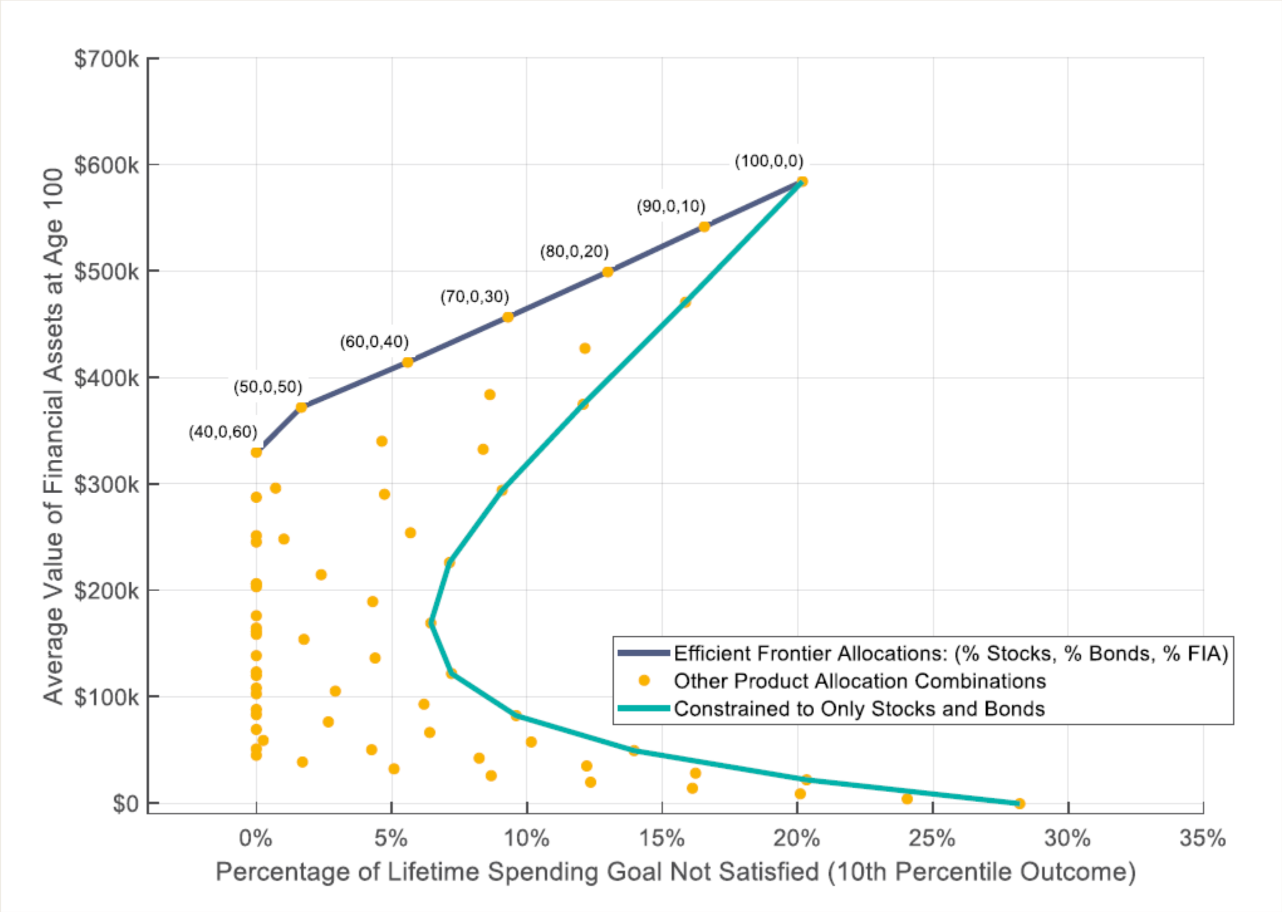


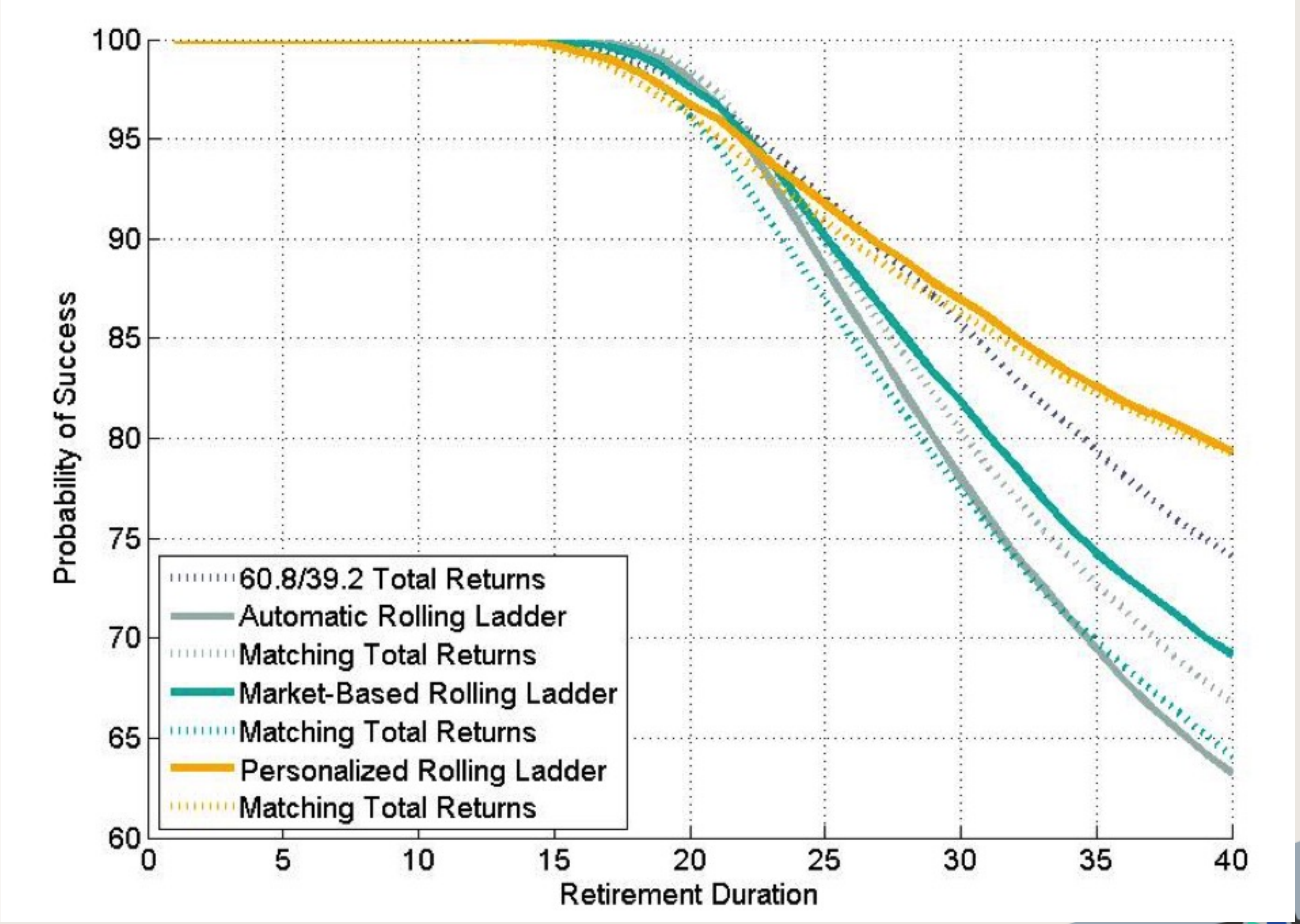
EXHIBIT 7. *Efficient Frontier for Retirement Income*

Source: Retirement Income Institute, June 2023, *Protection as an Asset Class*, by Wade D. Pfau

The John C. Bogle
Center for Financial Literacy

Rolling Ladder Research

(Wade Pfau research)



Source: https://www.advisorperspectives.com/articles/2017/04/03/is-time-segmentation-a-superior-strategy

The John C. Bogle Center for Financial Literacy

Keys to Great Outcomes:

PLANNING
&
PORTFOLIO METHODOLOGY

Plan Cash Flow by Account

						BOY Account Values							
						$962,026	$969,279	$133,393	$117,291	$460,606	$2,642,595		
		A. Non-Investment Income			+	**B . Withdrawals**					-	**C.** =	**D.**
# of Yrs.	**Year**	**Earned Income**	**Social Security**	**Pension & Annuity**	**Total**	**Sam IRA**	**Sally IRA**	**Sam Roth**	**Sally Roth**	**Non-Retirement**	**Total**	**Unspent Withdrawals /Savings**	**Total Cash Flow Available For**
1	2023	$0	$0	$0	**$0**	$0	$0	$0	$0	$153,499	**$153,499**		**$153,499**
2	2024	$0	$0	$0	**$0**	$0	$0	$0	$0	$213,806	**$213,806**	$0	**$213,806**
3	2025	$0	$27,573	$0	**$27,573**	$0	$50,000	$0	$0	$89,686	**$139,686**	$0	**$167,259**
4	2026	$0	$48,216	$0	**$48,216**	$100,000	$50,000	$0	$0	$4,078	**$154,078**	$0	**$202,294**
5	2027	$0	$49,180	$0	**$49,180**	$100,000	$50,000	$0	$0	$1,742	**$151,742**	$0	**$200,923**
6	2028	$0	$50,164	$0	**$50,164**	$100,000	$29,599	$0	$0	$17,131	**$146,730**	$0	**$196,894**
7	2029	$0	$51,167	$0	**$51,167**	$100,000	$31,079	$0	$0	$19,617	**$150,695**	$0	**$201,863**
8	2030	$0	$61,425	$0	**$61,425**	$100,000	$32,500	$0	$0	$15,479	**$147,979**	$0	**$209,403**
9	2031	$0	$109,742	$0	**$109,742**	$95,000	$33,981	$0	$50,000	$0	**$178,981**	$873	**$287,850**
10	2032	$0	$111,937	$0	**$111,937**	$72,000	$35,368	$0	$0	$0	**$107,368**	$1,200	**$218,105**
11	2033	$0	$114,176	$0	**$114,176**	$71,000	$36,968	$0	$0	$454	**$108,422**	$0	**$222,598**
12	2034	$0	$116,459	$0	**$116,459**	$71,000	$38,632	$0	$0	$1,455	**$111,088**	$0	**$227,547**
13	2035	$0	$118,789	$0	**$118,789**	$75,000	$40,363	$0	$0	$0	**$115,363**	$256	**$233,896**
14	2036	$0	$121,164	$0	**$121,164**	$100,430	$41,944	$0	$60,000	$1,378	**$203,752**	$0	**$324,917**
15	2037	$0	$123,588	$0	**$123,588**	$73,266	$43,804	$0	$0	$0	**$117,069**	$1,650	**$239,007**
16	2038	$0	$126,059	$0	**$126,059**	$76,923	$45,474	$0	$0	$0	**$122,397**	$2,760	**$245,697**
17	2039	$0	$128,581	$0	**$128,581**	$75,290	$47,464	$0	$0	$0	**$122,753**	$325	**$251,009**
18	2040	$0	$131,152	$0	**$131,152**	$63,466	$49,214	$0	$10,000	$0	**$122,680**	$600	**$253,232**
19	2041	$0	$133,775	$0	**$133,775**	$61,955	$50,995	$0	$15,000	$0	**$127,949**	$2,874	**$258,850**
20	2042	$0	$136,451	$0	**$136,451**	$55,183	$52,801	$0	$20,000	$0	**$127,984**	$1,401	**$263,033**

The John C. Bogle
Center for Financial Literacy

Customize Assumptions

		D.	E. Expenses & Taxes								Monthly	Accounts
# of Yrs.	Year	Total Cash Flow Available For	Housing	Living Expenses	Other Expenses	Discretionary	Medical	Big Ticket Purchases	Taxes	Total Outgoing Cash	After Tax / Big Ticket	Remaining total financial assets after withdrawing B
1	2023	$153,499	$8,747	$80,402	$7,838	$20,000	$22,343	$0	$14,169	$153,499	$11,611	$2,689,485
2	2024	$213,806	$9,009	$82,814	$8,073	$20,000	$26,202	$53,045	$14,662	$213,806	$12,175	$2,608,106
3	2025	$167,259	$9,279	$85,298	$8,316	$20,000	$28,436	$0	$15,930	$167,259	$12,611	$2,594,237
4	2026	$202,294	$9,558	$87,857	$8,565	$20,000	$32,712	$0	$43,602	$202,294	$13,224	$2,560,240
5	2027	$200,923	$9,845	$90,493	$8,822	$20,000	$28,278	$0	$43,486	$200,923	$13,120	$2,526,837
6	2028	$196,894	$10,140	$93,208	$9,087	$20,000	$29,539	$0	$34,920	$196,894	$13,498	$2,497,752
7	2029	$201,863	$10,444	$96,004	$9,359	$20,000	$30,864	$0	$35,191	$201,863	$13,889	$2,463,130
8	2030	$209,403	$10,757	$98,884	$9,640	$20,000	$32,255	$0	$37,867	$209,403	$14,295	$2,429,376
9	2031	$287,850	$11,080	$101,851	$9,929	$15,000	$33,715	$67,196	$49,079	$287,850	$14,298	$2,361,436
10	2032	$218,105	$11,302	$103,888	$10,128	$15,000	$35,248	$0	$42,540	$218,105	$14,630	$2,365,572
11	2033	$222,598	$11,528	$105,965	$10,330	$15,000	$36,858	$0	$42,916	$222,598	$14,973	$2,367,583
12	2034	$227,547	$11,758	$108,085	$10,537	$15,000	$38,549	$0	$43,618	$227,547	$15,327	$2,366,897
13	2035	$233,896	$11,993	$110,246	$10,748	$15,000	$40,324	$0	$45,584	$233,896	$15,693	$2,361,820
14	2036	$324,917	$12,233	$112,451	$10,963	$15,000	$42,188	$77,898	$54,183	$324,917	$16,070	$2,263,443
15	2037	$239,007	$12,478	$114,700	$11,182	$10,000	$44,145	$0	$46,502	$239,007	$16,042	$2,252,694
16	2038	$245,697	$12,728	$116,994	$11,406	$10,000	$46,200	$0	$48,370	$245,697	$16,444	$2,236,869
17	2039	$251,009	$12,982	$119,334	$11,634	$10,000	$48,358	$0	$48,701	$251,009	$16,859	$2,217,390
18	2040	$253,232	$13,242	$121,721	$11,866	$10,000	$50,623	$0	$45,780	$253,232	$17,288	$2,197,235
19	2041	$258,850	$13,507	$124,155	$12,104	$10,000	$53,002	$0	$46,083	$258,850	$17,731	$2,172,757
20	2042	$263,033	$13,777	$126,638	$12,346	$10,000	$55,500	$0	$44,773	$263,033	$18,188	$2,145,488

Next, what portfolio methodology do you apply to maximize your odds of generating this stream of cash flows?

BOY Account Values

$962,026	$969,279	$133,393	$117,291	$460,606	$2,642,595

B . Withdrawals

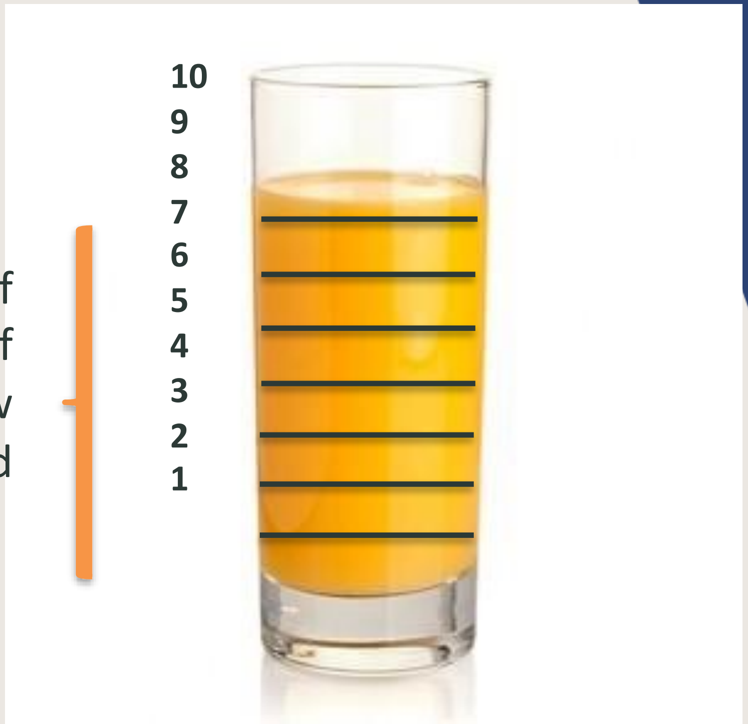
Sam IRA	Sally IRA	Sam Roth	Sally Roth	Non-Retirement	Total
$0	$0	$0	$0	$153,499	**$153,499**
$0	$0	$0	$0	$213,806	**$213,806**
$0	$50,000	$0	$0	$89,686	**$139,686**
$100,000	$50,000	$0	$0	$4,078	**$154,078**
$100,000	$50,000	$0	$0	$1,742	**$151,742**
$100,000	$29,599	$0	$0	$17,131	**$146,730**
$100,000	$31,079	$0	$0	$19,617	**$150,695**
$100,000	$32,500	$0	$0	$15,479	**$147,979**
$95,000	$33,981	$0	$50,000	$0	**$178,981**
$72,000	$35,368	$0	$0	$0	**$107,368**
$71,000	$36,968	$0	$0	$454	**$108,422**
$71,000	$38,632	$0	$0	$1,455	**$111,088**
$75,000	$40,363	$0	$0	$0	**$115,363**
$100,430	$41,944	$0	$60,000	$1,378	**$203,752**
$73,266	$43,804	$0	$0	$0	**$117,069**
$76,923	$45,474	$0	$0	$0	**$122,397**
$75,290	$47,464	$0	$0	$0	**$122,753**
$63,466	$49,214	$0	$10,000	$0	**$122,680**
$61,955	$50,995	$0	$15,000	$0	**$127,949**
$55,183	$52,801	$0	$20,000	$0	**$127,984**

The John C. Bogle Center for Financial Literacy

Build an Income Ladder

Growth

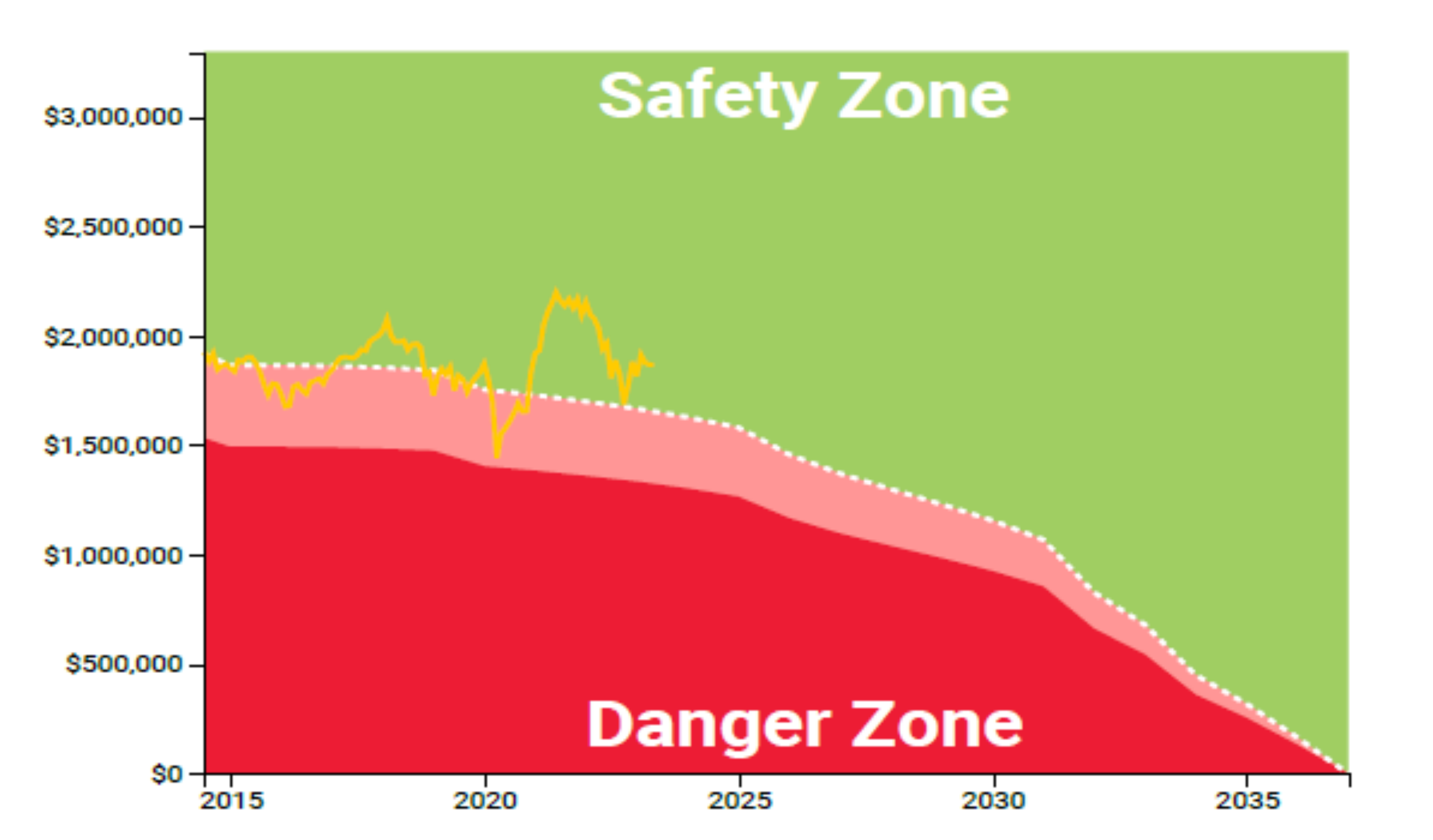
of
years of
cash flow
covered



Predictable Cash-Flow

The John C. Bogle
Center for Financial Literacy

Using a Critical Path to Extend



Sample Critical Path® from Asset Dedication

The John C. Bogle
Center for Financial Literacy

Goal-oriented Equity Portfolios

Maximize minimum gain
(Risk = worst return scenario)

Maximize Returns
(ignore risk)

Maximize Sharpe Ratio
(Return/Risk)

The John C. Bogle
Center for Financial Literacy

Four Strategies Compared

- Strategy 1: Pure S&P 500 Index (benchmark)
- Strategy 2: Maximize Expected Return
  - ignores risk
- Strategy 3: Maximize Sharpe Ratio
  - Return/Risk
- Strategy 4: Minimax
  - Minimize maximum loss (or maximize minimum gain)
  - Risk = worst return scenario

For Strategies 2, 3, and 4, mathematical programming was used to optimize the strategies to determine the following for each of the forty time horizons (120 optimizations total):

- What investments were needed in what allocations
- What was the return
- What was the volatility
- What was the worst return

Results from the article "Equity Yield Curves, Time Segmentation and Portfolio Optimization Strategies," Journal of Financial Planning (a peer-reviewed journal) by Burns, Fletcher, and Huxley, 2016.

The John C. Bogle
Center for Financial Literacy

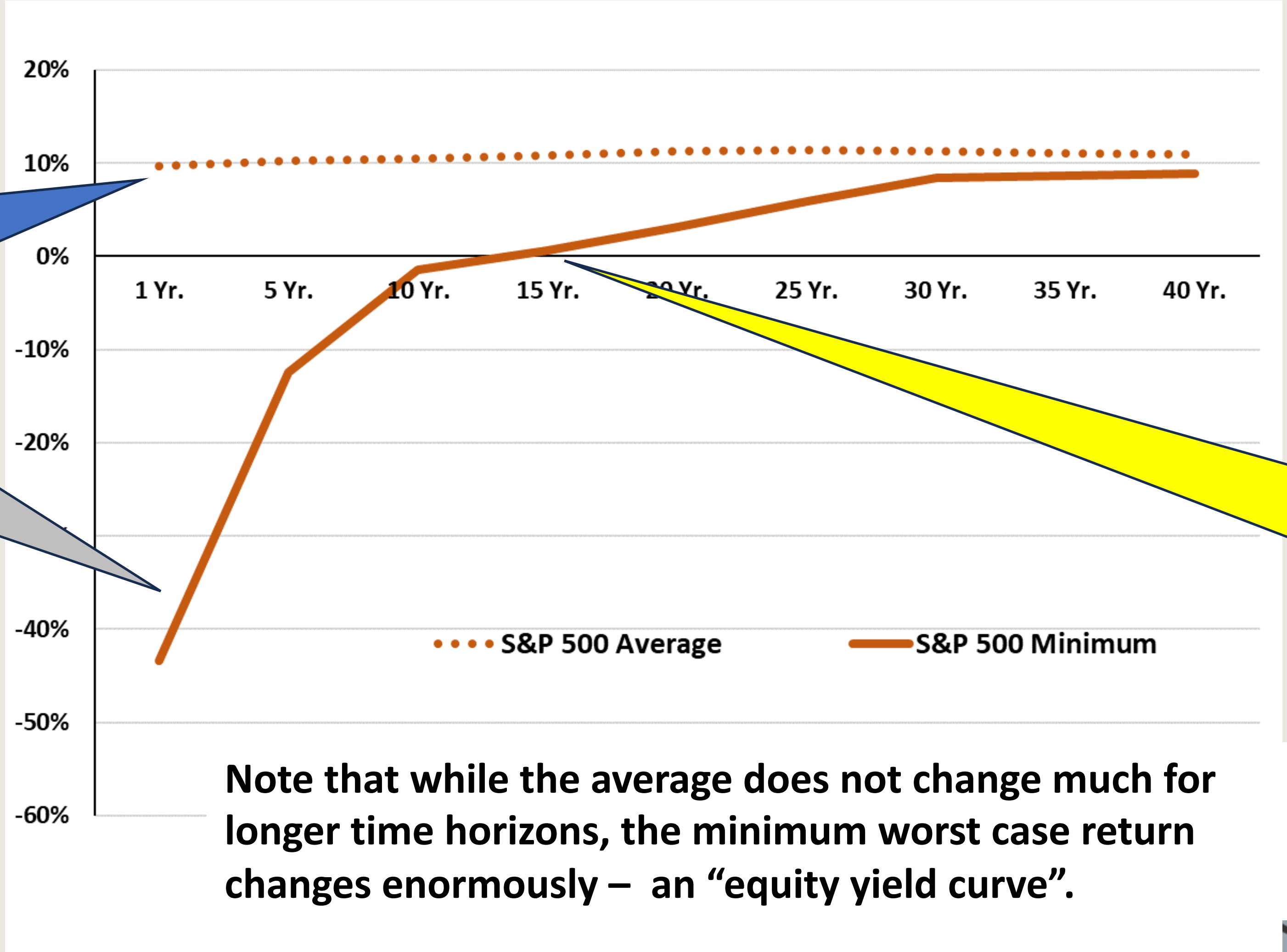
Investments Included: 16 categories

- All data downloaded from Kenneth French data library
- Categories included (all U.S.):
  - S&P 500, CRSP 1-2 Growth, CRSP 1-2 Neutral, CRSP 1-2 Value, CRSP 3-5 All Midcap, CRSP 3-5 Midcap Growth, CRSP 3-5 Midcap Neutral, CRSP 3-5 Midcap Value, CRSP 6-8 All Small Cap, CRSP 6-8 Small Cap Growth, CRSP 6-8 Small Cap Neutral, CRSP 6-8 Small Cap Value, CRSP 9-10 All Microcap, CRSP 1-10 Total Market, Commodities (based on CRB Index), Real Estate (based on FTSE NAREIT Composite Index).
- Mathematical optimization was applied for each strategy using CRSP data 1928 – 2015 (88 years).
  - Adding a few more data points to 2022 would not likely change the conclusions

Strategy 1: S&P 500 Index

Average return over various time horizons 1-40 years

Worst return over various time horizons 1-40 years



Note: 15 years required for worst case return rises above 0

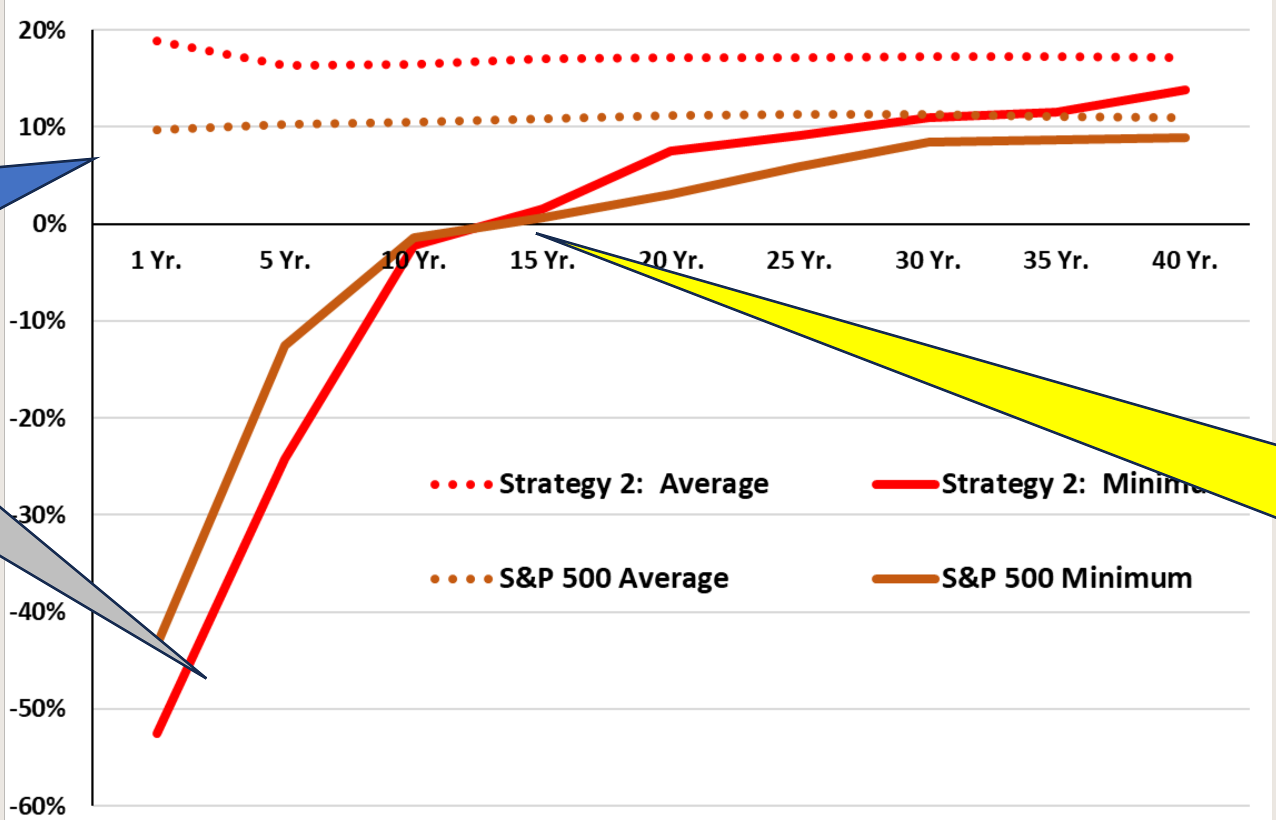
Note that while the average does not change much for longer time horizons, the minimum worst case return changes enormously – an "equity yield curve".

The John C. Bogle Center for Financial Literacy

Strategy 1: S&P 500 Index
Strategy 2: Maximize Expected Return

Average returns over various time horizons 1-40 years

Worst returns over various time horizons 1-40 years



Note higher average but worse minimum returns, depending on time horizons!

Note: 15 years again required for worst case return rises above 0

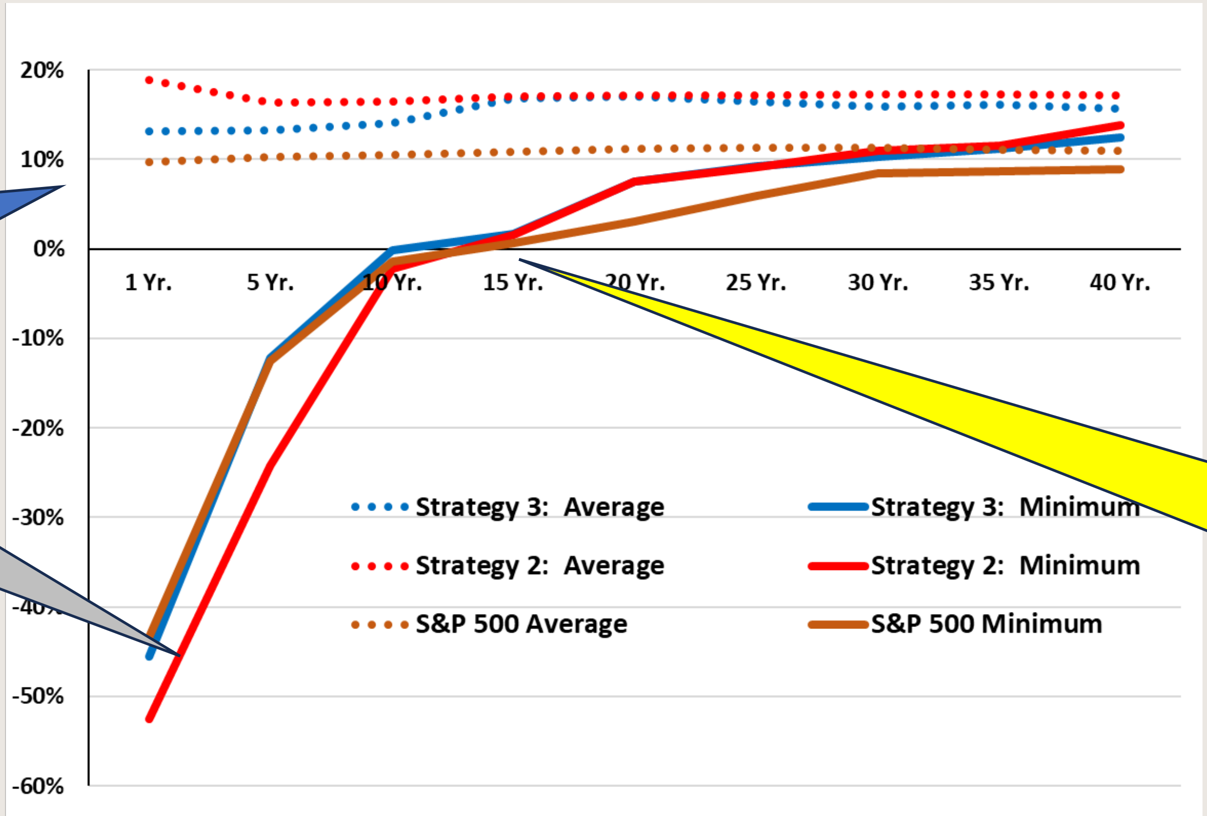
The John C. Bogle
Center for Financial Literacy

Strategy 1: S&P 500 Index
Strategy 2: Maximize Expected Return

Strategy 3: Maximize Sharpe Ratio

Average returns over various time horizons 1-40 years

Worst returns over various time horizons 1-40 years



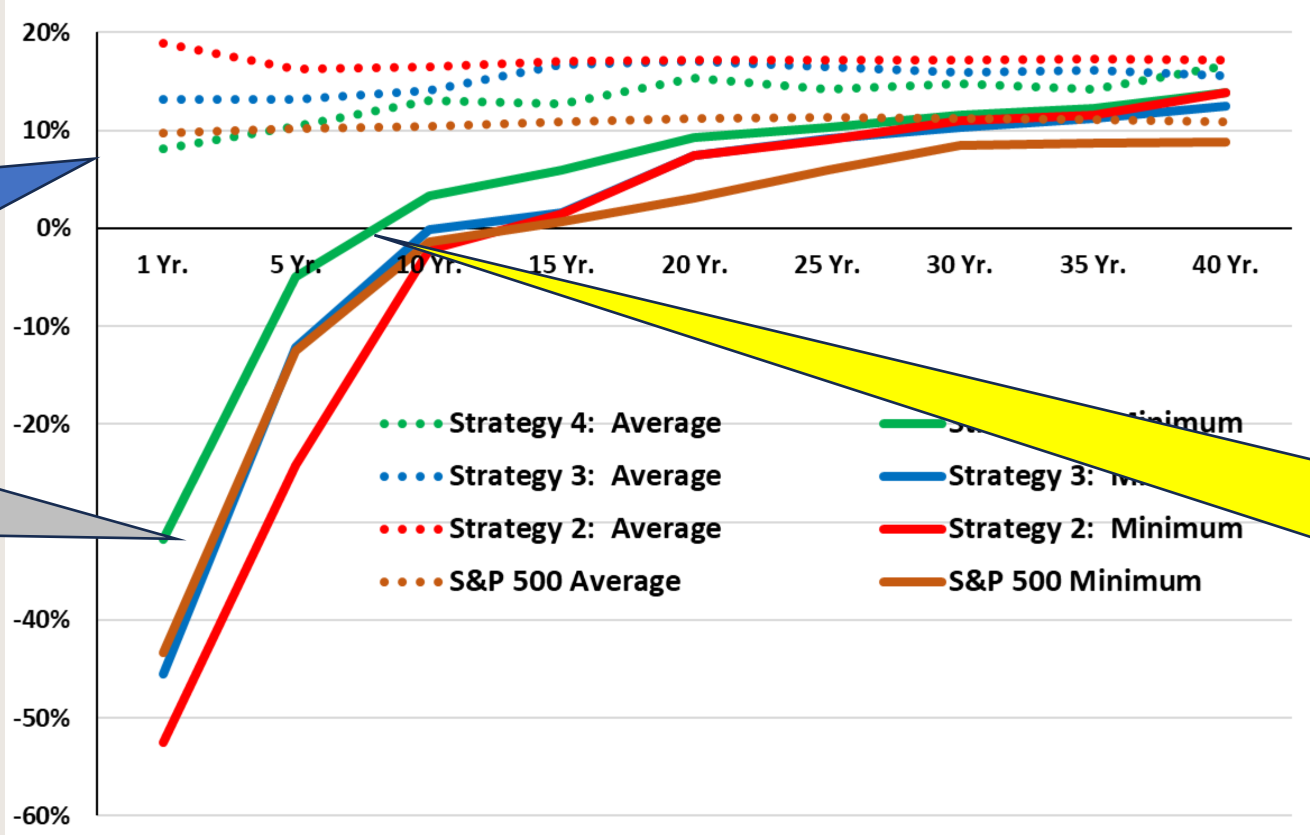
Note: 15 years again required for worst case return rises above 0

Note compromises – middle average returns, matches S&P minimum returns for shorter time horizons, Strategy 2 for longer horizons

Strategy 1: S&P 500 Index
Strategy 2: Maximize Expected Return
Strategy 3: Maximize Sharpe Ratio
Strategy 4: Minimax

Average returns over various time horizons 1-40 years

Worst returns over various time horizons 1-40 years



Note slightly lower average but higher minimums

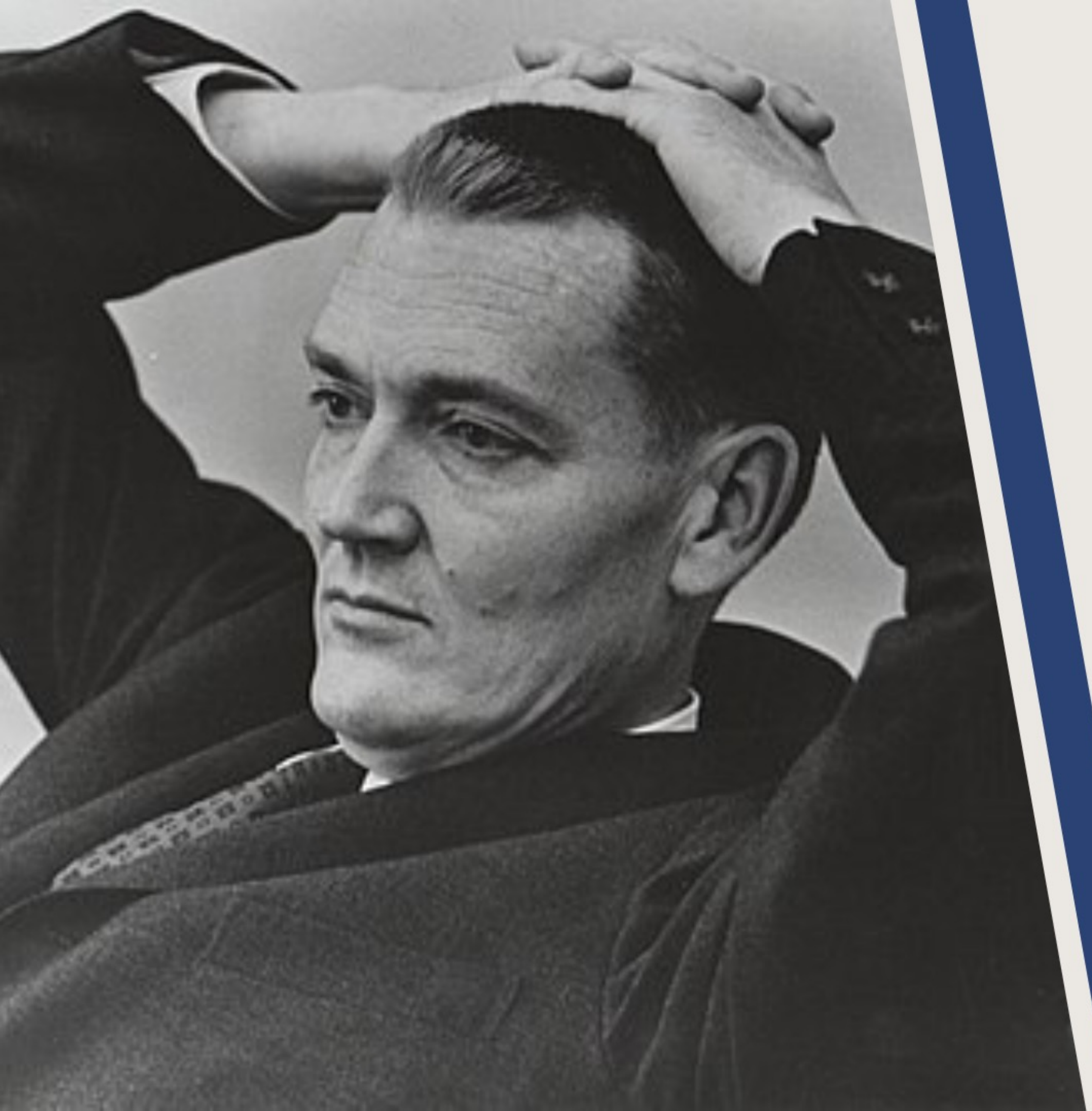
Note: 6 years required for worst case return to rise above 0

The John C. Bogle Center for Financial Literacy

Conclusion – Key Ideas

- Decide what the goal is.
- Use planning and portfolio strategies that help achieve the goal.
- Evaluate income ladders and annuities as to their ability to help achieve the goal.
- Evaluate portfolios relative to the goal, not by comparing returns of one to another.

The John C. Bogle
Center for Financial Literacy



3
Roth conversions and tax-efficient withdrawals in retirement

Wade Pfau

The John C. Bogle
Center for Financial Literacy

Tax-efficiency can have a significant impact on portfolio **longevity**

Why?

- Maneuvering the Progressive Tax System
- Pay taxes when rates are low, avoid taxes when rates are high
- Tax code is filled with non-linearities and traps
- Marginal tax rates (additional tax paid on last dollar of income) can be higher than income tax rates
- There are many different types of tax treatment in the tax code that need to be coordinated

Non-linearities in the tax code

- Many tax rules connect to AGI, not taxable income
- Itemized deductions only count when higher than standard deduction
- Preferential income sources (long-term capital gains and qualified dividends) stack on top of other income and have different tax rates
- A dollar of income can trigger tax on Social Security benefits
- A dollar of income can trigger higher Medicare premiums
- A dollar of income can trigger loss of Affordable Care Act health insurance subsidies
- The 3.8% net investment income tax
- Required minimum distributions can push into a higher tax bracket

Income for Tax Purposes

Total Income
- Above the line deductions

Adjusted Gross Income

Adjusted Gross Income
- Deductions

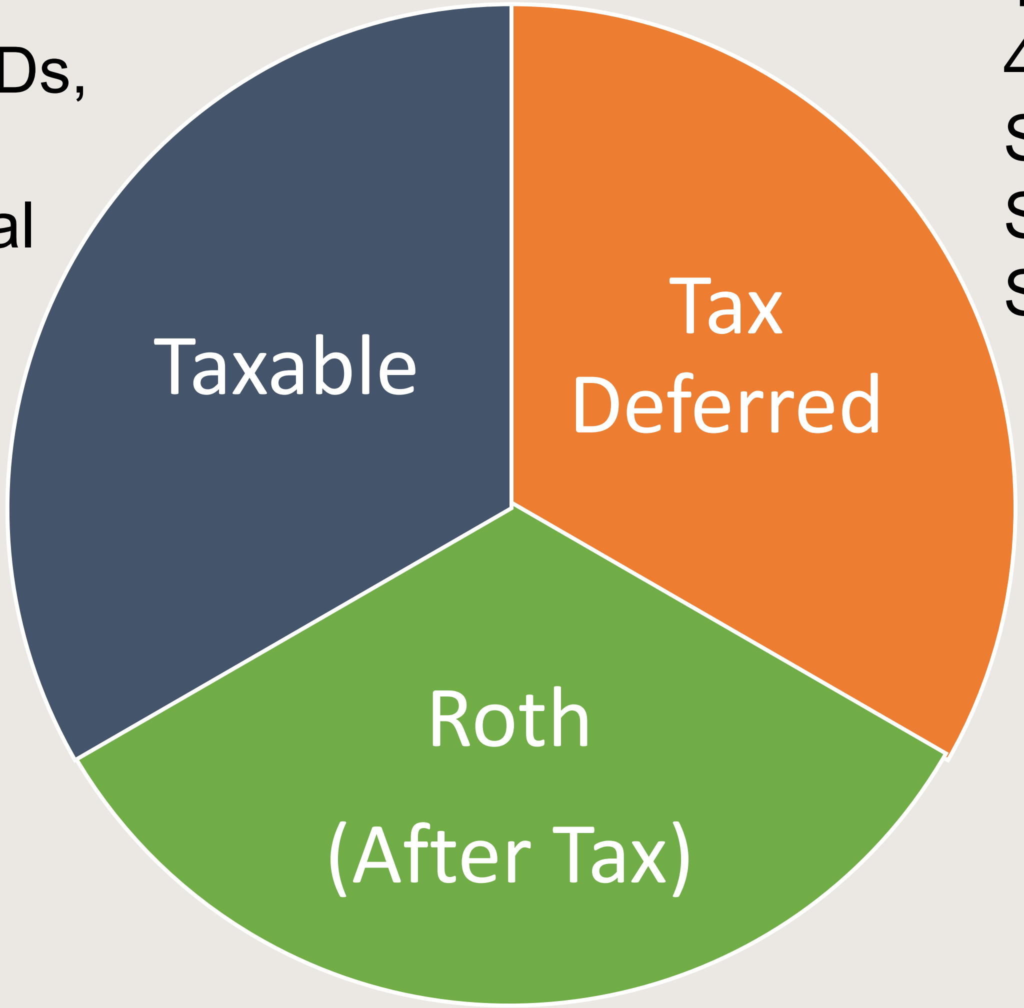
Taxable Income

The John C. Bogle
Center for Financial Literacy

Where to Save

Tax Diversification

Savings Accounts, CDs, Brokerage Firms, Mutual Fund & ETF Families



Traditional IRA,
401(k),
Solo 401(k),
SEP IRA,
SIMPLE IRA

Roth IRA, Roth 401(k)

The John C. Bogle Center for Financial Literacy

Tax-Efficient
Retirement Distribution Strategies

The John C. Bogle
Center for Financial Literacy

Conventional Wisdom Withdrawal-Order Sequencing:

- Taxable
- Tax-Deferred
- Tax Exempt

Effective Marginal Tax Rate Management – A Better Approach

- Aim to pay taxes at the lowest possible rates
- Fill up lower tax brackets with taxable income, then draw from elsewhere to stay out of higher brackets
- Avoid being pushed into higher tax brackets later through RMDs
- Short-term sacrifice can create long-term benefits
- Biggest impacts (2023):
  - 12% to 22%: $44,725 singles, $89,450 joint filers
  - 0% to 15% for preferential income: $44,625 singles, $89,250 joint filers

Increases Taxable Income	Income with Preferable Tax Rates	Spending Sources -- Not Taxable Income
Wages and earnings	Qualified dividends	Cost-basis of taxable investments (i.e. principal)
Qualified retirement plan distributions (IRAs)	Long-term Capital Gains	Roth IRA distributions
Short-term capital gains		Portion of nonqualified annuities
Interest		Portion of Social Security benefits
Dividends (nonqualified)		Health savings accounts (qualified)
Portion of nonqualified annuities		Reverse Mortgage proceeds
Portion of Social Security benefits		Cash value of life insurance (cost basis or loan proceeds)
Pensions		
Rental or other passive income		

For illustration purposes only

The John C. Bogle
Center for Financial Literacy

Roth Conversions

- IRA Distribution (Above RMDs) to Roth IRA
- Ideally, taxes paid from elsewhere
- Window of opportunity in 60s if already retired
- Might do in large-deduction years to offset deduction
- Can also move more shares during downturns

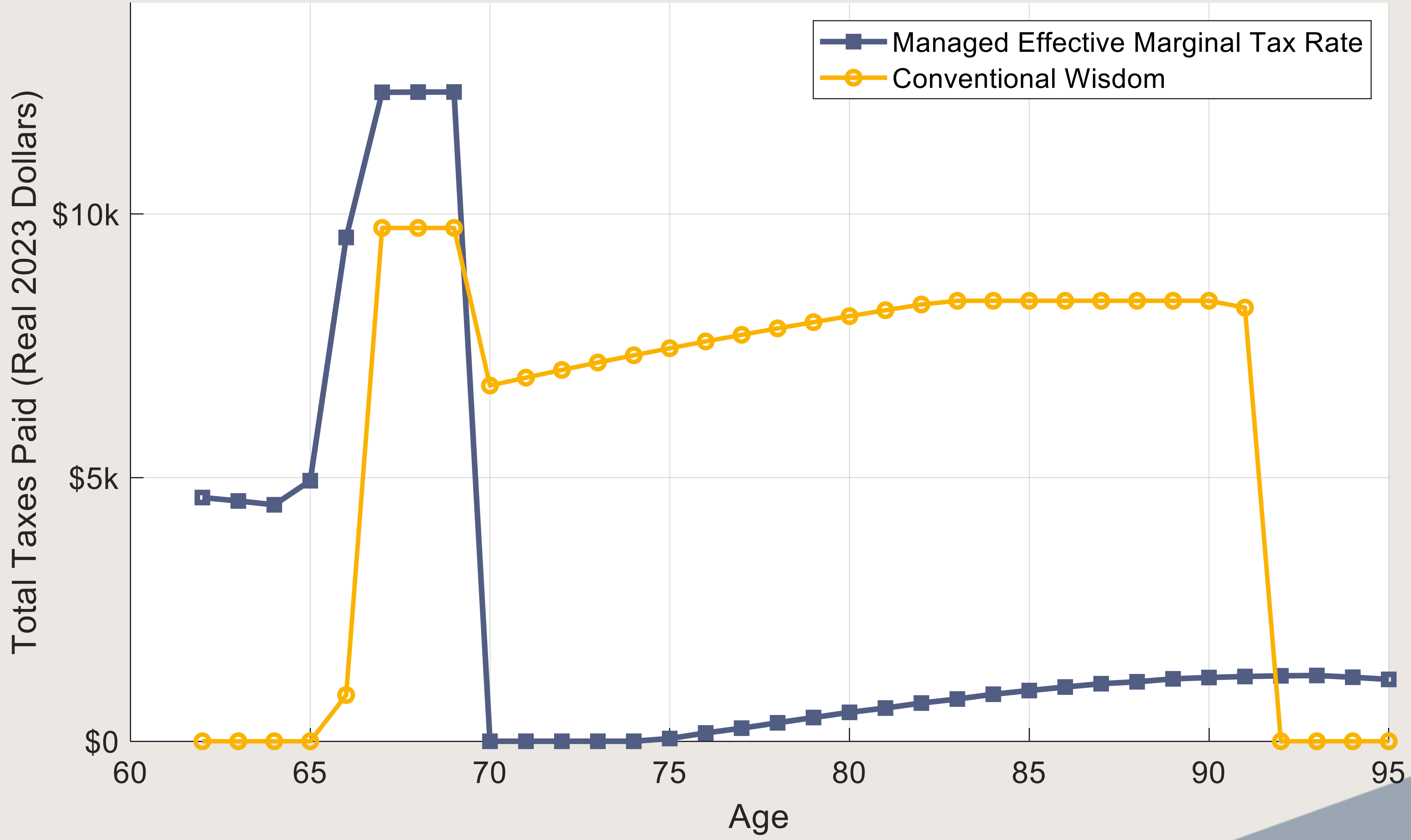
The John C. Bogle
Center for Financial Literacy

Reasons to Frontload Taxes

- Public policy unknowns and risk of tax increases
- Tax implications after death of a spouse: taxes can increase as one becomes single filer again
- Prepare in advance to reduce RMD impacts
- SECURE Act: 10-year window for adult beneficiaries may push to higher tax brackets for inherited IRAs

The John C. Bogle
Center for Financial Literacy

62-Year Old Retired Couple Front-Loads Taxes with Roth Conversions Until Social Security at 70



After-tax Legacy at age 95
(in real 2023 $)

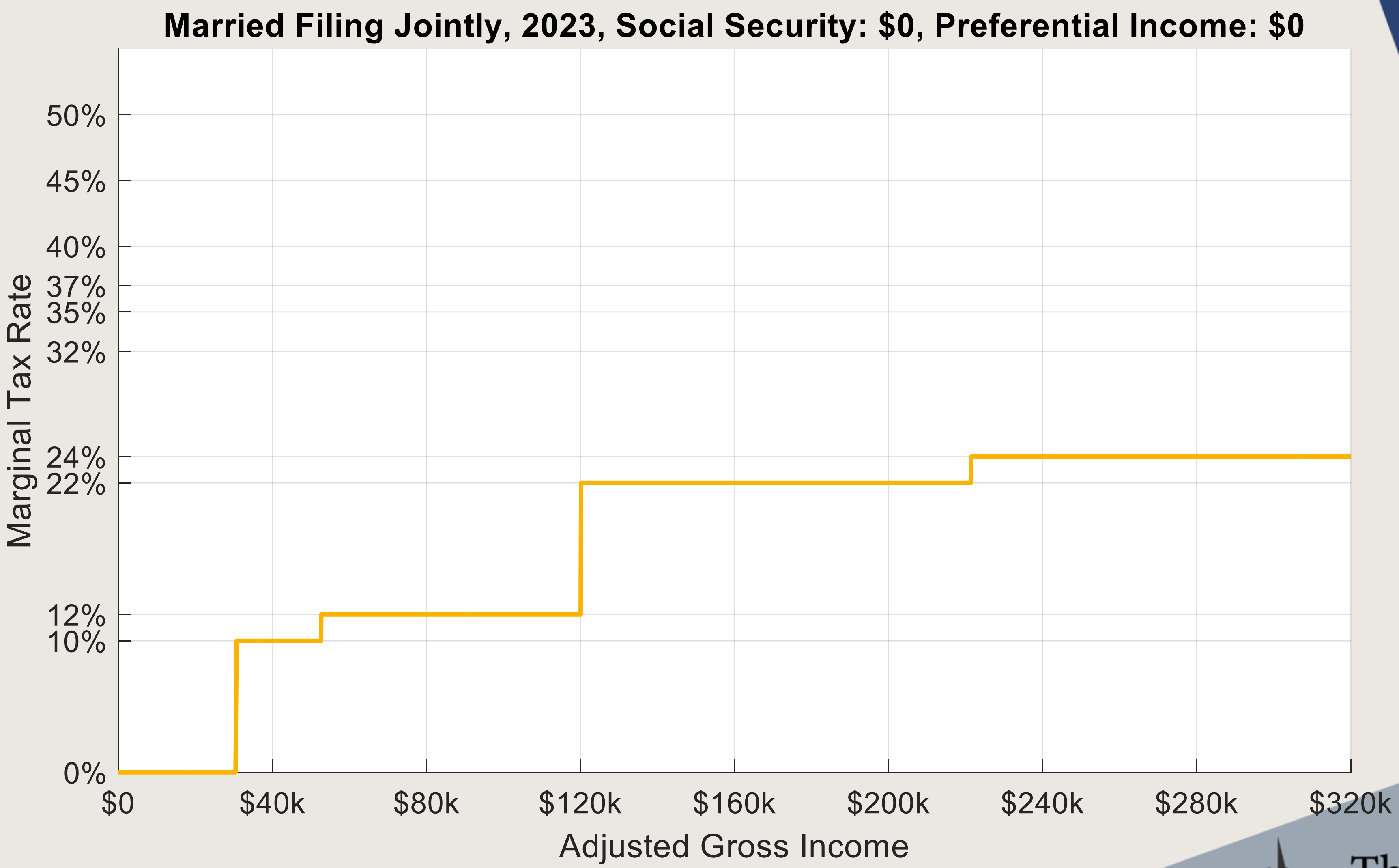
Conventional Wisdom:
$37,474

Keep under 22%/25% to age 70,
Then Keep Under 15%:
$159,660

The John C. Bogle Center for Financial Literacy

Pitfalls to Monitor When Generating Taxable Income

Federal Income Tax Brackets



The John C. Bogle Center for Financial Literacy

Important Issues

Increasing taxable income can also generate more taxes besides income tax rates

- ❑ Pushing Preferential Income into Higher Tax Brackets
- ❑ Social Security Tax Torpedo
- ❑ Increased Medicare Part B and Part D Premiums

- ❑ Affordable Care Act Subsidies for Health Insurance

Federal tax rates – 2023 taxable income
Qualified dividends & long-term capital gains

Tax Rate for Taxable Income Over:		
Tax Rate	**Single Individuals**	**Married Filing Jointly**
0%	$0	$0
15%	$44,625	$89,250
20%	$492,300	$553,850
Additional Net Investment Income Tax		
3.8%	MAGI above $200,000	MAGI above $250,000

The John C. Bogle
Center for Financial Literacy

Pushing Preferential Income into Higher Tax Brackets

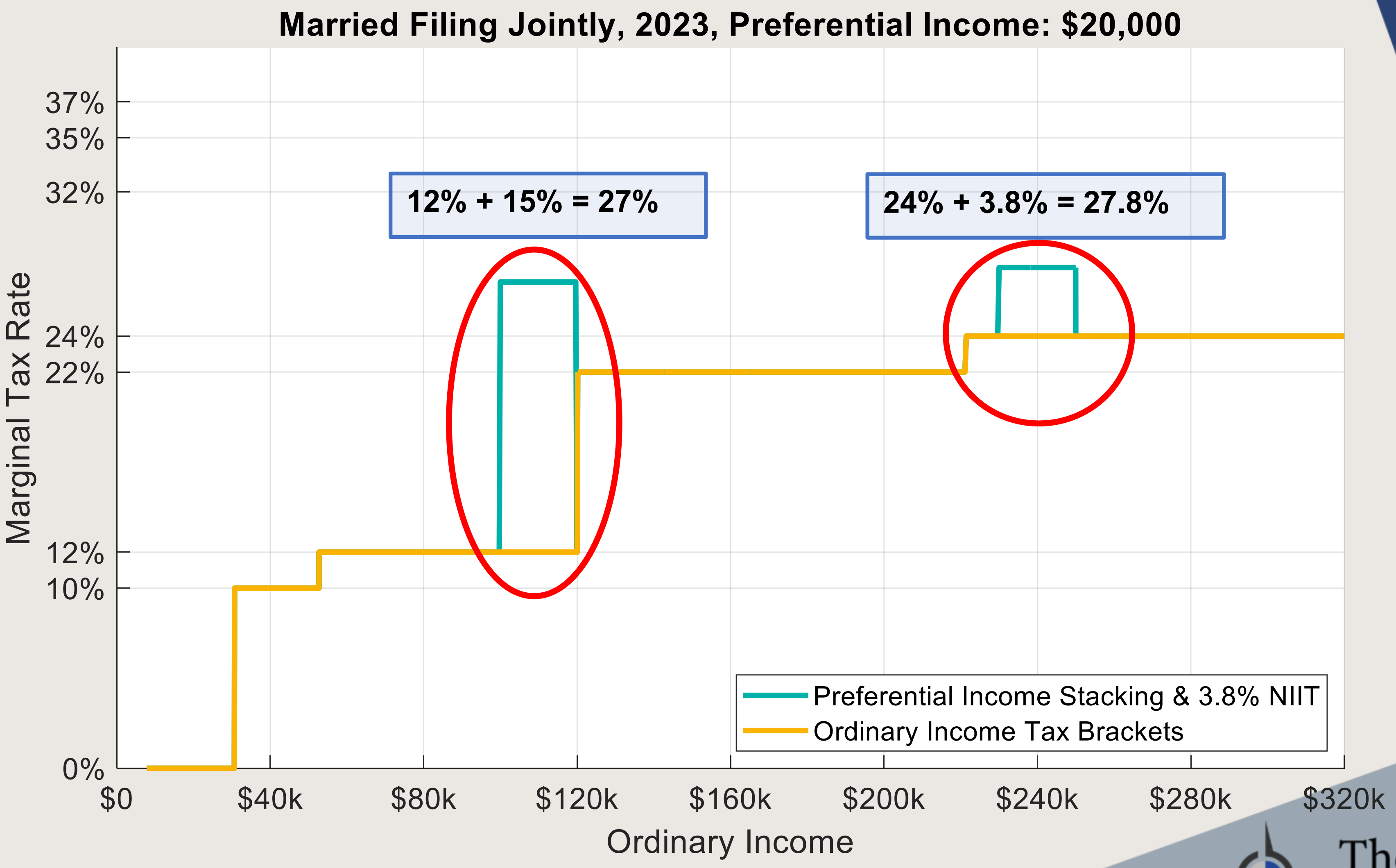
- Preferential income (LTCG & qualified dividends) stacks on top of other taxable income

- Example: Single; Taxable income=$44,625 ($40,625 ordinary income, $4,000 LTCG)

- $40,625: 12% bracket; $4,000: $2k at 0%, $2k at 15%
- Add $1: $40,626 ordinary (<u>12%</u> on $1) + $1,999 at 0% and $2,001 at 15% (<u>15%</u> on $1) = **<u>27%</u>** marginal rate

The John C. Bogle Center for Financial Literacy

Preferential Income Stacking & Net Investment Income Tax



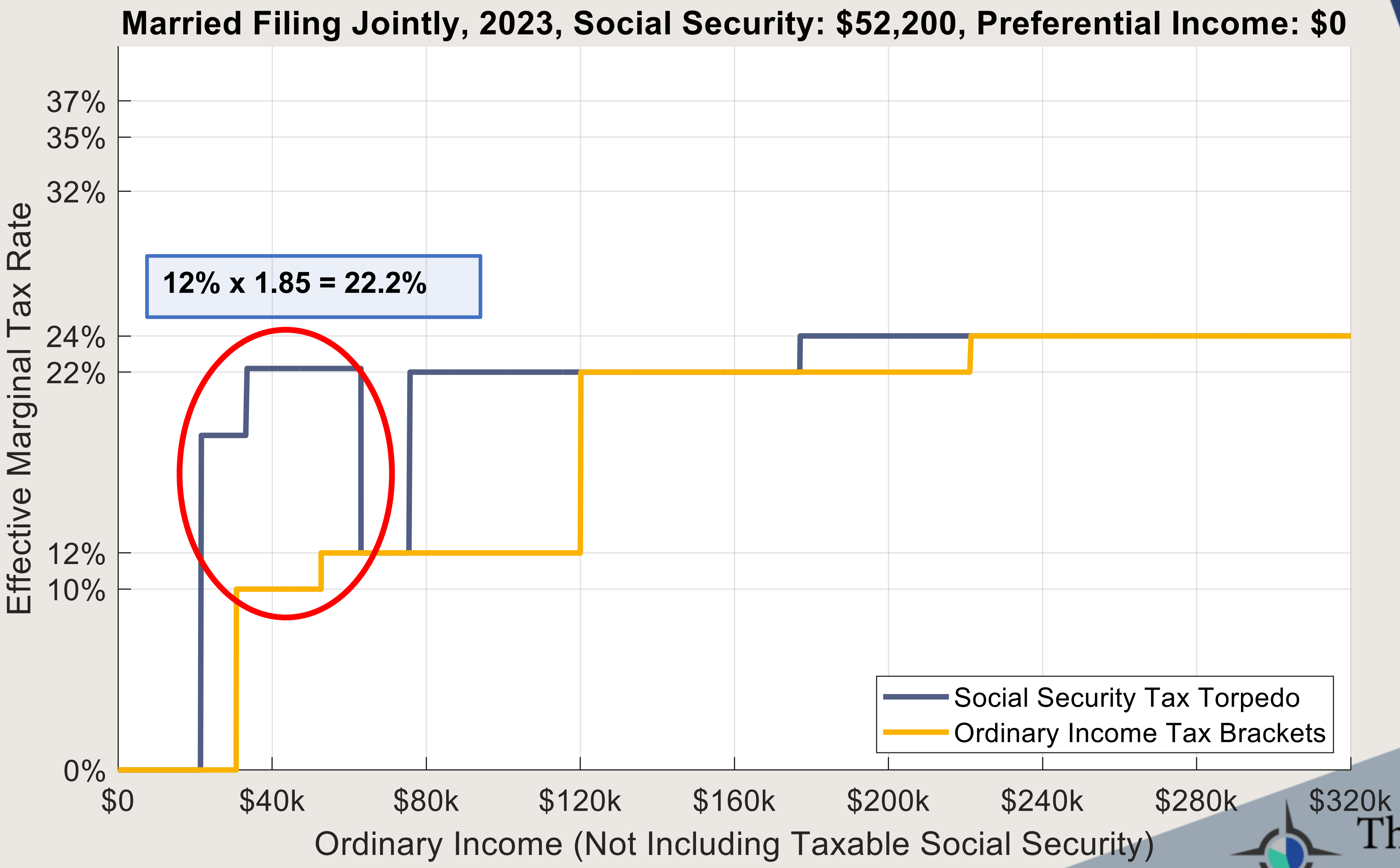
The John C. Bogle
Center for Financial Literacy

Social Security Tax Torpedo

- Up to 85% of Social Security benefits are taxable
- Tax schedule was set in 1994 (not inflation adjusted)
- Determining benefit taxation and marginal tax rates is quite complex
- Proactive planning helps to avoid the full tax torpedo, which is a key aspect of tax-efficiency in retirement
- **Key point**: This tax planning provides another reason for delayed Social Security claiming

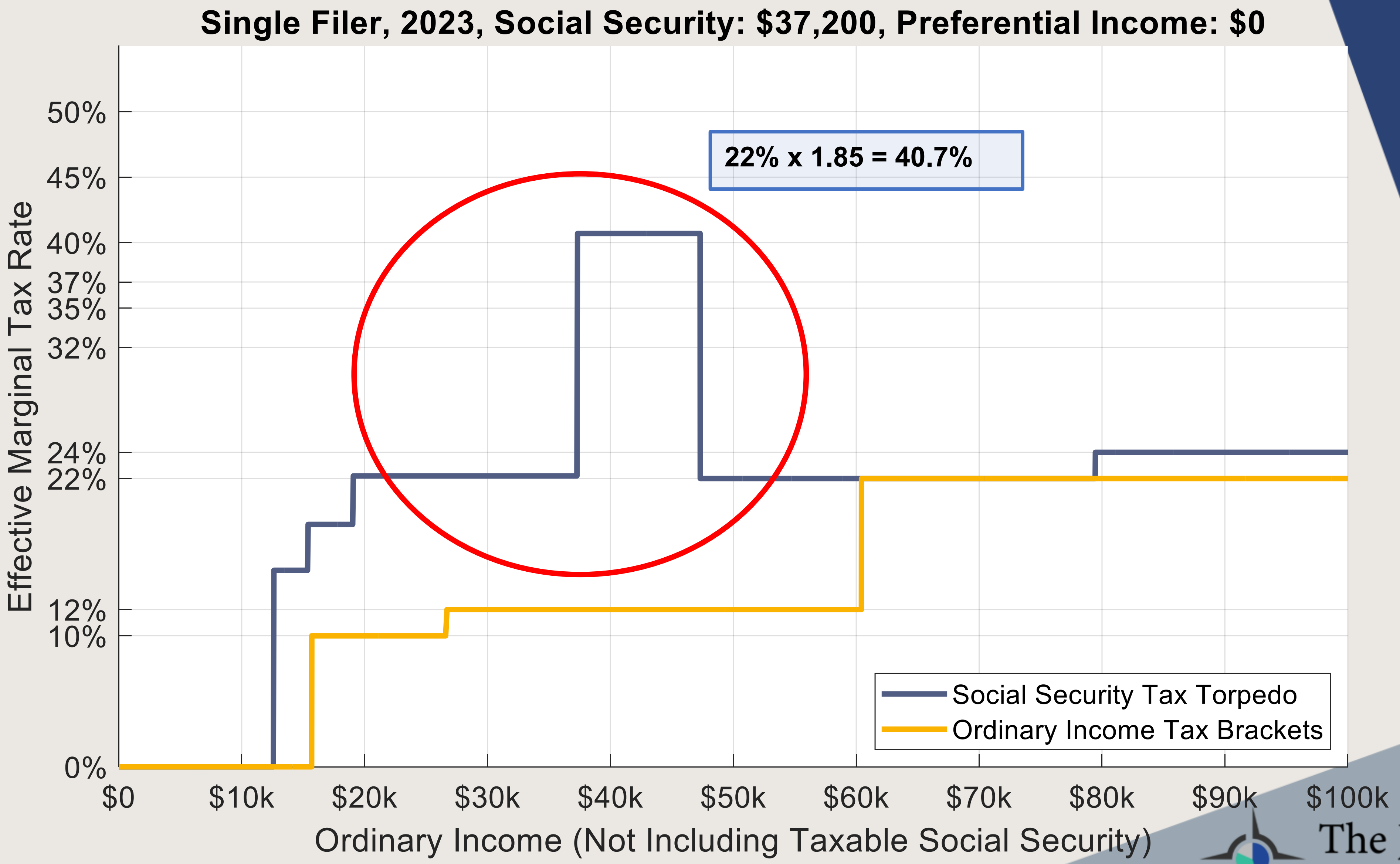
The John C. Bogle
Center for Financial Literacy

Social Security Tax Torpedo



The John C. Bogle
Center for Financial Literacy

Social Security Tax Torpedo – Single/Widow's Penalty



The John C. Bogle
Center for Financial Literacy

Medicare IRMAA Premium Increases

- Medicare premiums experience jumps at various income thresholds
- Medicare MAGI = AGI + tax-exempt interest (from 2 years prior)
- For life changing events (like retiring), file SSA-44 to request a smaller premium
- Single, MAGI of $97,000 = Premiums of $2,357. MAGI of $97,001 = $937 jump in premiums (93,700% marginal tax rate).

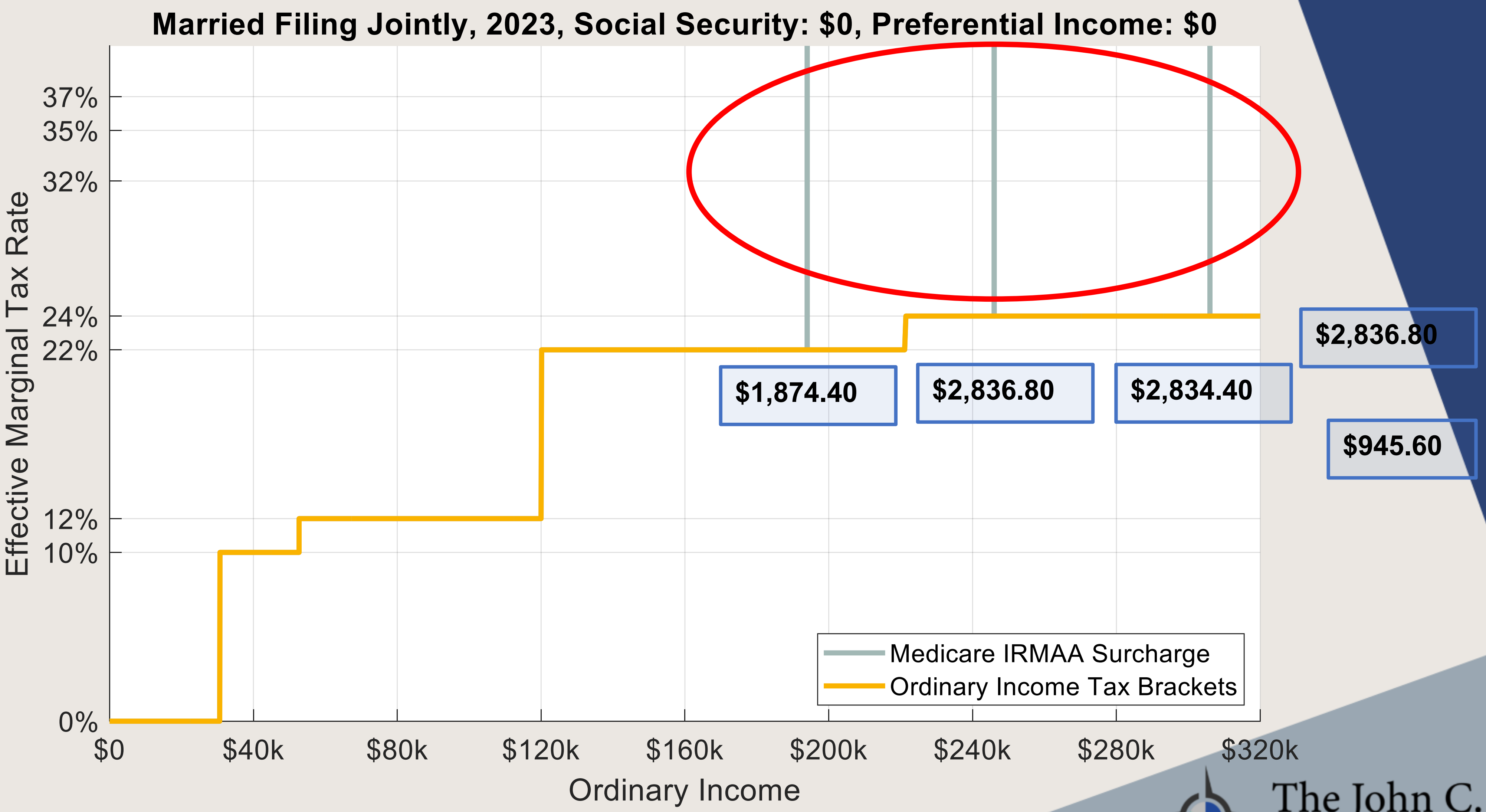
The John C. Bogle Center for Financial Literacy

2023 Medicare Premiums (Based on Taxable Income in 2021)

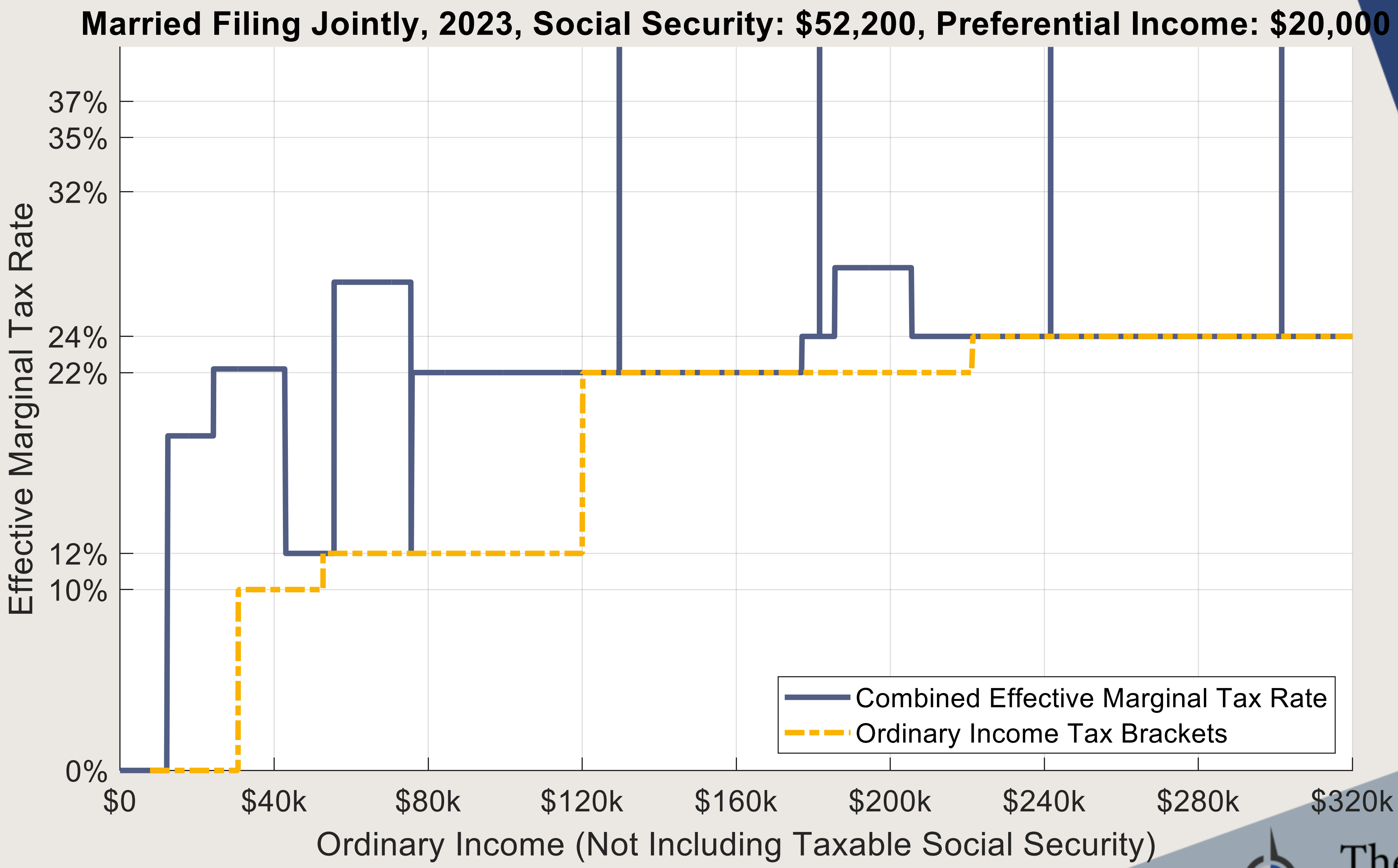
Single Filers Modified Adjusted Gross Income	Married Filing Jointly Modified Adjusted Gross Income	Part B Monthly Premium per recipient	Part D Monthly Premium per recipient	Combined Annual Amount per Individual
$97,000 or less	$194,000 or less	$164.90	$31.50 (base premium)	$2,356.80
$97,001 - $123,000	$194,001 - $246,000	$230.80	base + $12.20	$3,294.00
$123,001 - $153,000	$246,001 - $306,000	$329.70	base + $31.50	$4,712.40
$153,001 - $183,000	$306,001 - $366,000	$428.60	base + $50.70	$6,129.60
$183,001 - $500,000	$366,001 - $750,000	$527.50	base + $70.00	$7,548.00
Over $500,000	Over $750,000	$560.50	base + $76.40	$8,020.80

Note: The modified adjusted gross income thresholds apply to income for 2021 when determining Medicare premiums in 2023. The average base plan premium ("base") for Part D prescription drug coverage is $31.50 per month in 2023, but it can vary between insurers and policies.

Medicare – IRMAA Premium Increases

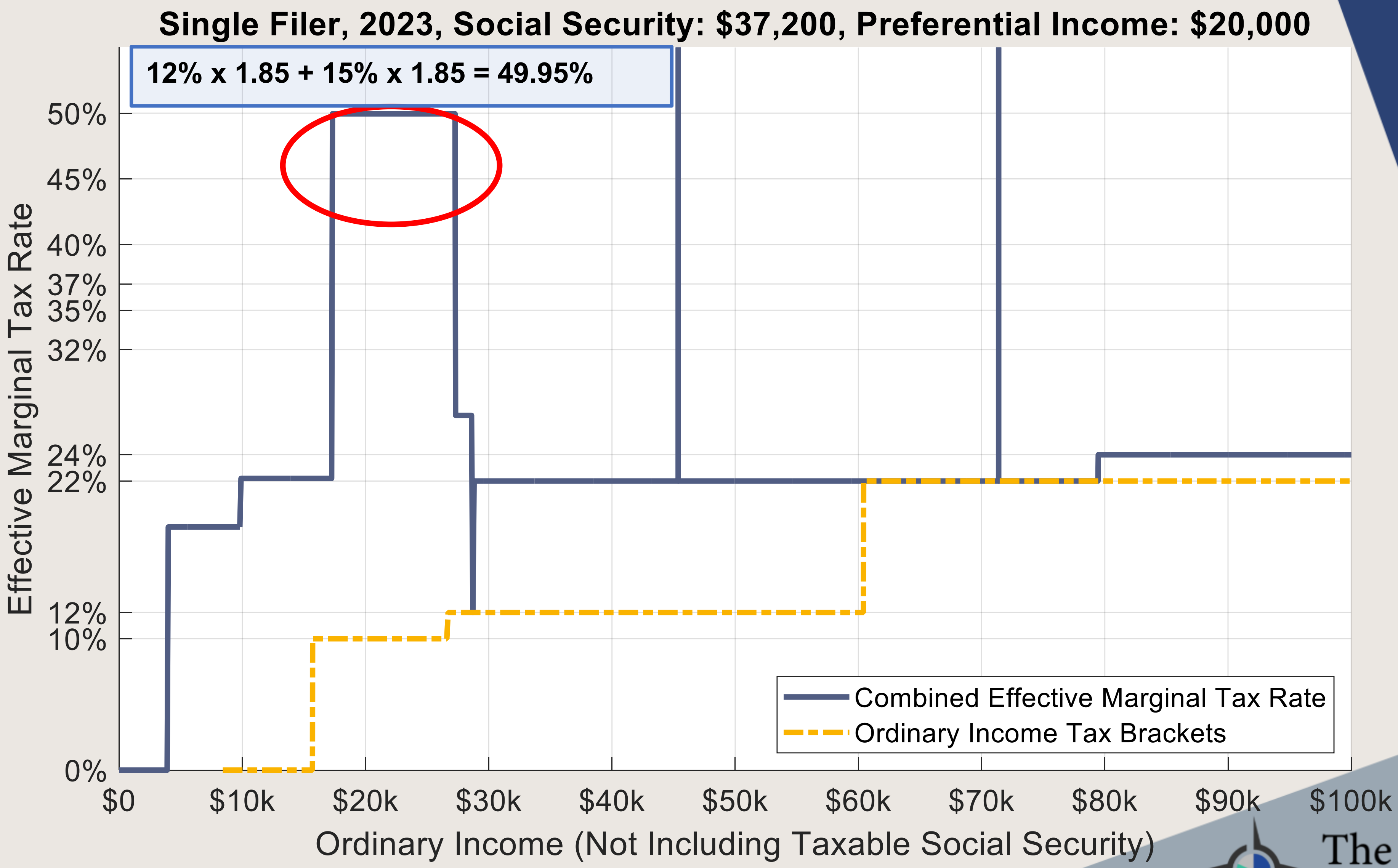


Combined Tax Map



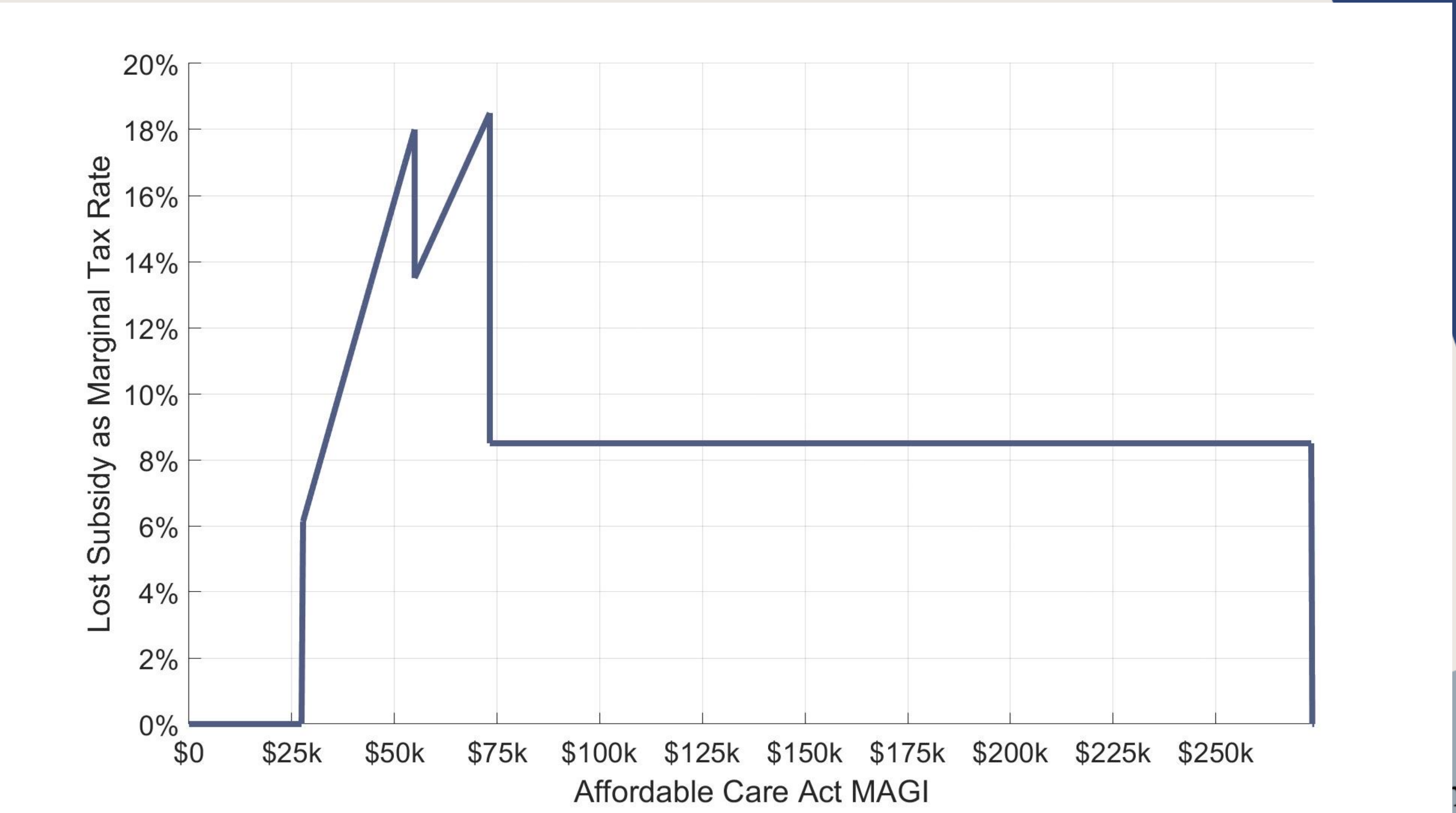
The John C. Bogle
Center for Financial Literacy

Combined Tax Map – Single/Widow's Penalty



The John C. Bogle
Center for Financial Literacy

Implied Marginal Tax Rates from Lost ACA Premium Subsidies for 62-Year-Old Couple with Average Benchmark Plan Premium

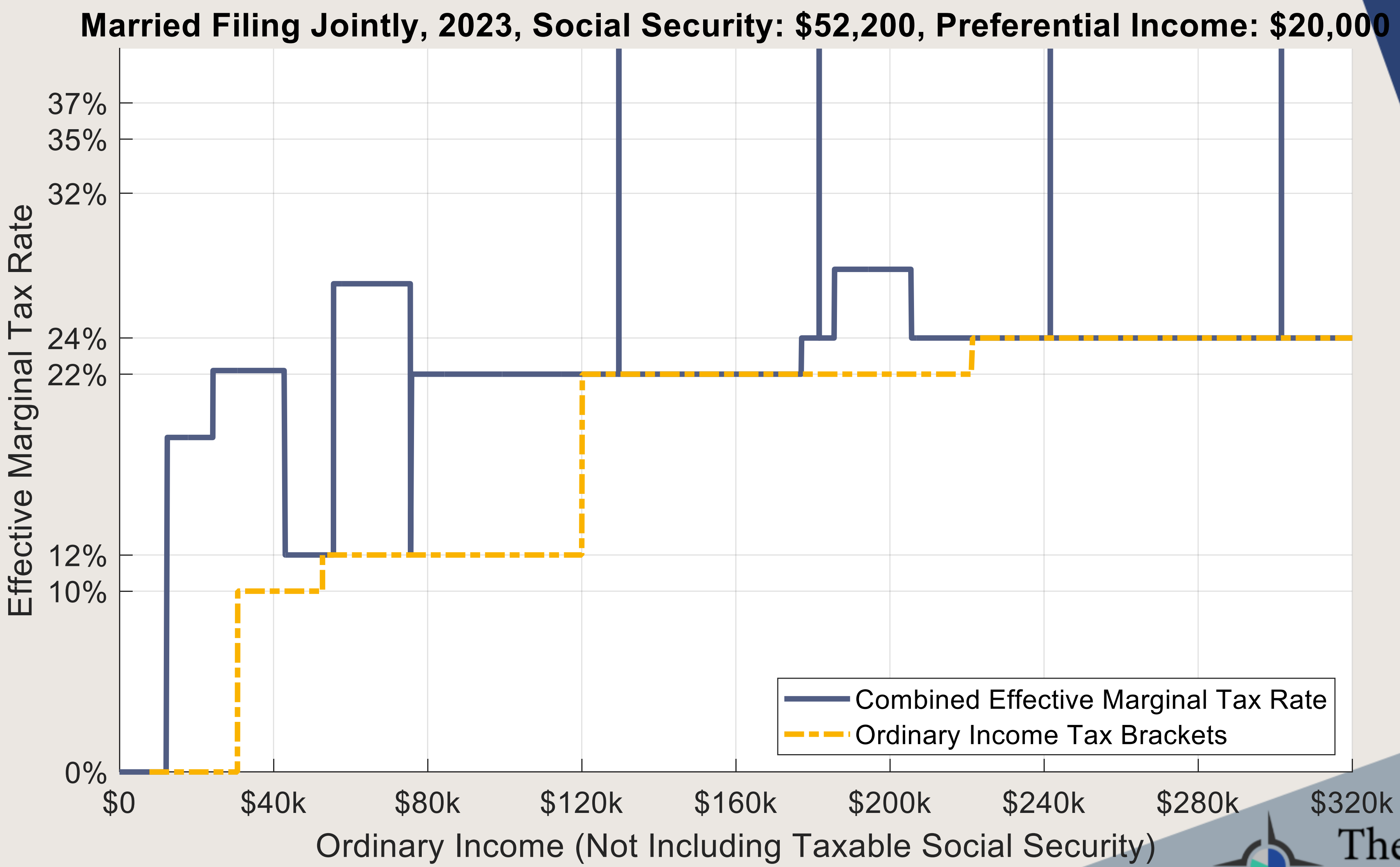


n C. Bogle
Center for Financial Literacy

Managing
Effective Marginal Tax Rates
for Improved After-Tax Outcomes

The John C. Bogle
Center for Financial Literacy

Using Tax Maps to Make Planning Decisions



The John C. Bogle Center for Financial Literacy

What is the retirement distribution strategy that would create the least ordinary income?

Can I justify increasing taxable income by reducing Roth distributions and increasing IRA distributions?

Should I continue with Roth conversions once spending goals are met?

Constraints on Decision Making

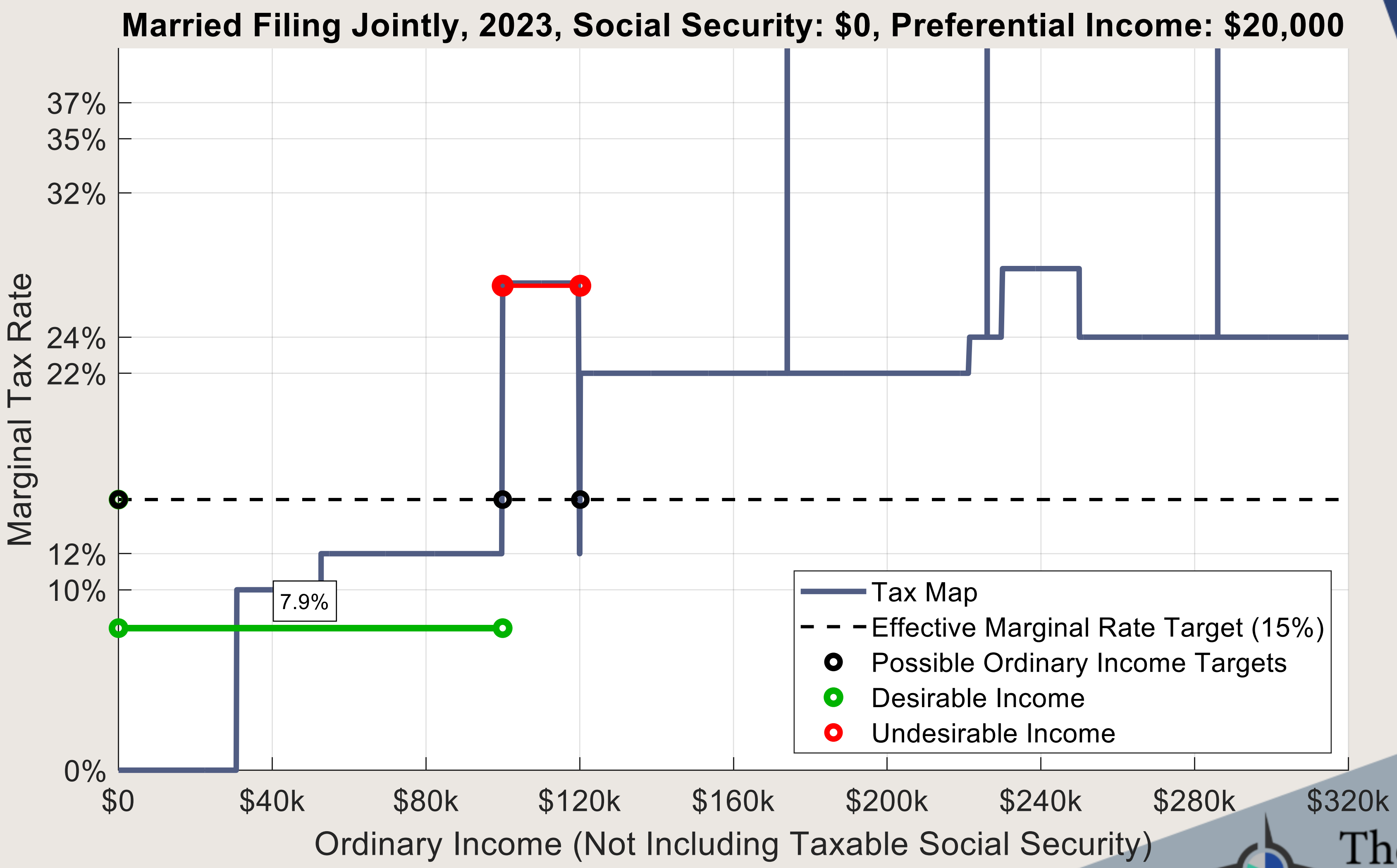
- Availability of taxable, tax-deferred, and tax-exempt assets

- Tax Map Starting Point: How much taxable income must I generate?
  - RMDs
  - Social Security benefits
  - Interest and dividends from taxable assets
  - Other taxable income sources

- Spending goals: How much (pre-tax) would I like to spend?

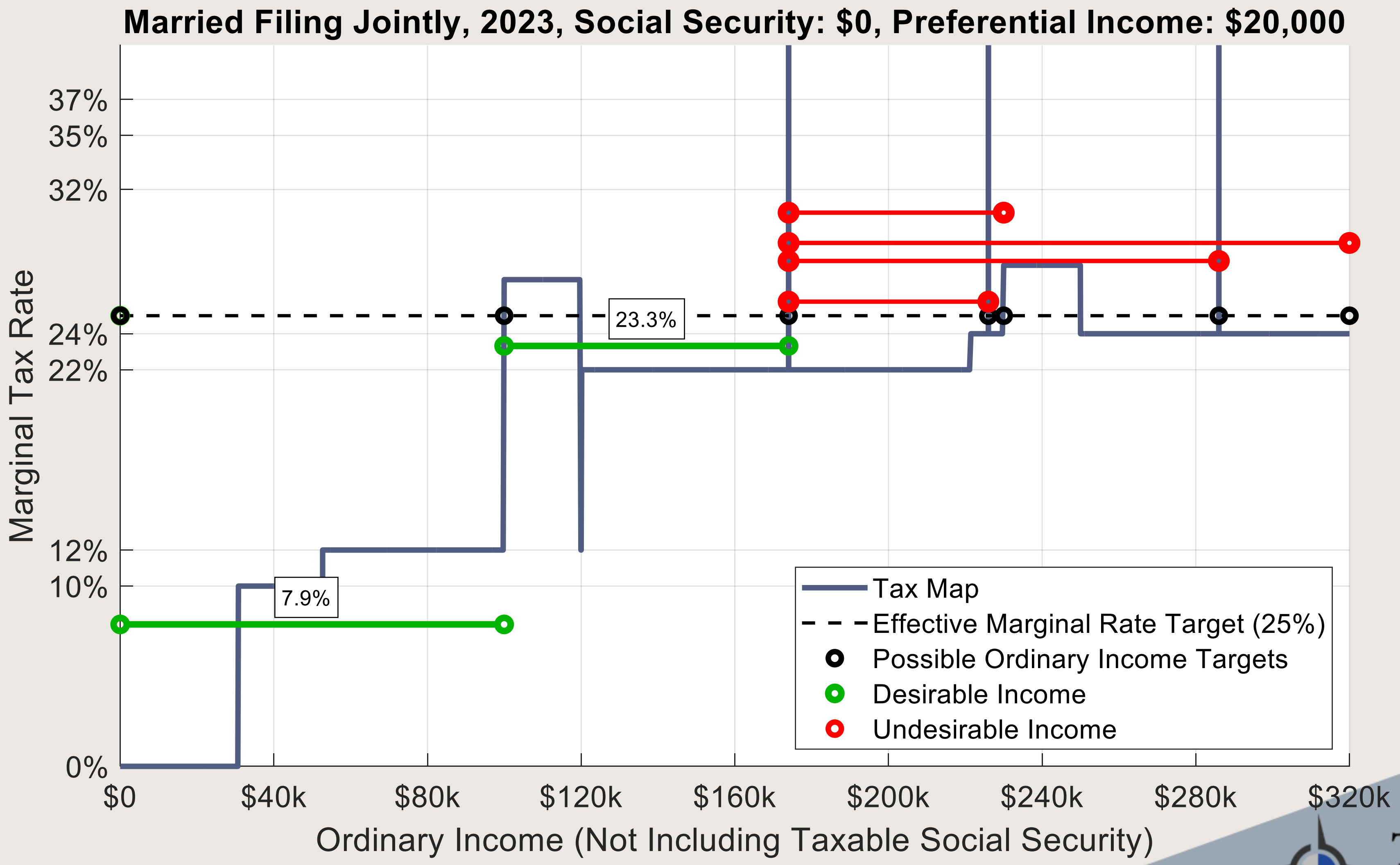
The John C. Bogle
Center for Financial Literacy

Tax Planning Before Social Security Begins Targeting 15% Effective Marginal Rate



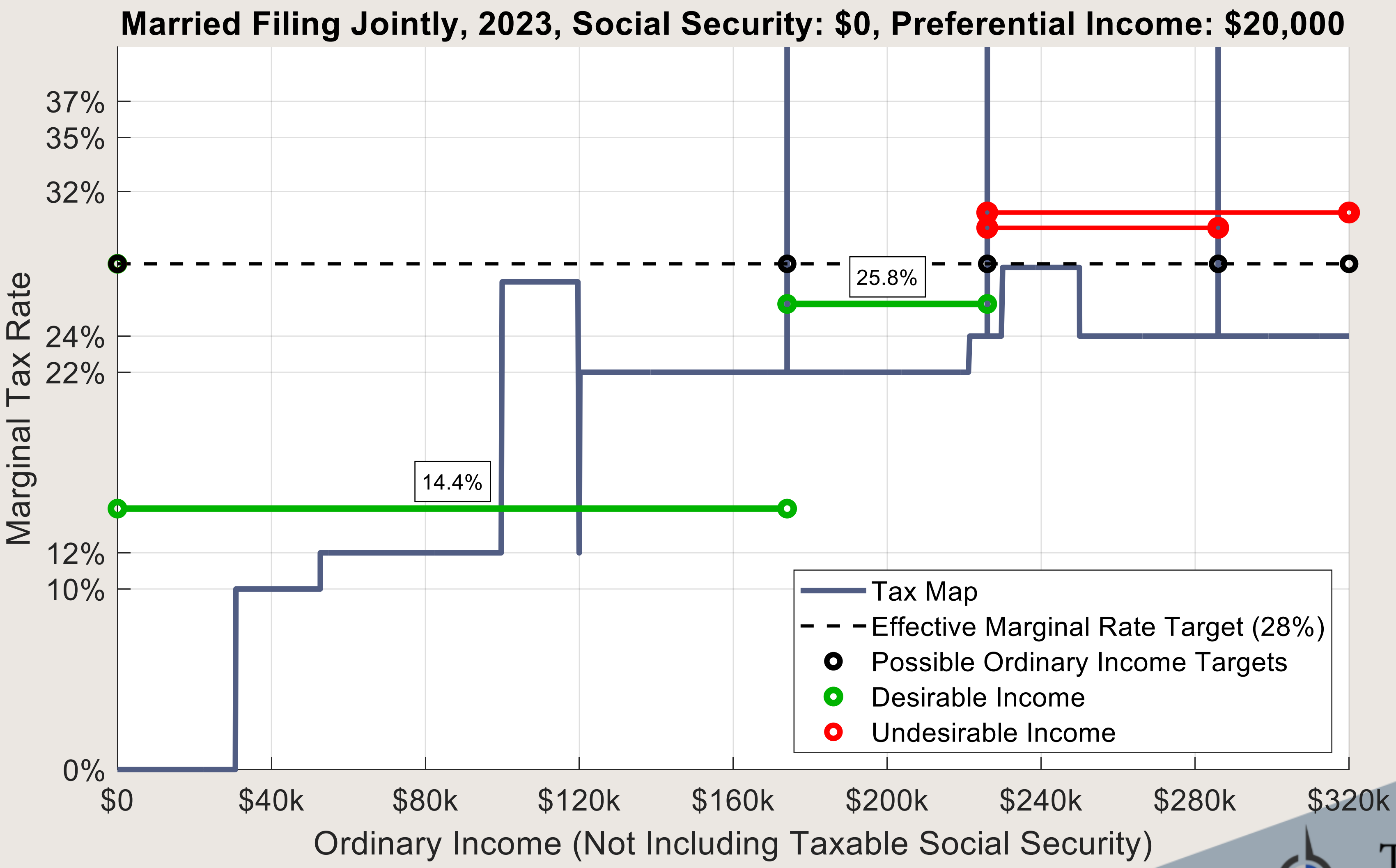
The John C. Bogle Center for Financial Literacy

Tax Planning Before Social Security Begins Targeting 25% Effective Marginal Rate

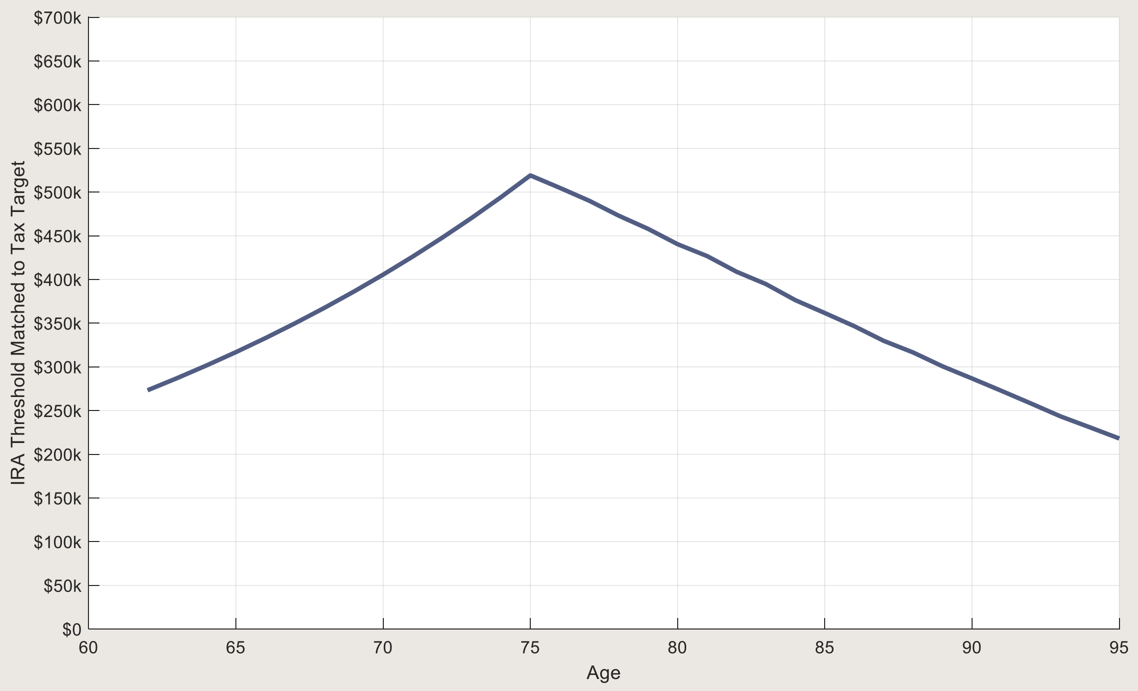


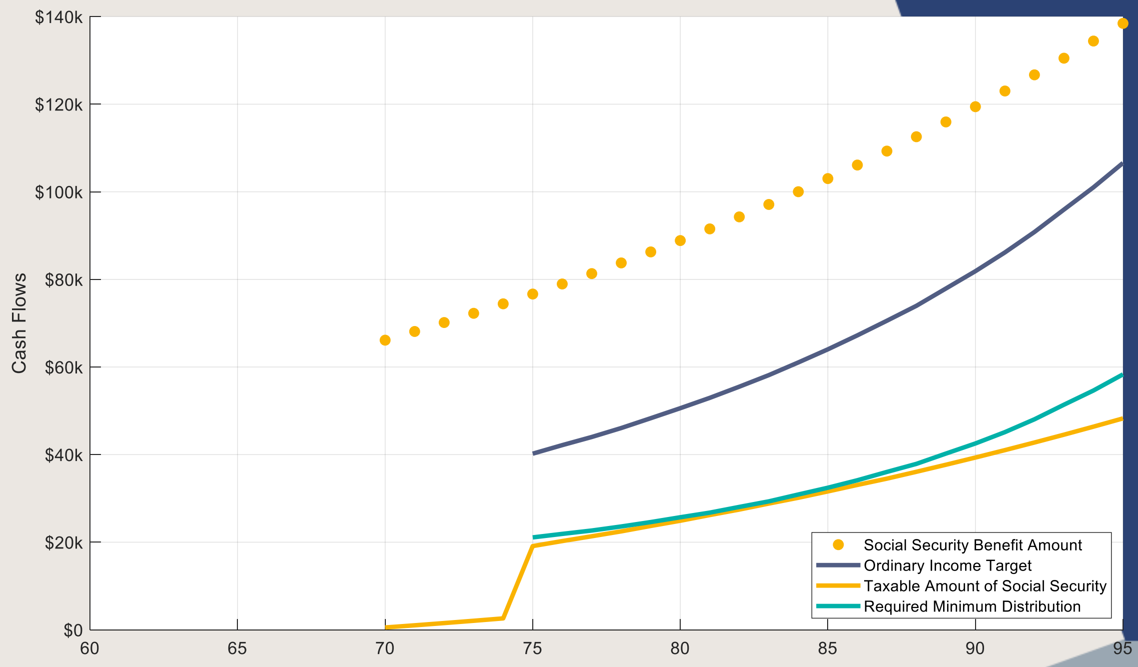
The John C. Bogle Center for Financial Literacy

Tax Planning Before Social Security Begins
Targeting 28% Effective Marginal Rate



RMD Example: IRA Balance to Minimize Taxable Income
Fill Standard Deduction with RMDs and Taxable Social Security

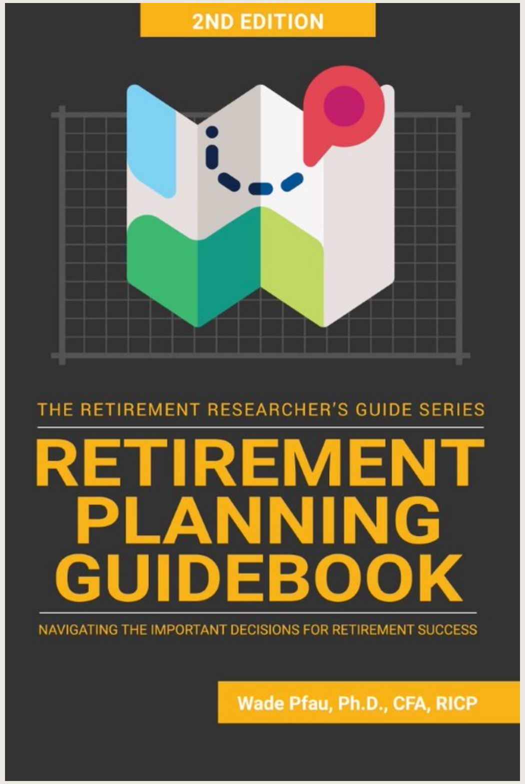


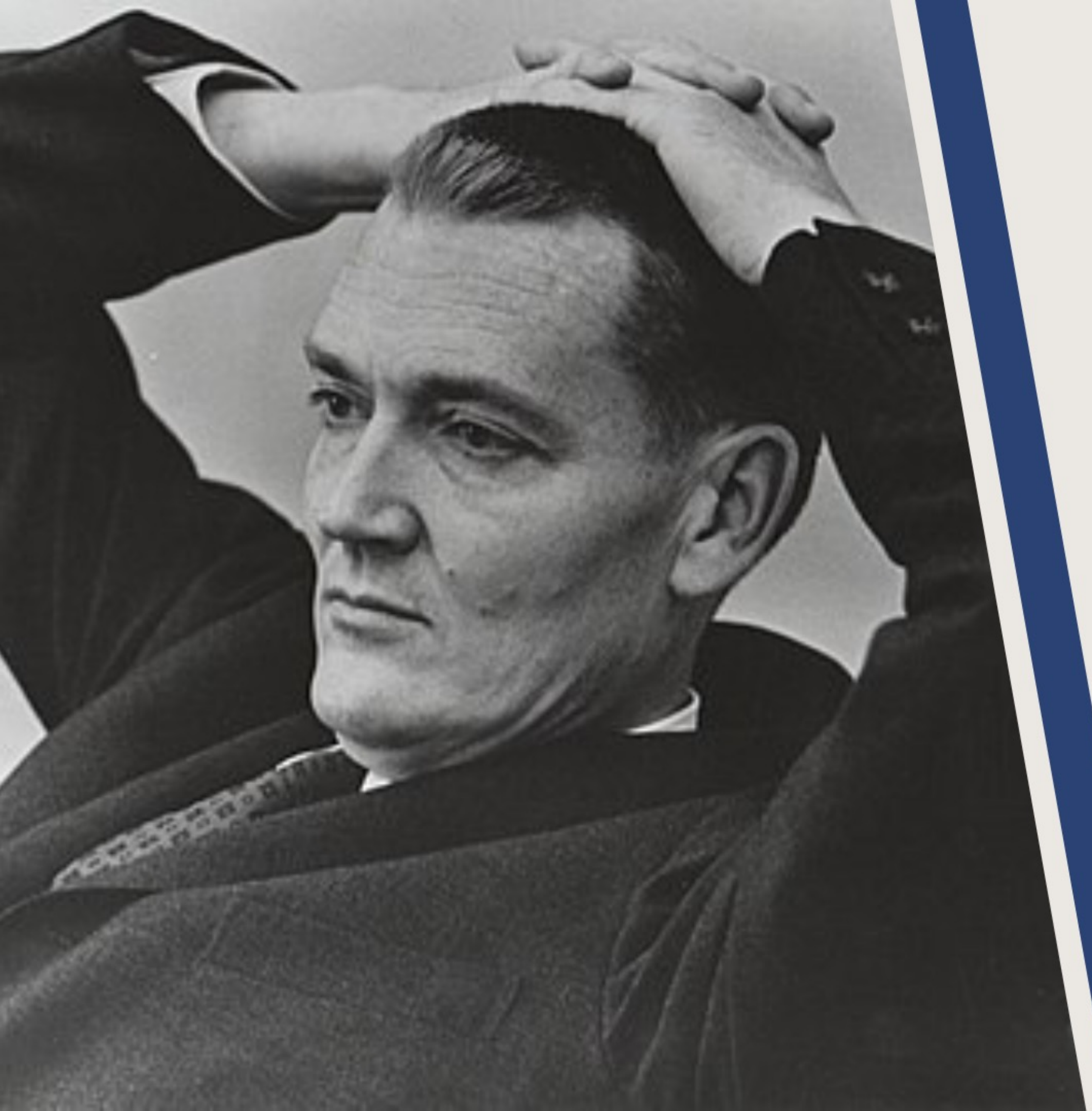


The John C. Bogle
Center for Financial Literacy

Conclusion – Key Ideas

- Important: progressive tax code & various pitfalls that raise effective marginal tax rates
- Tax diversification
- Manage tax rates & strategic Roth conversions





Real Estate: Can (and Should) It Be Added to a Boglehead Portfolio?

2023 Bogleheads Conference

James M. Dahle, MD, FACEP

The John C. Bogle
Center for Financial Literacy

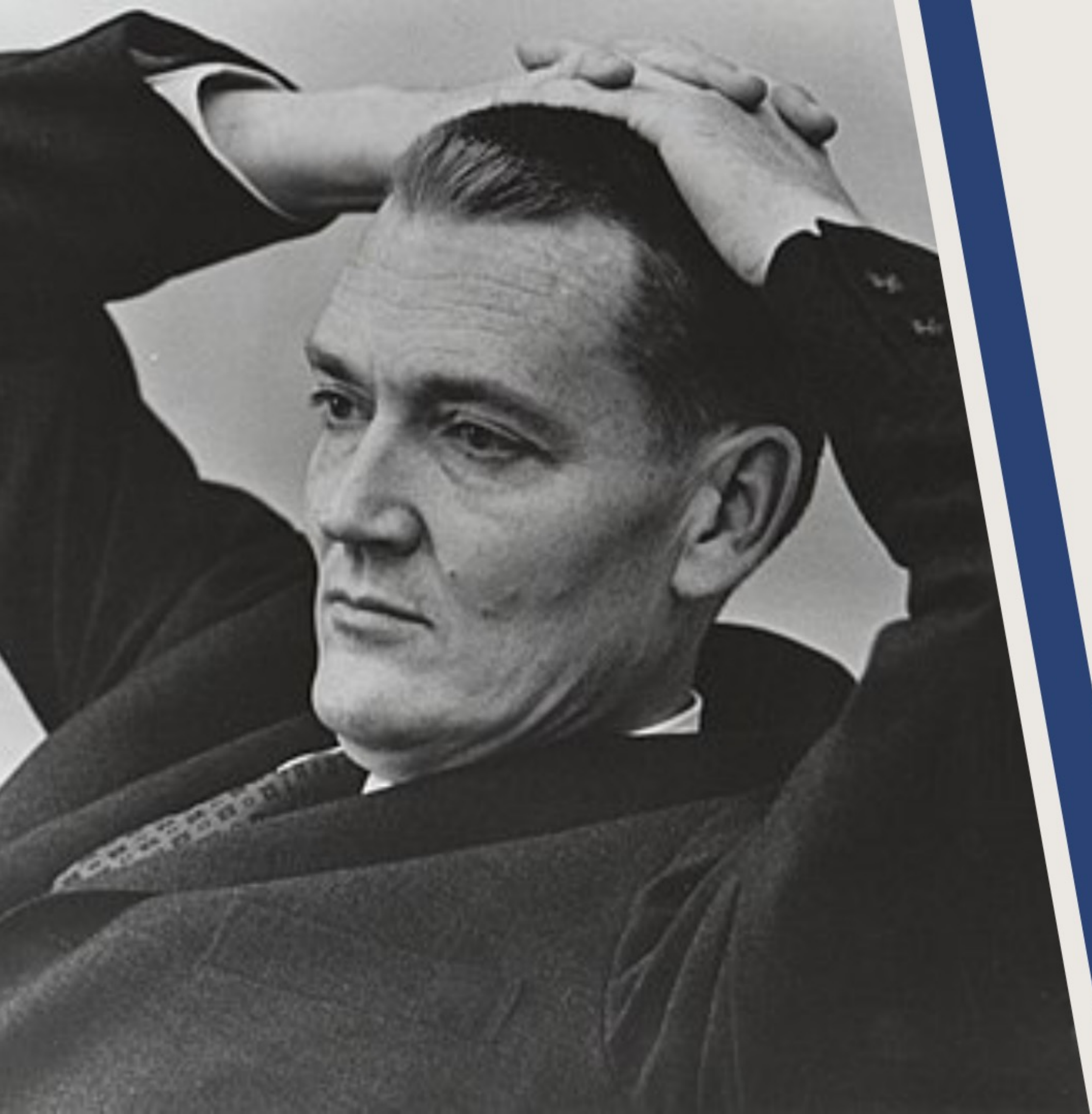
Disclosures and Disclaimers

- I am not a financial advisor, accountant, or attorney
- I own and/or control The White Coat Investor, a for-profit company with hundreds of business relationships with financial companies including real estate investing companies
- Conflicts of interest are widespread but fully disclosed
- I won't be mentioning any specific companies in this talk (except Vanguard)

What We Are Going to Talk About

1. The Case for Real Estate
2. The Case for Private Real Estate
3. The Real Estate Continuum

The John C. Bogle
Center for Financial Literacy



1
The Case for Real Estate

The John C. Bogle

Center for Financial Literacy

The Case For Real Estate

1 High Returns

- When building a portfolio, include multiple, high-returning asset classes (and possibly some lower returning ones)
  - Stocks, real estate, small businesses, ? Speculative
  - Real estate returns are similar to stock returns but are more easily leveraged for higher returns

The Case For Real Estate

2 Low Correlations

- When building a portfolio, you want low correlations between your asset classes. -1 to 0.8.
- US stocks to International Stocks: 0.5-0.94
- US Stocks to US Bonds: 0.1 (1972-2021)
- US Stocks to Commodities: 0
- US Bonds to Commodities: -0.2
- US Stocks to REITs: 0.45 (1994-2018)
- US Stocks to Private Real Estate: 0.17 (1998-2017)

The Case For Real Estate

3 Very Inflation Resistant

- "Real asset"- goes up in value with inflation
- Value of income property highly dependent on rents
  - As inflation rises, rents rise
- Easier to pay back fixed rate debt with inflated dollars
- Fixed, low interest rate debt becomes more valuable as rates rise to combat inflation

The John C. Bogle Center for Financial Literacy

The Case For Real Estate

4 Relatively high cash flow

- Higher percentage of return comes from income compared to stocks
- Can be useful for decumulation years
- Can replace earned income during working years

The Case For Real Estate

5 Easier to add value

- You are unlikely to add value to your portfolio by studying and picking stocks
- All real estate is local. Active management has potential to work better with real estate than stocks
- You can also "boost returns" (earn money) by doing work yourself
    - Aspects of second job

The John C. Bogle
Center for Financial Literacy

The Case For Real Estate

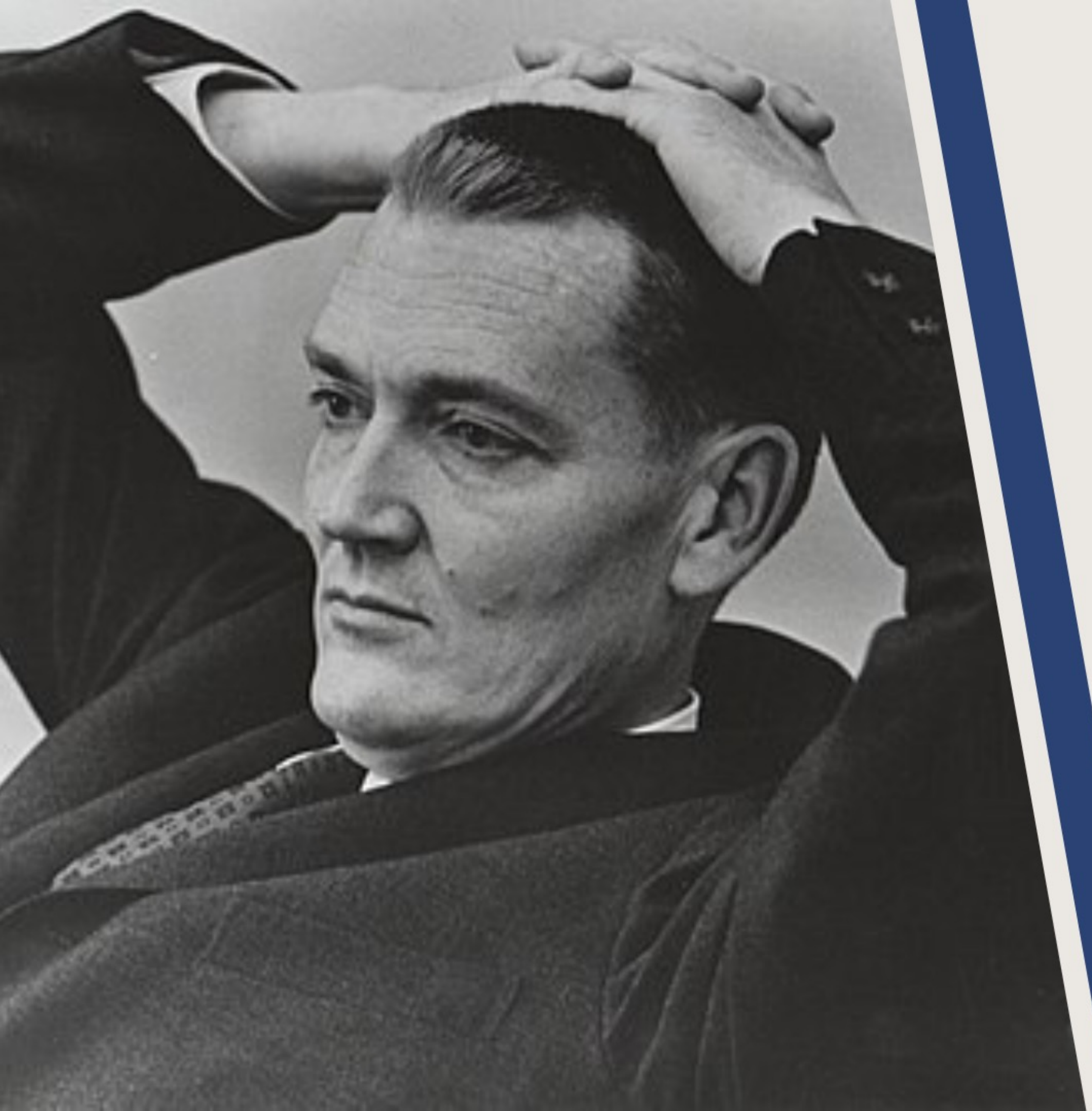
6 “Unfair” tax advantages

- Capital gain exemption on residence
- Depreciation (and especially bonus depreciation) is too generous
- Depreciation recaptured at max of 25%
- REP status and short-term rental loophole
    - Use passive losses to offset earned income
- Mutual funds don’t pass through capital losses
- Opportunity Zone Funds
- 1031 Exchanges
- Step-up in basis at death

The Case For Overweighting Real Estate

- VTI contains 3-4% real estate
- 90% of real estate by dollar value is not publicly traded
- Investors purchase ~22% of single family homes, but only 3% by large institutions
- Non real estate businesses
  - A few thousand publicly traded
  - 27 million total, but 21 million only have 1 employee
  - 80% of profits come from publicly traded businesses
- Overweighting real estate in your portfolio is more representative of the real economy/wealth

The John C. Bogle Center for Financial Literacy



2
The Case for Private Real Estate

The John C. Bogle
Center for Financial Literacy

Case For Private Real Estate

1. High returns (but maybe not higher returns)
2. Lower correlations, perhaps better risk-adjusted returns
3. Illiquidity bonus
4. Lower expenses (Reg D)
5. Smaller properties
6. Less analyzed market
7. Depreciation pass-through

Case For Private Real Estate

Exhibit A: My Actual 2022 Returns

- Overall Portfolio Return: -9.92%
- Total Stock Market: -16.38%
- Small Value Stocks: -5.10%
- Total International Stock Market: -15.66%
- Small International Stocks: -17.38%
- TSP G Fund: 2.98%
- Municipal Bonds: -7.09%
- TIPS: -11.66% in our fund, 2.39% individual TIPS
- I Bonds: 5.45%

Case For Private Real Estate

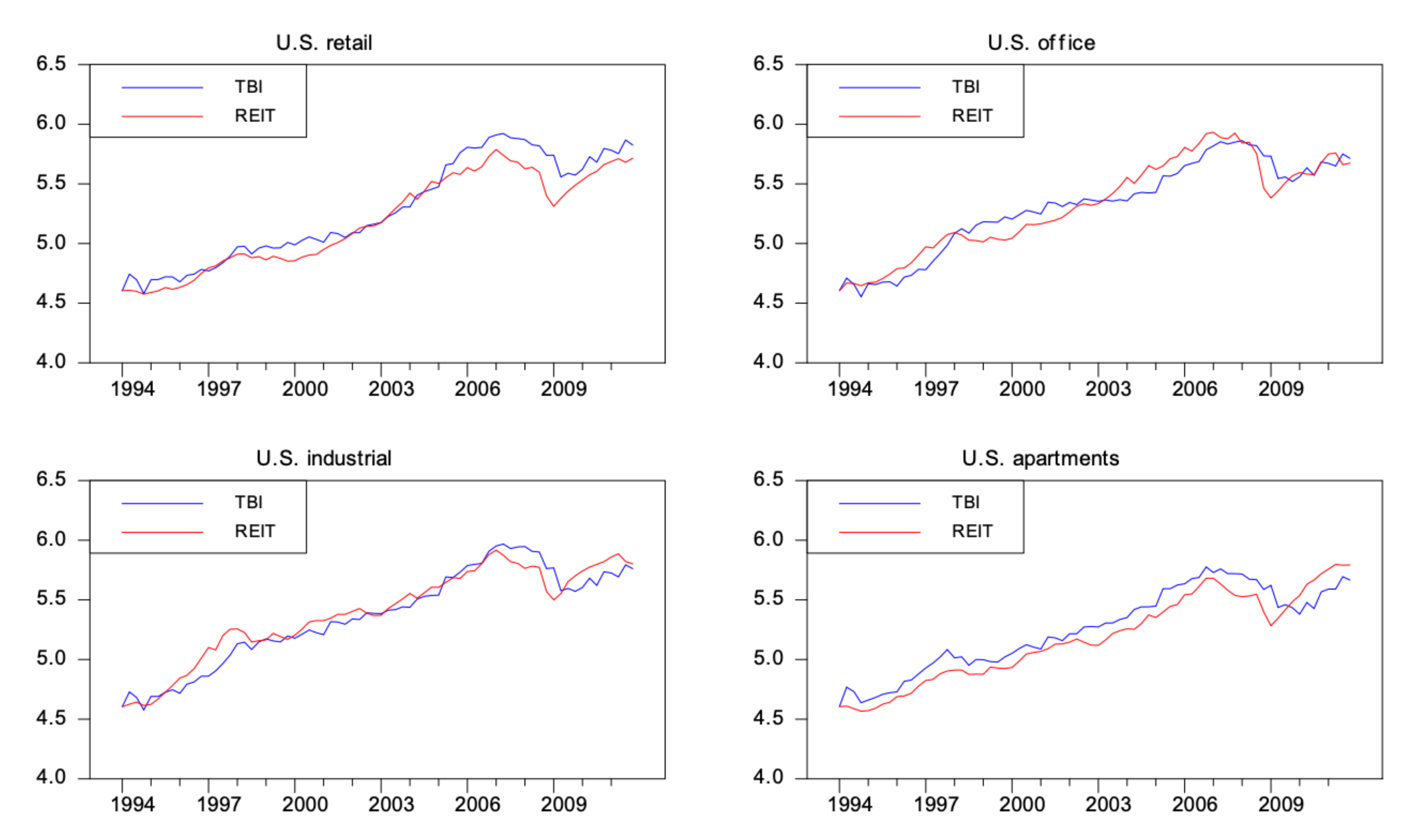
Exhibit A: My Actual 2022 Returns

- Public REITs: -23.3%
- Private equity real estate: 8.84%
  - Origin Fund III: 29.91%, Income Plus: 10.2%
  - DLP Housing Fund: 18.93%
  - Peak Housing REIT: 18.23%
  - MLG Fund IV: 10.47%
- Private debt real estate: 9.47%
  - DLP Lending Fund: 11.74%

Case For Private Real Estate

- Are private returns actually higher?
  - It depends
    - Probably not on average
    - Probably better risk-adjusted returns
    - Lower correlation with stocks and bonds
  - But they don’t actually HAVE to be higher for it to still make sense to invest

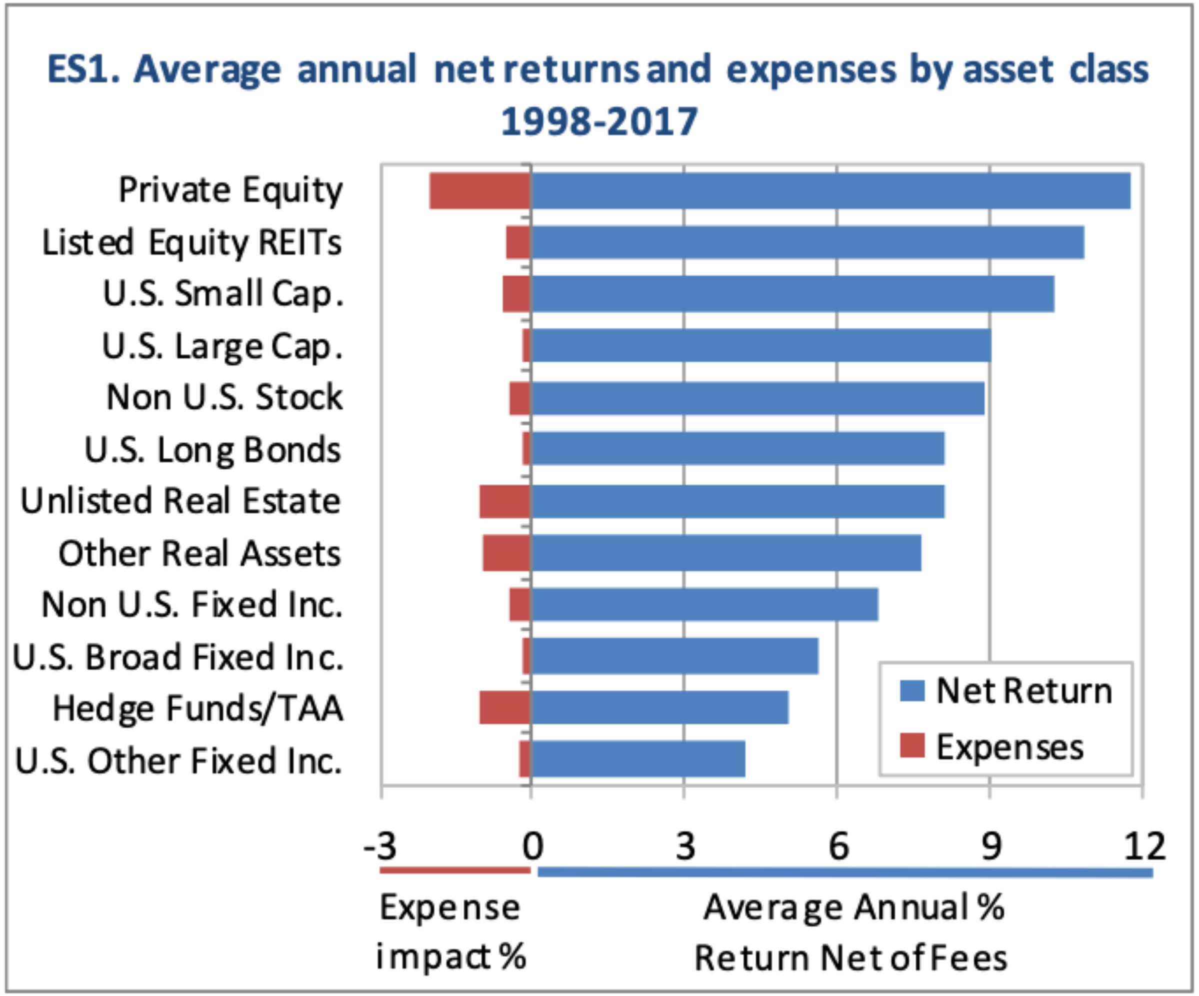
Case For Private Real Estate



EPRA Study-1994-2011

The John C. Bogle Center for Financial Literacy

Case For Private Real Estate



Beath et al-1998-2017

The John C. Bogle Center for Financial Literacy

Case For Private Real Estate

Exhibit 7: Annualized outperformance of public REITs vs. private real estate: Published research

	Public REITs	Private real estate	Public – private
Beath/Flynn	9.2%	7.9%	+1.3%
Bollinger/Pagliari	11.2%	8.9%	+2.3%
Arnold/Ling/Narajo	10.3%	8.7%	+1.6%
Average	10.2%	8.5%	+1.7%

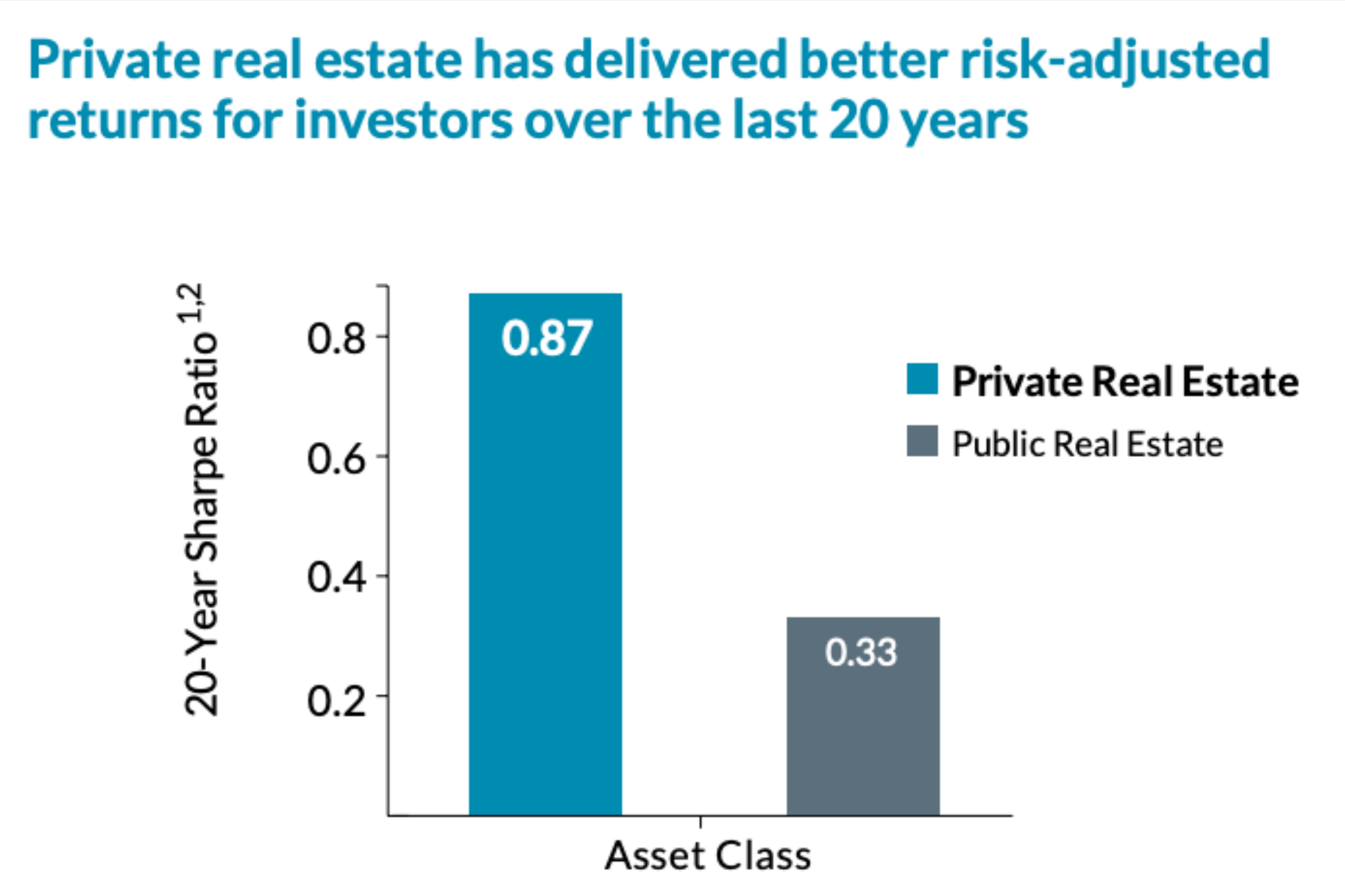
Case For Private Real Estate

Table 1: Descriptive Statistics in %

Statistic	FI	EQ	RE	DI
Mean	8.43	13.22	13.54	8.46
σ	7.02	17.22	17.35	7.62
σ^2	0.49	2.97	3.01	0.58
Max	32.65	37.58	37.13	18.72
Min	-2.92	-37.00	-37.73	-17.96

- “Optimal Portfolios have higher weightings of Direct Real Estate Investments as opposed to REITs and that the optimal portfolios containing REITs are outperformed by those containing Direct Real Estate Investments.”
- Mutahi et al 1980-2014

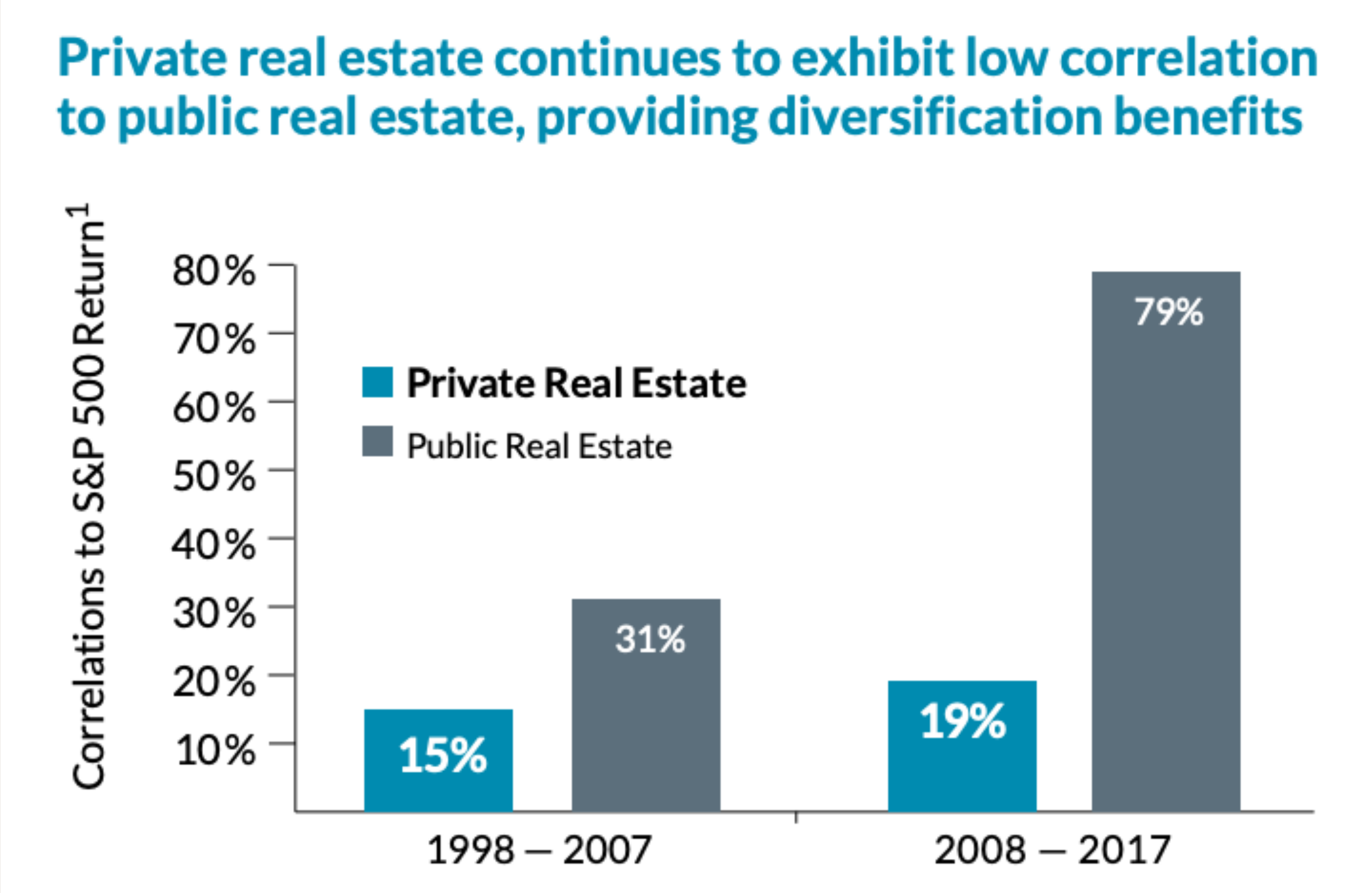
Case For Private Real Estate



- Black Creek 1998-2018

The John C. Bogle
Center for Financial Literacy

Case For Private Real Estate

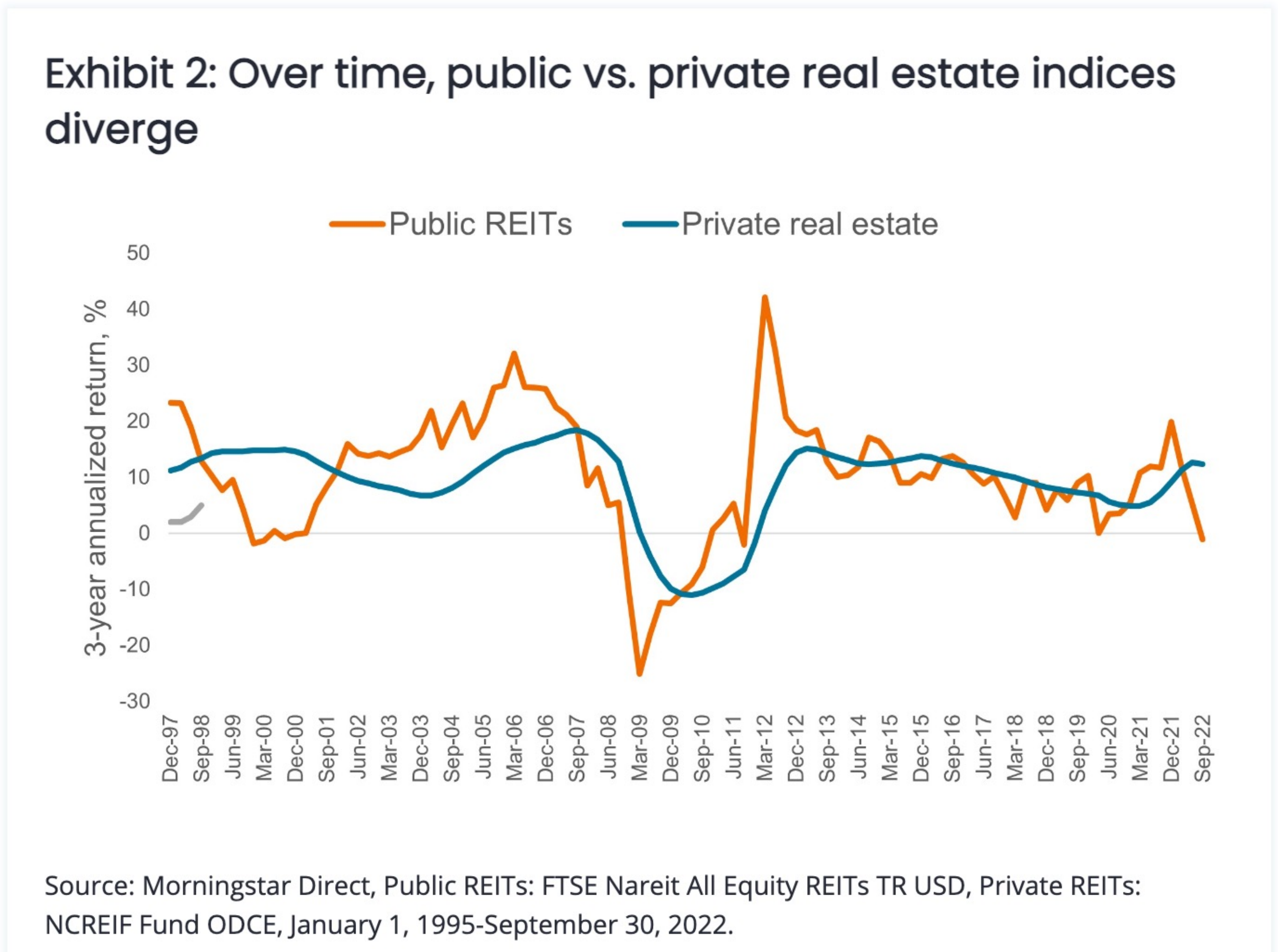


- Lower correlation

The John C. Bogle
Center for Financial Literacy

Case For Private Real Estate

- Lag

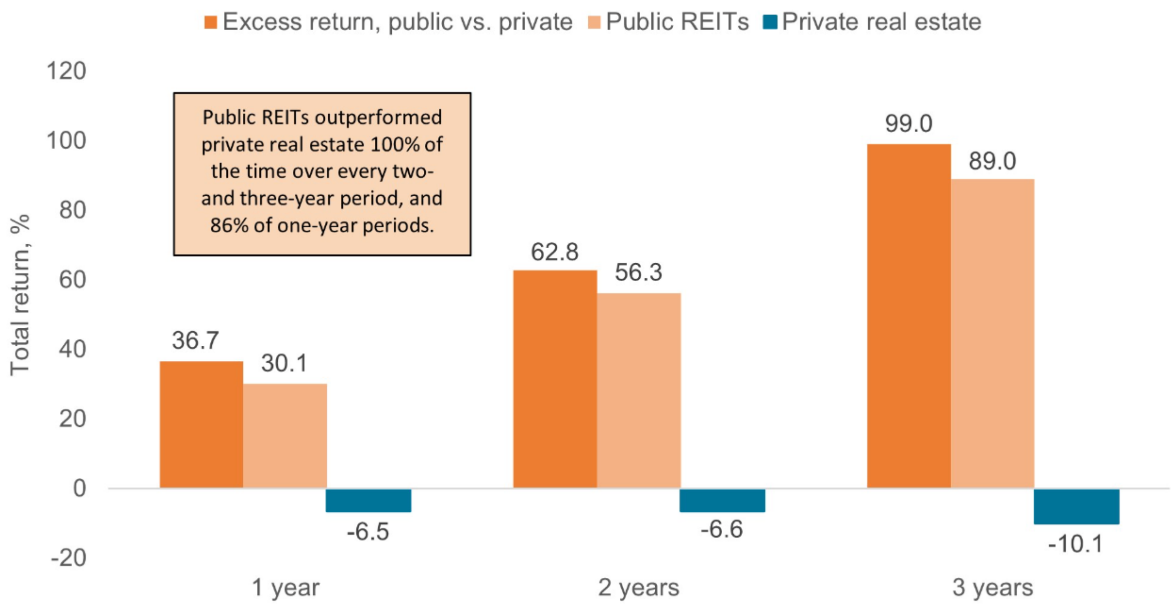


The John C. Bogle Center for Financial Literacy

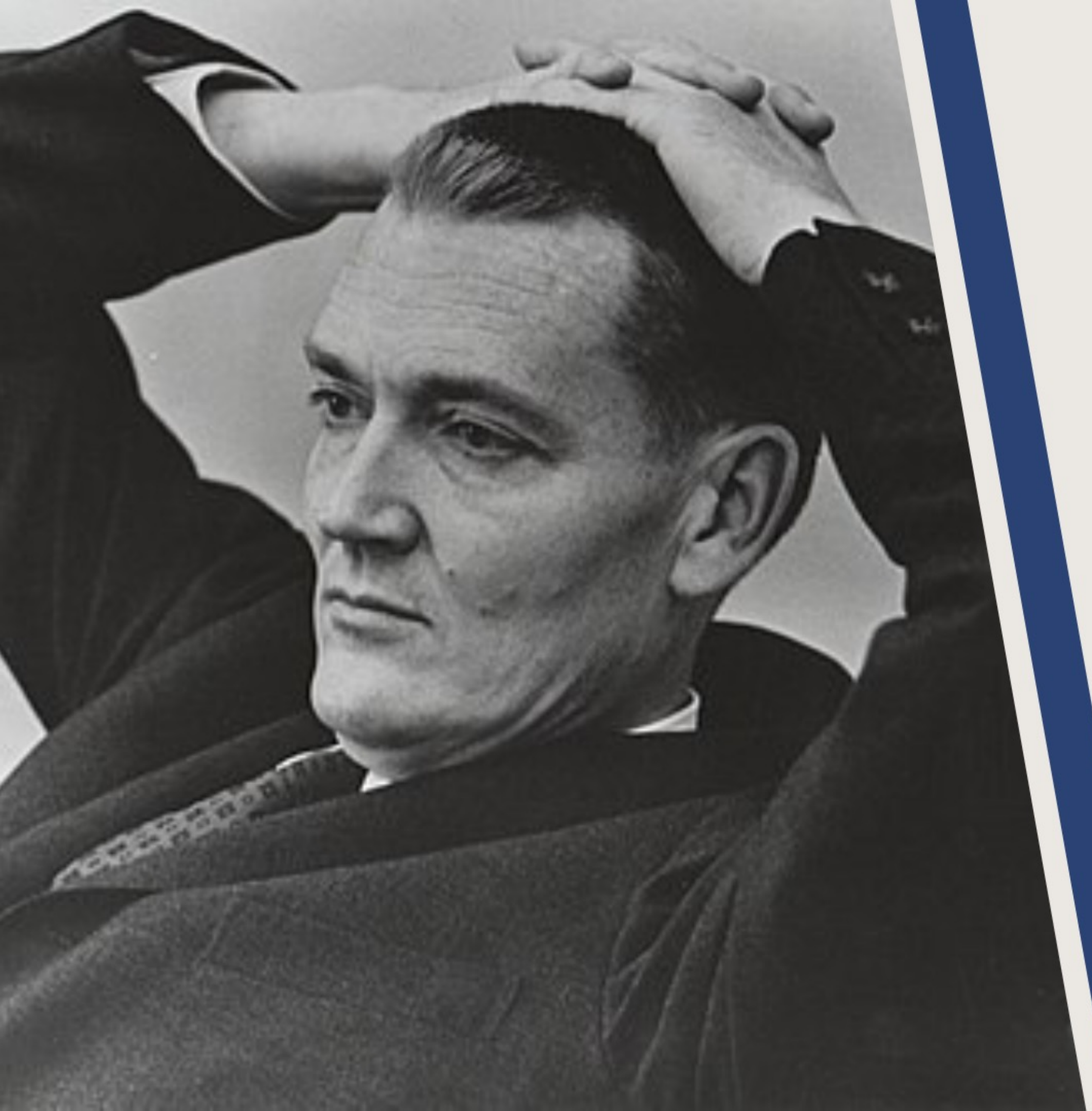
Case For Private Real Estate

- Lag

Exhibit 5: Following a 20% or greater discount to NAV, public REITs usually outperform by a wide margin



Source: Morningstar Direct, Public REITs: FTSE Nareit All Equity REITs TR USD, Private Real Estate: NCREIF Fund ODCE, January 1, 1990 – September 30, 2022, Discount to NAV data from Green Street Advisors.



3
The Real Estate Continuum

The John C. Bogle
Center for Financial Literacy


The White Coat Investor
REAL ESTATE INVESTING CONTINUUM
GROUND-UP CONSTRUCTION
FIX AND FLIP
SHORT TERM RENTALS
LONG TERM RENTALS
TURNKEY PROPERTIES
SYNDICATED PROPERTIES
PRIVATE FUNDS & REITS
PUBLICLY TRADED REITS
Most Experience Required
Most Hassle
Least Diversification
Least Liquidity
Most Control
Best Tax Benefits
Fewest Layers of Fees
Higher Returns
Least Experience Required
Least Hassle
Most Diversification
Most Liquidity
Least Control
Worst Tax Benefits
Most Layers of Fees
Lower Returns

The Real Estate Continuum

- There is no right or wrong way to invest in real estate
- But there is a right way and a wrong way FOR YOU
- Not mandatory (VTI contains 3.62% real estate)

What We Have Talked About

1. Real estate, while optional, is a great asset class and often the first "alternative" added to a portfolio
2. Private real estate may not have higher returns than public real estate, but does have other advantages
3. There are many different ways to invest in real estate. You don't need (or want) to do all of them.
4. Make an honest assessment of what you want from your real estate investment before making it

What We Have Talked About

5. You can invest in real estate without getting toilet calls
6. Real estate investing should not be a get rich quick scheme, but it can be a get rich quicker scheme depending on how much work and leverage you are willing to put into it
7. Passive income is often not as passive as it looks

THANK YOU!

James M. Dahle, MD, FACEP

editor@whitecoatinvestor.com

The John C. Bogle Center for Financial Literacy

The Case for Factor Investing: Small Cap Value: The Good, The Bad and the Ugly

The John C. Bogle
Center for Financial Literacy

Mission Statement

The Merriman Financial Education Foundation believes “knowledge is power” and is dedicated to providing comprehensive financial education to investors at all stages of life, with information and tools to make informed decisions in their own best interest and successfully implement their retirement savings program.

Equity Index Returns (1928-2022)

Summary Results for 95 1-year Periods (1928-2022)

	US LCB (S&P 500)	US LCV	US SCB	US SCV	US 4-Fund (SCV, LCV, SCB, LCB)	US All Value (SCV, LCV)	US 2-Fund (S&P 500, SCV)
In 95 yrs $100 grows to:	$751,234	$1,996,611	$4,111,737	$12,764,806	$3,617,830	$5,831,807	$3,976,839
CRR over 95 years	9.8%	11.0%	11.8%	13.2%	11.7%	12.2%	11.8%
Best 1 year return	54.0%	92.5%	111.2%	124.7%	96.1%	110.4%	89.9%
Worst 1 year return	-43.3%	-61.1%	-48.3%	-55.4%	-51.8%	-58.1%	-49.4%
SD over 95 years	19.8%	22.8%	28.3%	31.2%	24.5%	26.5%	24.3%

Notes: 1) Source data from Dimensional Fund Advisors, 2) Results *exclude* advisor fees and fund expenses.

Abbreviations: LCB - US Large Cap Blend, LCV - US Large Cap Value, SCB - US Small Cap Blend, SCV - US Small Cap Value, CRR - Compound Rate of Return, SD - Standard Deviation.

The John C. Bogle
Center for Financial Literacy

US 4 Asset Classes and 4-Fund Combo Relative Performance Rankings (1928-2019)

1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
S&P 500 43.6%	US LCV 2.8%	S&P 500 -24.9%	S&P 500 -43.3%	S&P 500 -8.2%	US SCV 125.3%	US SCB 15.7%	US SCB 56.1%	US SCV 66.5%	S&P 500 -35.0%	US SCB 39.8%	S&P 500 -0.4%	US SCB -3.6%	US LCV 1.0%	US SCV 34.1%	US SCV 78.5%	US SCV 52.6%	US SCV 65.4%	US LCV -6.3%	US SCV 8.8%	S&P 500 5.5%	US SCB 20.9%	US SCV 63.4%
US SCB 42.9%	S&P 500 -8.4%	US LCV -34.1%	US SCB -46.2%	4-Fund -10.9%	US SCB 111.0%	4-Fund -0.2%	4-Fund 48.5%	US SCB 52.5%	US LCV -36.6%	US SCV 32.6%	US SCB -0.8%	US LCV -5.4%	US SCV -0.2%	4-Fund 25.4%	US SCB 56.9%	US SCB 42.1%	US SCB 64.2%	S&P 500 -8.1%	US LCV 7.2%	US LCV 1.5%	US SCV 19.7%	US LCV 47.2%
4-Fund 35.9%	4-Fund -19.2%	4-Fund -34.8%	4-Fund -51.5%	US SCV -10.5%	4-Fund 95.7%	S&P 500 -1.4%	US SCV 47.7%	4-Fund 50.5%	4-Fund -42.6%	S&P 500 31.1%	4-Fund -2.5%	4-Fund -6.7%	4-Fund -5.5%	US SCB 25.4%	4-Fund 48.1%	4-Fund 36.0%	4-Fund 52.0%	4-Fund -8.7%	S&P 500 5.7%	4-Fund -0.8%	S&P 500 18.8%	4-Fund 45.4%
US SCV 32.4%	US SCB -34.1%	US SCB -36.5%	US SCV -55.5%	US LCV -10.7%	US LCV 92.5%	US SCV -6.3%	S&P 500 47.7%	US LCV 49.1%	US SCB -48.3%	4-Fund 30.4%	US SCV -3.9%	US SCV -8.1%	US SCB -11.1%	US LCV 22.0%	US LCV 31.0%	US LCV 29.7%	US LCV 41.9%	US SCB -9.9%	4-Fund 5.2%	US SCV -4.9%	4-Fund 18.7%	US SCB 39.1%
US LCV 24.6%	US SCV -37.1%	US SCV -43.6%	US LCV -61.1%	US SCB -11.6%	S&P 500 54.0%	US LCV -8.7%	US LCV 42.4%	S&P 500 33.9%	US SCV -50.6%	US LCV 18.1%	US LCV -4.9%	S&P 500 -9.8%	S&P 500 -11.6%	S&P 500 20.3%	S&P 500 25.9%	S&P 500 19.7%	S&P 500 36.4%	US SCV -10.4%	US SCB -0.8%	US SCB -5.4%	US LCV 15.5%	S&P 500 31.7%

1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
S&P 500 24.0%	S&P 500 18.4%	S&P 500 -1.0%	US SCV 64.4%	S&P 500 31.5%	US SCB 8.2%	S&P 500 -10.8%	US SCV 77.0%	US SCB 19.3%	S&P 500 0.5%	US SCB 29.9%	US LCV -4.4%	US SCV 29.6%	US SCV 25.5%	US SCV 40.1%	US LCV -5.7%	US SCB 79.1%	US SCV 49.0%	S&P 500 -8.5%	US LCV 10.8%	US SCB 20.4%	S&P 500 19.0%	US LCV -8.7%
US LCV 19.2%	US LCV 15.1%	US SCB -2.9%	US LCV 63.5%	4-Fund 25.0%	US LCV 7.2%	US LCV -14.4%	US SCB 61.2%	US SCV 15.0%	US LCV -0.2%	US SCV 29.2%	S&P 500 -8.7%	US LCV 24.8%	4-Fund 19.7%	US SCB 37.1%	US SCB -7.2%	US SCV 69.3%	US SCB 40.1%	US LCV -18.0%	S&P 500 4.0%	US SCV 15.1%	US LCV 17.4%	S&P 500 -14.7%
4-Fund 16.8%	4-Fund 13.0%	4-Fund -5.0%	4-Fund 59.8%	US SCV 23.8%	S&P 500 6.6%	4-Fund -14.6%	4-Fund 57.5%	4-Fund 14.1%	US SCB -2.6%	4-Fund 27.9%	4-Fund -9.8%	4-Fund 23.5%	US LCV 19.1%	4-Fund 26.8%	4-Fund -8.2%	4-Fund 49.3%	4-Fund 30.7%	4-Fund -20.7%	4-Fund 0.0%	4-Fund 14.8%	4-Fund 12.2%	4-Fund -22.6%
US SCB 13.9%	US SCB 9.7%	US LCV -5.5%	US SCB 58.8%	US LCV 23.5%	4-Fund 5.9%	US SCB -14.7%	US LCV 48.2%	S&P 500 12.0%	4-Fund -3.3%	S&P 500 26.9%	US SCV -10.3%	S&P 500 22.8%	US SCB 17.5%	US LCV 17.5%	US SCV -9.6%	US LCV 24.7%	US LCV 22.5%	US SCB -27.2%	US SCV -1.3%	S&P 500 14.3%	US SCV 7.8%	US SCV -30.2%
US SCV 9.9%	US SCV 8.9%	US SCV -10.6%	S&P 500 52.6%	US SCB 21.2%	US SCV 1.7%	US SCV -18.6%	S&P 500 43.4%	US LCV 10.2%	US SCV -10.7%	US LCV 25.6%	US SCB -15.7%	US SCB 17.0%	S&P 500 16.5%	S&P 500 12.5%	S&P 500 -10.0%	S&P 500 24.0%	S&P 500 11.1%	US SCV -28.9%	US SCB -13.7%	US LCV 9.4%	US SCB 4.5%	US SCB -36.6%

1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
US LCV -17.6%	US SCV 65.6%	US SCV 58.5%	US SCB 25.0%	US SCV 23.1%	US SCB 39.6%	US SCB 37.5%	US SCV 20.4%	US SCV 37.1%	US SCV 49.4%	US LCV 13.2%	US SCB 32.6%	US LCV 19.2%	S&P 500 5.2%	US SCV 34.0%	S&P 500 31.5%	S&P 500 -3.1%	US SCV 47.0%	US SCV 34.8%	US SCV 26.0%	US SCV 2.7%	US LCV 41.1%	US LCV 27.1%
US SCV -17.8%	US SCB 54.3%	US SCB 48.0%	US SCV 22.4%	US SCB 22.1%	US SCV 35.3%	S&P 500 32.4%	US LCV 9.0%	US SCB 30.7%	US SCB 39.1%	S&P 500 6.3%	S&P 500 32.2%	S&P 500 18.5%	US LCV 5.0%	US LCV 28.7%	US LCV 30.8%	4-Fund -15.7%	US SCB 46.5%	US SCB 23.9%	US LCV 22.0%	US LCV 2.5%	S&P 500 37.6%	US SCV 25.9%
4-Fund -22.2%	4-Fund 51.6%	US LCV 44.4%	4-Fund 9.7%	4-Fund 14.9%	4-Fund 29.7%	4-Fund 28.6%	4-Fund 7.5%	4-Fund 27.3%	4-Fund 35.8%	4-Fund 4.4%	4-Fund 31.3%	4-Fund 13.7%	4-Fund -1.2%	4-Fund 26.4%	4-Fund 22.6%	US LCV -15.7%	4-Fund 39.1%	4-Fund 20.9%	US SCB 20.6%	4-Fund 1.5%	4-Fund 35.3%	4-Fund 24.5%
S&P 500 -26.5%	US LCV 49.2%	4-Fund 43.7%	US LCV 0.5%	US LCV 7.8%	US LCV 25.5%	US SCV 24.2%	US SCB 5.4%	S&P 500 21.4%	US LCV 32.4%	US SCV 2.1%	US LCV 30.9%	US SCV 8.6%	US SCV -5.8%	US SCB 25.9%	US SCB 14.5%	US SCB -20.1%	US LCV 32.3%	US LCV 17.2%	4-Fund 19.7%	S&P 500 1.3%	US SCB 31.3%	S&P 500 23.0%
US SCB -27.1%	S&P 500 37.2%	S&P 500 23.8%	S&P 500 -7.2%	S&P 500 6.6%	S&P 500 18.4%	US LCV 20.2%	S&P 500 -4.9%	US LCV 19.9%	S&P 500 22.5%	US SCB -4.0%	US SCV 29.4%	US SCB 8.4%	US SCB -9.1%	S&P 500 16.8%	US SCV 13.5%	US SCV -23.9%	S&P 500 30.5%	S&P 500 7.6%	S&P 500 10.1%	US SCB -0.3%	US SCV 31.2%	US SCB 22.1%

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
US SCV 39.2%	S&P 500 28.6%	US SCB 22.8%	US SCV 20.5%	US SCV 28.3%	US SCV -7.0%	US SCV 66.3%	US SCV 23.9%	US LCV 9.7%	US LCV 22.2%	S&P 500 5.5%	US SCB -36.0%	US SCV 50.1%	US SCV 31.1%	S&P 500 2.1%	US LCV 20.2%	US SCB 44.4%	S&P 500 13.7%	S&P 500 1.4%	US SCV 37.2%	S&P 500 21.8%	S&P 500 -4.4%	S&P 500 31.5%
US LCV 38.4%	US LCV 8.4%	S&P 500 21.0%	US LCV 12.8%	US SCB 14.5%	US LCV -12.5%	US SCB 55.3%	US SCB 22.0%	US SCV 7.5%	US SCV 21.8%	US SCB -4.5%	US SCV -36.8%	US SCB 38.9%	US SCB 29.5%	4-Fund -2.8%	US SCB 18.2%	US SCV 42.8%	US LCV 8.5%	4-Fund -4.2%	US SCB 26.4%	US LCV 16.0%	4-Fund -11.1%	US LCV 24.3%
4-Fund 35.0%	4-Fund 7.3%	4-Fund 15.1%	4-Fund 7.3%	4-Fund 8.4%	US SCB -13.1%	4-Fund 47.0%	US LCV 19.5%	4-Fund 7.3%	4-Fund 19.8%	4-Fund -4.8%	S&P 500 -37.0%	4-Fund 36.1%	4-Fund 24.0%	US LCV -2.9%	4-Fund 17.8%	4-Fund 39.7%	4-Fund 7.5%	US LCV -4.9%	4-Fund 25.0%	4-Fund 14.5%	US SCB -12.8%	4-Fund 22.2%
S&P 500 33.4%	US SCB -2.5%	US LCV 8.4%	US SCB 4.8%	US LCV 2.7%	4-Fund -13.7%	US LCV 37.6%	4-Fund 19.1%	US SCB 7.3%	US SCB 19.4%	US LCV -8.4%	4-Fund -38.2%	US LCV 28.9%	US LCV 20.5%	US SCB -4.2%	US SCV 16.7%	US LCV 39.3%	US SCB 4.3%	US SCB -5.4%	US LCV 24.3%	US SCB 13.1%	US SCV -13.2%	US SCB 19.2%
US SCB 29.1%	US SCV -5.2%	US SCV 8.3%	S&P 500 -9.1%	S&P 500 -11.9%	S&P 500 -22.1%	S&P 500 28.7%	S&P 500 10.9%	S&P 500 4.9%	S&P 500 15.8%	US SCV -11.6%	US LCV -43.1%	S&P 500 26.5%	S&P 500 15.1%	US SCV -6.2%	S&P 500 16.0%	S&P 500 32.4%	US SCV 3.6%	US SCV -8.1%	S&P 500 12.0%	US SCV 7.1%	US LCV -14.1%	US SCV 13.8%

S&P 500 | US LCV | US SCB | US SCV | 4-Fund Combo

The John C. Bogle
Center for Financial Literacy

Sound Investing US Equity Port. (1928-2021) - Ordinal Rank Summary

Portfolio	CAGR	Ordinal Rank Frequency					'Average' Rank
		1	2	3	4	5	
US SCV	13.4%	**45**	5	4	9	31	2.7
		48%	5%	4%	10%	33%	
			<---------------- 19% ---------------->				
US All Value	12.5%	10	**42**	6	22	14	2.9
		11%	45%	6%	23%	15%	
			<---------------- 74% ---------------->				
US 2-Fund	12.2%	0	26	33	**35**	0	3.1
		0%	28%	35%	37%	0%	
			<---------------- 100% ---------------->				
US 4-Fund	12.0%	3	17	**48**	25	1	3.0
		3%	18%	51%	27%	1%	
			<---------------- 96% ---------------->				
S&P 500	10.2%	36	4	3	3	**48**	3.2
		38%	4%	3%	3%	51%	
			<---------------- 11% ---------------->				

The Lost Decades

- 2000-2009 S&P -.9% CAGR
- Ben Felix: Rational Reminder Podcast
- Lost decades last 120 months
- Period 6/1/1927 to 6/30/2023

The Lost Decades

- 145 lost decades for S&P 500
- Ave. loss for S&P -2.33%
- 108 (74%) profitable for SCV
- Ave. SCV return in lost decades +6.45%

Table B14B - Fine Tuning Table - S&P 500 vs US SCV Equity Portfolio

Index returns reduced by a representative fund's expense ratio, except S&P 500 Index shown below.

Year	100% S&P	10/90	20/80	30/70	40/60	50/50	60/40	70/30	80/20	90/10	100% SCV	Out Performance S&P	Out Performance US SCV
1970	4.0%	3.5%	3.0%	2.5%	2.0%	1.5%	0.9%	0.3%	-0.2%	-0.8%	-1.5%	5.4%	
1971	14.3%	14.4%	14.6%	14.7%	14.8%	14.8%	14.9%	14.9%	14.9%	14.9%	14.9%		0.6%
1972	18.9%	17.8%	16.7%	15.6%	14.5%	13.4%	12.2%	11.1%	9.9%	8.7%	7.6%	11.4%	
1973	-14.7%	-16.3%	-17.9%	-19.5%	-21.1%	-22.7%	-24.3%	-25.8%	-27.4%	-28.9%	-30.4%	15.7%	
1974	-26.5%	-25.5%	-24.6%	-23.6%	-22.8%	-21.9%	-21.1%	-20.3%	-19.5%	-18.7%	-18.0%		8.5%
1975	37.2%	40.0%	42.8%	45.7%	48.5%	51.3%	54.1%	56.9%	59.7%	62.5%	65.2%		28.1%
1976	23.8%	27.0%	30.3%	33.6%	37.0%	40.4%	43.9%	47.4%	51.0%	54.6%	58.2%		34.4%
1977	-7.2%	-4.6%	-1.9%	0.9%	3.7%	6.6%	9.6%	12.6%	15.8%	18.9%	22.2%		29.4%
1978	6.5%	8.2%	9.8%	11.5%	13.1%	14.8%	16.4%	18.0%	19.6%	21.2%	22.8%		16.3%
1979	18.4%	20.0%	21.6%	23.3%	24.9%	26.6%	28.2%	29.9%	31.6%	33.3%	35.0%		16.7%
1980	32.4%	31.6%	30.8%	30.0%	29.2%	28.3%	27.5%	26.6%	25.7%	24.9%	24.0%	8.4%	
1981	-4.9%	-2.6%	-0.3%	2.1%	4.6%	7.1%	9.6%	12.2%	14.8%	17.5%	20.2%		25.1%
1982	21.4%	22.9%	24.4%	25.9%	27.5%	29.0%	30.6%	32.1%	33.7%	35.3%	36.8%		15.5%
1983	22.5%	25.0%	27.5%	30.1%	32.7%	35.4%	38.0%	40.8%	43.5%	46.3%	49.1%		26.6%
1984	6.2%	5.8%	5.4%	4.9%	4.5%	4.1%	3.7%	3.2%	2.8%	2.4%	1.9%	4.3%	
1985	32.1%	31.9%	31.6%	31.3%	31.0%	30.7%	30.4%	30.1%	29.8%	29.5%	29.2%	3.0%	
1986	18.4%	17.4%	16.4%	15.4%	14.4%	13.4%	12.4%	11.4%	10.4%	9.4%	8.4%	10.0%	
1987	5.2%	4.1%	3.0%	1.9%	0.8%	-0.4%	-1.5%	-2.6%	-3.7%	-4.8%	-6.0%	11.2%	
1988	16.8%	18.4%	20.1%	21.8%	23.5%	25.2%	26.9%	28.6%	30.3%	32.0%	33.8%		17.0%
1989	31.5%	29.6%	27.7%	25.8%	24.0%	22.2%	20.3%	18.5%	16.8%	15.0%	13.2%	18.2%	
1990	-3.1%	-5.4%	-7.6%	-9.8%	-12.0%	-14.1%	-16.1%	-18.2%	-20.2%	-22.1%	-24.0%	20.9%	
1991	30.4%	32.0%	33.6%	35.3%	36.9%	38.5%	40.1%	41.8%	43.4%	45.1%	46.7%		16.3%
1992	7.6%	10.1%	12.7%	15.3%	17.9%	20.6%	23.3%	26.1%	28.9%	31.7%	34.5%		26.9%
1993	10.0%	11.6%	13.3%	14.9%	16.5%	18.2%	19.9%	21.6%	23.3%	25.0%	26.8%		16.7%
1994	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.2%	0.1%	
1995	37.5%	36.7%	35.9%	35.1%	34.3%	33.4%	32.6%	31.8%	30.9%	30.1%	29.3%	8.3%	
1996	22.9%	22.9%	22.9%	22.8%	22.8%	22.7%	22.7%	22.6%	22.5%	22.4%	22.3%	0.6%	
1997	33.3%	33.2%	33.0%	32.8%	32.6%	32.3%	32.1%	31.8%	31.5%	31.1%	30.7%	2.6%	
1998	28.5%	24.5%	20.5%	16.7%	13.0%	9.4%	5.8%	2.4%	-0.9%	-4.2%	-7.3%	35.8%	
1999	21.0%	20.3%	19.6%	18.9%	18.1%	17.4%	16.5%	15.7%	14.8%	14.0%	13.0%	8.0%	
2000	-9.1%	-7.3%	-5.5%	-3.7%	-1.9%	-0.1%	1.7%	3.6%	5.4%	7.2%	9.0%		18.1%
2001	-11.9%	-8.8%	-5.7%	-2.4%	0.9%	4.3%	7.8%	11.4%	15.1%	18.8%	22.7%		34.6%
2002	-22.1%	-20.8%	-19.5%	-18.2%	-16.9%	-15.6%	-14.3%	-13.0%	-11.8%	-10.5%	-9.3%		12.9%
2003	28.7%	31.5%	34.4%	37.4%	40.4%	43.4%	46.5%	49.7%	52.9%	56.1%	59.4%		30.8%
2004	10.8%	12.3%	13.7%	15.1%	16.6%	18.0%	19.5%	21.0%	22.4%	23.9%	25.4%		14.5%
2005	4.9%	5.2%	5.5%	5.8%	6.1%	6.4%	6.7%	7.0%	7.3%	7.5%	7.8%		2.9%
2006	15.8%	16.4%	17.0%	17.6%	18.2%	18.7%	19.3%	19.9%	20.5%	21.0%	21.5%		5.8%
2007	5.5%	3.8%	2.1%	0.4%	-1.3%	-2.9%	-4.5%	-6.1%	-7.7%	-9.2%	-10.7%	16.2%	
2008	-37.0%	-37.0%	-36.9%	-36.8%	-36.8%	-36.8%	-36.8%	-36.8%	-36.8%	-36.8%	-36.8%		0.2%
2009	26.4%	27.3%	28.1%	28.9%	29.6%	30.4%	31.1%	31.8%	32.4%	33.0%	33.6%		7.2%
2010	15.0%	16.6%	18.2%	19.8%	21.3%	22.9%	24.5%	26.1%	27.7%	29.3%	30.9%		15.9%
2011	2.1%	1.1%	0.2%	-0.8%	-1.8%	-2.7%	-3.7%	-4.6%	-5.6%	-6.6%	-7.5%	9.6%	
2012	16.0%	16.5%	17.1%	17.7%	18.3%	18.9%	19.4%	20.0%	20.6%	21.2%	21.7%		5.8%
2013	32.3%	33.3%	34.3%	35.3%	36.3%	37.3%	38.3%	39.3%	40.4%	41.4%	42.4%		10.0%
2014	13.7%	12.6%	11.6%	10.6%	9.6%	8.6%	7.6%	6.5%	5.5%	4.5%	3.5%	10.2%	
2015	1.4%	0.4%	-0.5%	-1.4%	-2.3%	-3.2%	-4.1%	-5.0%	-6.0%	-6.9%	-7.8%	9.2%	
2016	11.9%	13.5%	15.1%	16.8%	18.4%	20.0%	21.6%	23.3%	24.9%	26.6%	28.3%		16.3%
2017	21.8%	20.3%	18.8%	17.3%	15.9%	14.4%	13.0%	11.5%	10.1%	8.6%	7.2%	14.6%	
2018	-4.4%	-5.5%	-6.6%	-7.7%	-8.8%	-9.8%	-10.9%	-12.0%	-13.0%	-14.1%	-15.1%	10.7%	
2019	31.4%	30.1%	28.8%	27.5%	26.2%	24.8%	23.5%	22.2%	20.8%	19.5%	18.1%	13.3%	
2020	18.4%	16.9%	15.4%	13.9%	12.3%	10.7%	9.1%	7.4%	5.7%	4.0%	2.2%	16.2%	
2021	28.7%	29.9%	31.1%	32.3%	33.4%	34.5%	35.6%	36.7%	37.8%	38.8%	39.8%		11.1%
2022	-18.1%	-16.7%	-15.3%	-13.9%	-12.4%	-11.0%	-9.5%	-8.0%	-6.5%	-5.0%	-3.5%		14.6%

	100% S&P	10/90	20/80	30/70	40/60	50/50	60/40	70/30	80/20	90/10	100% SCV
Annualized Return	10.4%	10.8%	11.2%	11.5%	11.9%	12.2%	12.5%	12.8%	13.1%	13.4%	13.6%
Standard Deviation	17.1%	17.1%	17.2%	17.4%	17.8%	18.3%	18.9%	19.7%	20.5%	21.5%	22.5%
Worst 6 Months	-41.8%	-42.7%	-43.6%	-44.4%	-45.3%	-46.1%	-47.0%	-47.8%	-48.7%	-49.5%	-50.3%
Worst 12 Months	-43.3%	-43.9%	-44.5%	-45.1%	-45.7%	-46.3%	-46.9%	-47.5%	-48.1%	-48.7%	-49.3%
Worst 36 Mo (An'lzd)	-16.1%	-15.8%	-16.5%	-17.2%	-17.9%	-18.6%	-19.3%	-20.0%	-20.7%	-21.4%	-22.1%
Worst 60 Mos Annualized	-6.7%	-6.8%	-6.9%	-7.0%	-7.2%	-7.3%	-7.5%	-7.6%	-7.8%	-8.0%	-8.2%
Worst Drawdown	-51.0%	-51.6%	-52.4%	-53.5%	-54.7%	-55.8%	-56.9%	-58.0%	-59.1%	-60.1%	-61.2%

S&P vs US SCV Summary	
S&P	US SCV
24	29
Avg. Out-Perf Rtn.	
S&P	US SCV
11.0%	16.5%

Table B14B - Fine Tuning Table - S&P 500 vs US SCV Equity Portfolio

Index returns reduced by a representative fund's expense ratio, except S&P 500 Index shown below.

Year	100% S&P	10/90	20/80	30/70	40/60	50/50	60/40	70/30	80/20	90/10	100% SCV
Annualized Return	10.4%	10.8%	11.2%	11.5%	11.9%	12.2%	12.5%	12.8%	13.1%	13.4%	13.6%
Standard Deviation	17.1%	17.1%	17.2%	17.4%	17.8%	18.3%	18.9%	19.7%	20.5%	21.5%	22.5%
Worst 6 Months	-41.8%	-42.7%	-43.6%	-44.4%	-45.3%	-46.1%	-47.0%	-47.8%	-48.7%	-49.5%	-50.3%
Worst 12 Months	-43.3%	-43.9%	-44.5%	-45.1%	-45.7%	-46.3%	-46.9%	-47.5%	-48.1%	-48.7%	-49.3%
Worst 36 Mo (An'lzd)	-16.1%	-15.8%	-16.5%	-17.2%	-17.9%	-18.6%	-19.3%	-20.0%	-20.7%	-21.4%	-22.1%
Worst 60 Mos Annualized	-6.7%	-6.8%	-6.9%	-7.0%	-7.2%	-7.3%	-7.5%	-7.6%	-7.8%	-8.0%	-8.2%
Worst Drawdown	-51.0%	-51.6%	-52.4%	-53.5%	-54.7%	-55.8%	-56.9%	-58.0%	-59.1%	-60.1%	-61.2%

Out Performance	
S&P	**US SCV**
S&P vs US SCV Summary	
S&P	US SCV
24	**29**
Avg. Out-Perf Rtn.	
S&P	US SCV
11.0%	**16.5%**

The John C. Bogle
Center for Financial Literacy

Table C14A - Fixed Contributions: S&P 500 vs US SCV Equity Portfolio

Annual contribution grows at 3%/yr. Contributions at BEGINNING OF MONTH. Results reflect Fine Tuning Table returns.

Year	100% S&P	10/90	20/80	30/70	40/60	50/50	60/40	70/30	80/20	90/10	100% SCV	S&P 500 Idx	Distribution
1970	$1,022	$1,019	$1,016	$1,014	$1,011	$1,008	$1,005	$1,002	$999	$995	$992	$1,022	$1,000
1971	$2,275	$2,275	$2,274	$2,273	$2,271	$2,269	$2,266	$2,263	$2,259	$2,256	$2,251	$2,276	$1,030
1972	$3,873	$3,842	$3,809	$3,776	$3,742	$3,708	$3,673	$3,637	$3,600	$3,563	$3,525	$3,875	$1,061
1973	$4,308	$4,208	$4,109	$4,011	$3,914	$3,818	$3,724	$3,630	$3,538	$3,447	$3,357	$4,311	$1,093
1974	$4,124	$4,098	$4,069	$4,038	$4,005	$3,969	$3,932	$3,893	$3,852	$3,809	$3,765	$4,127	$1,126
1975	$7,038	$7,134	$7,226	$7,311	$7,392	$7,466	$7,536	$7,599	$7,658	$7,711	$7,759	$7,044	$1,159
1976	$10,057	$10,426	$10,798	$11,172	$11,548	$11,926	$12,304	$12,683	$13,062	$13,441	$13,819	$10,067	$1,194
1977	$10,513	$11,149	$11,814	$12,510	$13,235	$13,992	$14,780	$15,600	$16,453	$17,339	$18,259	$10,526	$1,230
1978	$12,512	$13,385	$14,310	$15,290	$16,327	$17,423	$18,580	$19,798	$21,082	$22,431	$23,847	$12,529	$1,267
1979	$16,245	$17,504	$18,858	$20,312	$21,870	$23,539	$25,324	$27,232	$29,267	$31,437	$33,747	$16,270	$1,305
1980	$23,072	$24,597	$26,223	$27,954	$29,794	$31,747	$33,818	$36,010	$38,327	$40,772	$43,349	$23,112	$1,344
1981	$23,280	$25,317	$27,537	$29,953	$32,579	$35,430	$38,521	$41,870	$45,491	$49,403	$53,623	$23,324	$1,384
1982	$29,842	$32,708	$35,866	$39,340	$43,158	$47,350	$51,947	$56,981	$62,487	$68,503	$75,067	$29,904	$1,426
1983	$38,191	$42,542	$47,419	$52,883	$58,997	$65,833	$73,467	$81,983	$91,472	$102,033	$113,772	$38,279	$1,469
1984	$42,136	$46,571	$51,525	$57,051	$63,210	$70,067	$77,693	$86,163	$95,560	$105,972	$117,492	$42,241	$1,513
1985	$57,492	$63,220	$69,603	$76,708	$84,607	$93,381	$103,113	$113,896	$125,827	$139,011	$153,560	$57,648	$1,558
1986	$69,852	$75,994	$82,783	$90,277	$98,539	$107,635	$117,633	$128,607	$140,635	$153,796	$168,176	$70,057	$1,605
1987	$75,183	$80,795	$86,934	$93,640	$100,949	$108,902	$117,539	$126,900	$137,026	$147,957	$159,736	$75,421	$1,653
1988	$89,648	$97,557	$106,294	$115,934	$126,553	$138,234	$151,063	$165,127	$180,521	$197,339	$215,681	$89,953	$1,702
1989	$119,884	$128,419	$137,729	$147,865	$158,876	$170,814	$183,729	$197,671	$212,687	$228,824	$246,126	$120,320	$1,754
1990	$117,903	$123,232	$128,945	$135,049	$141,544	$148,431	$155,706	$163,363	$171,393	$179,786	$188,525	$118,361	$1,806
1991	$155,932	$164,871	$174,504	$184,858	$195,955	$207,813	$220,451	$233,878	$248,103	$263,127	$278,949	$156,575	$1,860
1992	$169,766	$183,592	$198,714	$215,226	$233,222	$252,795	$274,038	$297,044	$321,901	$348,693	$377,501	$170,508	$1,916
1993	$188,888	$207,057	$227,167	$249,398	$273,934	$300,970	$330,705	$363,347	$399,105	$438,194	$480,828	$189,761	$1,974
1994	$193,372	$211,794	$232,180	$254,708	$279,564	$306,941	$337,040	$370,065	$406,227	$445,736	$488,803	$194,314	$2,033
1995	$268,457	$292,057	$318,020	$346,536	$377,802	$412,017	$449,383	$490,101	$534,371	$582,388	$634,340	$269,831	$2,094
1996	$332,414	$361,380	$393,211	$428,132	$466,371	$508,162	$553,735	$603,322	$657,146	$715,426	$778,367	$334,201	$2,157
1997	$445,793	$483,886	$525,605	$571,211	$620,963	$675,118	$733,927	$797,631	$866,453	$940,602	$1,020,259	$448,307	$2,221
1998	$575,654	$604,972	$636,151	$669,190	$704,067	$740,743	$779,150	$819,203	$860,788	$903,769	$947,983	$579,056	$2,288
1999	$699,192	$730,576	$763,612	$798,237	$834,361	$871,867	$910,613	$950,427	$991,112	$1,032,447	$1,074,182	$703,515	$2,357
2000	$637,648	$679,341	$723,767	$770,952	$820,891	$873,548	$928,846	$986,671	$1,046,865	$1,109,226	$1,173,509	$641,770	$2,427
2001	$564,023	$621,783	$685,267	$754,875	$830,992	$913,983	$1,004,183	$1,101,886	$1,207,336	$1,320,715	$1,442,135	$567,827	$2,500
2002	$441,485	$494,718	$554,049	$620,012	$693,145	$773,986	$863,056	$960,853	$1,067,836	$1,184,412	$1,310,921	$444,583	$2,575
2003	$571,027	$653,683	$747,836	$854,838	$976,130	$1,113,237	$1,267,752	$1,441,318	$1,635,612	$1,852,319	$2,093,098	$575,181	$2,652
2004	$635,849	$736,788	$853,205	$987,168	$1,140,937	$1,316,953	$1,517,836	$1,746,368	$2,005,474	$2,298,191	$2,627,639	$640,644	$2,732
2005	$669,775	$778,016	$903,182	$1,047,584	$1,213,755	$1,404,439	$1,622,591	$1,871,359	$2,154,063	$2,474,163	$2,835,224	$675,006	$2,814
2006	$778,486	$908,555	$1,059,685	$1,234,872	$1,437,419	$1,670,937	$1,939,335	$2,246,811	$2,597,828	$2,997,078	$3,449,438	$784,773	$2,898
2007	$824,082	$945,699	$1,084,571	$1,242,732	$1,422,339	$1,625,663	$1,855,057	$2,112,933	$2,401,722	$2,723,829	$3,081,583	$830,960	$2,985
2008	$521,448	$598,665	$686,831	$787,220	$901,178	$1,030,113	$1,175,476	$1,338,739	$1,521,373	$1,724,813	$1,950,427	$525,945	$3,075
2009	$662,853	$765,537	$883,370	$1,018,187	$1,171,939	$1,346,674	$1,544,512	$1,767,615	$2,018,149	$2,298,237	$2,609,910	$668,733	$3,167
2010	$765,997	$896,180	$1,047,532	$1,222,979	$1,425,706	$1,659,140	$1,926,932	$2,232,921	$2,581,088	$2,975,498	$3,420,227	$772,991	$3,262
2011	$785,339	$909,646	$1,052,649	$1,216,636	$1,404,033	$1,617,383	$1,859,309	$2,132,469	$2,439,511	$2,783,004	$3,165,373	$792,715	$3,360
2012	$914,504	$1,063,934	$1,236,692	$1,435,794	$1,664,470	$1,926,143	$2,224,387	$2,562,882	$2,945,352	$3,375,484	$3,856,848	$923,331	$3,461
2013	$1,214,502	$1,422,851	$1,665,537	$1,947,347	$2,273,491	$2,649,570	$3,081,540	$3,575,650	$4,138,364	$4,776,252	$5,495,867	$1,226,544	$3,565
2014	$1,384,277	$1,606,644	$1,863,096	$2,157,879	$2,495,500	$2,880,683	$3,318,303	$3,813,306	$4,370,606	$4,994,969	$5,690,875	$1,398,378	$3,671
2015	$1,406,821	$1,617,590	$1,858,204	$2,131,906	$2,442,035	$2,791,973	$3,185,071	$3,624,563	$4,113,473	$4,654,502	$5,249,911	$1,421,539	$3,782
2016	$1,578,750	$1,840,620	$2,143,740	$2,493,385	$2,895,169	$3,354,986	$3,878,927	$4,473,178	$5,143,887	$5,897,013	$6,738,147	$1,595,697	$3,895
2017	$1,927,320	$2,218,760	$2,551,546	$2,930,098	$3,358,940	$3,842,613	$4,385,561	$4,992,014	$5,665,840	$6,410,383	$7,228,301	$1,948,534	$4,012
2018	$1,846,296	$2,100,637	$2,387,339	$2,709,179	$3,068,852	$3,468,883	$3,911,536	$4,398,713	$4,931,839	$5,511,751	$6,138,582	$1,867,137	$4,132
2019	$2,431,868	$2,738,522	$3,080,064	$3,458,722	$3,876,468	$4,334,914	$4,835,212	$5,377,945	$5,963,017	$6,589,550	$7,255,788	$2,459,983	$4,256
2020	$2,884,111	$3,206,765	$3,559,614	$3,943,299	$4,357,977	$4,803,221	$5,277,940	$5,780,297	$6,307,642	$6,856,466	$7,422,375	$2,918,264	$4,384
2021	$3,717,198	$4,171,085	$4,671,660	$5,220,626	$5,819,027	$6,467,088	$7,164,068	$7,908,110	$8,696,120	$9,523,650	$10,384,837	$3,762,260	$4,515
2022	$3,048,162	$3,478,100	$3,960,906	$4,500,236	$5,099,305	$5,760,699	$6,486,185	$7,276,505	$8,131,168	$9,048,257	$10,024,247	$3,086,005	$4,651

Total Contributions $126,347

Table C14A - Fixed Contributions: S&P 500 vs US SCV Equity Portfolio

Annual contribution grows at 3%/yr. Contributions at BEGINNING OF MONTH. Results reflect Fine Tuning Table returns.

Year	100% S&P	10/90	20/80	30/70	40/60	50/50	60/40	70/30	80/20	90/10	100% SCV	S&P 500 Idx	Distribution
2000	$637,648	$679,341	$723,767	$770,952	$820,891	$873,548	$928,846	$986,671	$1,046,865	$1,109,226	$1,173,509	$641,770	$2,427
2001	$564,023	$621,783	$685,267	$754,875	$830,992	$913,983	$1,004,183	$1,101,886	$1,207,336	$1,320,715	$1,442,135	$567,827	$2,500
2002	$441,485	$494,718	$554,049	$620,012	$693,145	$773,986	$863,056	$960,853	$1,067,836	$1,184,412	$1,310,921	$444,583	$2,575
2003	$571,027	$653,683	$747,836	$854,838	$976,130	$1,113,237	$1,267,752	$1,441,318	$1,635,612	$1,852,319	$2,093,098	$575,181	$2,652
2004	$635,849	$736,788	$853,205	$987,168	$1,140,937	$1,316,953	$1,517,836	$1,746,368	$2,005,474	$2,298,191	$2,627,639	$640,644	$2,732
2005	$669,775	$778,016	$903,182	$1,047,584	$1,213,755	$1,404,439	$1,622,591	$1,871,359	$2,154,063	$2,474,163	$2,835,224	$675,006	$2,814
2006	$778,486	$908,555	$1,059,685	$1,234,872	$1,437,419	$1,670,937	$1,939,335	$2,246,811	$2,597,828	$2,997,078	$3,449,438	$784,773	$2,898
2007	$824,082	$945,699	$1,084,571	$1,242,732	$1,422,339	$1,625,663	$1,855,057	$2,112,933	$2,401,722	$2,723,829	$3,081,583	$830,960	$2,985
2008	$521,448	$598,665	$686,831	$787,220	$901,178	$1,030,113	$1,175,476	$1,338,739	$1,521,373	$1,724,813	$1,950,427	$525,945	$3,075
2009	$662,853	$765,537	$883,370	$1,018,187	$1,171,939	$1,346,674	$1,544,512	$1,767,615	$2,018,149	$2,298,237	$2,609,910	$668,733	$3,167

Table D14.4A - Fixed Distributions: S&P 500 vs US SCV Equity Portfolio - Conservative ($40,000/yr)

Initial investment $1,000,000. Fixed initial distribution grows with inflation. Distribution at BEGINNING OF YEAR. Results reflect Fine Tuning Table returns.

Year	100% S&P	10/90	20/80	30/70	40/60	50/50	60/40	70/30	80/20	90/10	100% SCV	S&P 500 Idx	Distribution	CPI (%)
1970	$998,351	$993,833	$989,148	$984,300	$979,292	$974,127	$968,809	$963,339	$957,722	$951,962	$946,060	$998,650	$40,000	5.57%
1971	$1,092,695	$1,088,981	$1,084,871	$1,080,370	$1,075,486	$1,070,226	$1,064,597	$1,058,607	$1,052,264	$1,045,577	$1,038,552	$1,093,361	$42,228	3.27%
1972	$1,247,793	$1,231,919	$1,215,547	$1,198,705	$1,181,425	$1,163,734	$1,145,663	$1,127,239	$1,108,494	$1,089,454	$1,070,148	$1,248,954	$43,607	3.41%
1973	$1,026,000	$993,094	$960,447	$928,104	$896,108	$864,501	$833,320	$802,600	$772,373	$742,670	$713,517	$1,027,304	$45,093	8.71%
1974	$718,268	$703,231	$687,515	$671,182	$654,295	$636,919	$619,115	$600,945	$582,470	$563,749	$544,838	$719,448	$49,019	12.34%
1975	$909,725	$907,456	$903,345	$897,423	$889,727	$880,302	$869,202	$856,484	$842,213	$826,460	$809,299	$911,611	$55,066	6.94%
1976	$1,053,445	$1,078,011	$1,100,432	$1,120,561	$1,138,262	$1,153,409	$1,165,887	$1,175,592	$1,182,434	$1,186,336	$1,187,233	$1,056,091	$58,886	4.86%
1977	$920,219	$969,863	$1,019,354	$1,068,424	$1,116,794	$1,164,172	$1,210,255	$1,254,728	$1,297,270	$1,337,552	$1,375,238	$922,953	$61,751	6.70%
1978	$910,222	$978,023	$1,047,277	$1,117,668	$1,188,843	$1,260,417	$1,331,969	$1,403,043	$1,473,154	$1,541,784	$1,608,387	$913,408	$65,889	9.02%
1979	$992,563	$1,087,452	$1,186,412	$1,289,147	$1,395,299	$1,504,441	$1,616,077	$1,729,640	$1,844,488	$1,959,906	$2,075,100	$996,630	$71,830	13.29%
1980	$1,206,123	$1,323,825	$1,445,224	$1,569,802	$1,696,968	$1,826,054	$1,956,314	$2,086,929	$2,217,005	$2,345,575	$2,471,606	$1,211,862	$81,379	12.52%
1981	$1,059,527	$1,199,987	$1,350,150	$1,509,910	$1,679,039	$1,857,184	$2,043,845	$2,238,372	$2,439,947	$2,647,578	$2,860,086	$1,065,303	$91,565	8.92%
1982	$1,164,934	$1,352,062	$1,555,607	$1,775,908	$2,013,151	$2,267,341	$2,538,281	$2,825,541	$3,128,431	$3,445,974	$3,776,879	$1,172,291	$99,735	3.83%
1983	$1,299,953	$1,560,471	$1,851,805	$2,175,858	$2,534,401	$2,929,017	$3,361,043	$3,831,505	$4,341,044	$4,889,841	$5,477,530	$1,309,350	$103,554	3.79%
1984	$1,266,819	$1,537,341	$1,838,093	$2,170,672	$2,536,501	$2,936,782	$3,372,430	$3,844,017	$4,351,702	$4,895,160	$5,473,505	$1,277,183	$107,480	3.95%
1985	$1,526,249	$1,879,700	$2,271,346	$2,702,995	$3,176,202	$3,692,208	$4,251,862	$4,855,546	$5,503,094	$6,193,705	$6,925,849	$1,540,395	$111,724	3.80%
1986	$1,670,272	$2,071,196	$2,509,503	$2,986,133	$3,501,671	$4,056,283	$4,649,650	$5,280,905	$5,948,562	$6,650,452	$7,383,658	$1,687,526	$115,968	1.10%
1987	$1,633,776	$2,033,955	$2,463,699	$2,922,689	$3,410,199	$3,925,060	$4,465,614	$5,029,681	$5,614,526	$6,216,829	$6,832,665	$1,652,422	$117,241	4.43%
1988	$1,764,857	$2,263,897	$2,811,943	$3,410,202	$4,059,373	$4,759,558	$5,510,177	$6,309,874	$7,156,428	$8,046,666	$8,976,381	$1,787,161	$122,440	4.42%
1989	$2,151,881	$2,767,486	$3,427,199	$4,130,039	$4,874,351	$5,657,750	$6,477,069	$7,328,314	$8,206,628	$9,106,260	$10,020,558	$2,181,840	$127,851	4.65%
1990	$1,954,862	$2,491,360	$3,041,986	$3,603,707	$4,173,074	$4,746,244	$5,318,995	$5,886,763	$6,444,677	$6,987,610	$7,510,230	$1,984,481	$133,793	6.11%
1991	$2,364,512	$3,101,886	$3,875,532	$4,682,139	$5,517,635	$6,377,171	$7,255,122	$8,145,096	$9,039,957	$9,931,866	$10,812,338	$2,403,848	$141,963	3.06%
1992	$2,386,620	$3,254,968	$4,202,881	$5,230,140	$6,335,357	$7,515,845	$8,767,492	$10,084,656	$11,460,063	$12,884,742	$14,347,968	$2,429,667	$146,313	2.90%
1993	$2,460,552	$3,465,745	$4,589,477	$5,835,817	$7,207,538	$8,705,867	$10,330,225	$12,077,969	$13,944,136	$15,921,204	$17,998,867	$2,508,668	$150,557	2.75%
1994	$2,335,597	$3,354,073	$4,492,683	$5,755,457	$7,145,088	$8,662,676	$10,307,466	$12,076,587	$13,964,793	$15,964,225	$18,064,189	$2,385,048	$154,695	2.67%
1995	$2,993,866	$4,368,560	$5,889,790	$7,559,978	$9,379,607	$11,346,932	$13,457,701	$15,704,889	$18,078,448	$20,565,097	$23,148,141	$3,062,775	$158,833	2.54%
1996	$3,479,977	$5,169,177	$7,037,477	$9,087,284	$11,318,534	$13,728,339	$16,310,653	$19,055,955	$21,950,961	$24,978,388	$28,116,762	$3,565,734	$162,865	3.32%
1997	$4,415,297	$6,660,161	$9,136,625	$11,845,549	$14,784,237	$17,946,006	$21,319,781	$24,889,738	$28,635,008	$32,529,448	$36,541,511	$4,530,960	$168,276	1.70%
1998	$5,455,477	$8,078,190	$10,807,859	$13,626,004	$16,511,241	$19,439,411	$22,383,777	$25,315,299	$28,202,977	$31,014,264	$33,715,543	$5,605,801	$171,141	1.61%
1999	$6,391,015	$9,511,291	$12,721,156	$15,994,143	$19,300,787	$22,608,942	$25,884,189	$29,090,327	$32,189,939	$35,145,023	$37,917,678	$6,574,857	$173,899	2.68%
2000	$5,645,132	$8,648,465	$11,849,447	$15,227,842	$18,758,462	$22,411,199	$26,151,178	$29,939,049	$33,731,417	$37,481,413	$41,139,391	$5,813,946	$178,568	3.39%
2001	$4,810,030	$7,717,099	$11,005,295	$14,681,389	$18,745,540	$23,190,319	$27,999,827	$33,148,917	$38,602,581	$44,315,534	$50,232,033	$4,960,240	$184,615	1.55%
2002	$3,599,789	$5,963,360	$8,710,153	$11,860,052	$15,427,505	$19,420,237	$23,837,966	$28,671,154	$33,899,869	$39,492,783	$45,406,387	$3,717,905	$187,480	2.38%
2003	$4,384,264	$7,589,912	$11,449,546	$16,027,816	$21,385,281	$27,575,856	$34,643,968	$42,621,495	$51,524,556	$61,350,240	$72,073,386	$4,537,555	$191,936	1.88%
2004	$4,643,021	$8,301,522	$12,795,567	$18,228,483	$24,702,836	$32,317,152	$41,162,073	$51,315,995	$62,840,223	$75,773,772	$90,127,916	$4,814,370	$195,544	3.26%
2005	$4,657,901	$8,521,038	$13,288,574	$19,076,836	$26,002,237	$34,177,699	$43,708,413	$54,686,982	$67,187,989	$81,262,110	$96,929,902	$4,839,060	$201,910	3.42%
2006	$5,150,364	$9,673,252	$15,300,484	$22,184,209	$30,479,016	$40,337,596	$51,905,491	$65,314,952	$80,677,963	$98,078,527	$117,564,398	$5,361,667	$208,806	2.54%
2007	$5,205,884	$9,814,138	$15,397,704	$22,056,718	$29,884,970	$38,965,775	$49,367,400	$61,138,141	$74,301,178	$88,849,385	$104,740,274	$5,430,351	$214,111	4.08%
2008	$3,138,478	$6,047,161	$9,576,018	$13,788,375	$18,743,141	$24,492,086	$31,076,847	$38,525,721	$46,850,338	$56,042,338	$66,070,181	$3,280,879	$222,850	0.09%
2009	$3,685,865	$7,412,330	$11,979,910	$17,482,559	$24,009,372	$31,640,680	$40,443,680	$50,467,691	$61,739,176	$74,256,691	$87,985,974	$3,867,038	$223,054	2.72%
2010	$3,976,270	$8,375,767	$13,886,954	$20,662,659	$28,855,891	$38,614,654	$50,075,797	$63,357,962	$78,553,772	$95,721,439	$114,876,049	$4,185,915	$229,124	1.50%
2011	$3,821,642	$8,234,859	$13,677,268	$20,268,252	$28,121,419	$37,339,546	$48,008,894	$60,193,030	$73,926,346	$89,207,492	$105,993,009	$4,036,860	$232,551	2.96%
2012	$4,154,248	$9,318,460	$15,739,092	$23,574,398	$32,978,514	$44,095,264	$57,051,051	$71,946,964	$88,850,292	$107,785,732	$128,726,607	$4,405,140	$239,440	1.74%
2013	$5,175,704	$12,100,595	$20,816,216	$31,574,731	$44,629,184	$60,224,832	$78,588,810	$99,918,286	$124,367,289	$152,032,581	$182,938,999	$5,509,373	$243,608	1.50%
2014	$5,601,405	$13,351,805	$22,960,607	$34,651,924	$48,640,507	$65,122,279	$84,263,630	$106,189,727	$130,972,174	$158,616,466	$189,049,793	$5,982,411	$247,267	0.76%
2015	$5,424,707	$13,161,021	$22,605,854	$33,928,865	$47,282,195	$62,791,720	$80,547,652	$100,594,797	$122,922,872	$147,457,317	$174,051,131	$5,812,613	$249,137	0.73%
2016	$5,790,806	$14,656,764	$25,739,391	$39,321,252	$55,675,876	$75,055,922	$97,679,689	$123,716,240	$153,269,594	$186,362,545	$222,920,817	$6,226,828	$250,955	2.07%
2017	$6,740,955	$17,324,344	$30,278,506	$45,838,671	$64,214,040	$85,575,168	$110,040,494	$137,662,487	$168,414,009	$202,175,578	$238,724,286	$7,274,156	$256,161	2.11%
2018	$6,193,444	$16,123,563	$28,038,313	$42,079,189	$58,354,452	$76,929,281	$97,815,965	$120,964,592	$146,254,771	$173,488,945	$202,387,856	$6,705,135	$261,564	1.91%
2019	$7,790,761	$20,635,020	$35,773,237	$53,305,735	$73,283,043	$95,695,820	$120,465,636	$147,437,182	$176,372,496	$206,947,782	$238,753,331	$8,465,851	$266,560	2.29%
2020	$8,901,350	$23,808,490	$40,973,182	$60,391,001	$81,991,285	$105,629,875	$131,084,011	$158,049,958	$186,143,867	$214,906,234	$243,810,175	$9,703,526	$272,651	1.36%
2021	$11,100,823	$30,570,285	$53,350,807	$79,506,820	$109,011,251	$141,731,922	$177,420,620	$215,705,810	$256,089,911	$297,951,920	$340,555,936	$12,136,833	$276,365	7.04%
2022	$8,848,131	$25,214,046	$44,934,792	$68,215,609	$95,188,131	$125,891,724	$160,255,838	$198,084,522	$239,044,296	$282,656,598	$328,295,896	$9,699,475	$295,811	6.45%

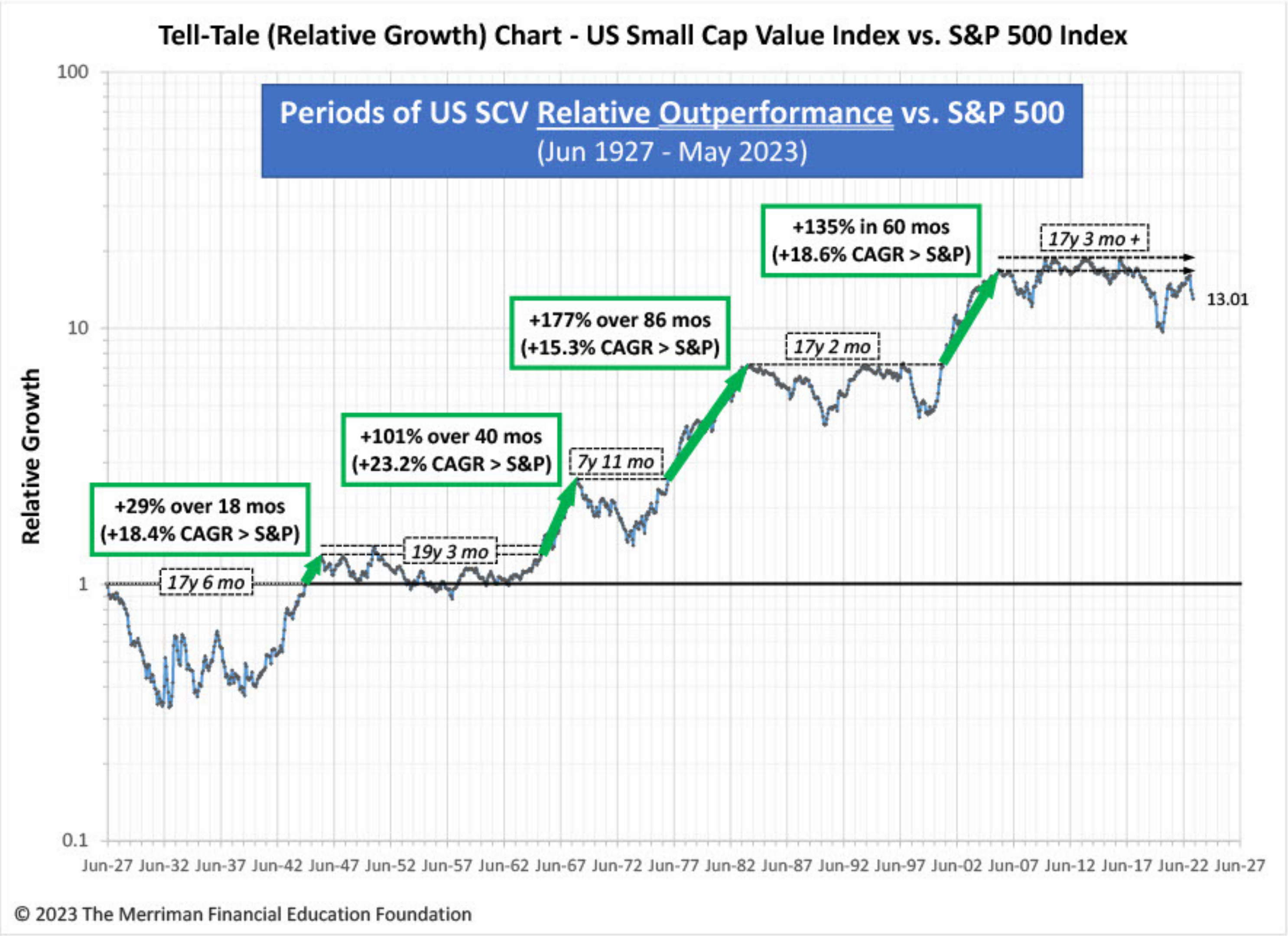
Total Distribuitions (1970-2022) = $8,504,711

The John C. Bogle Center for Financial Literacy

Table D14.4A - Fixed Distributions: S&P 500 vs US SCV Equity Portfolio - Conservative ($40,000/yr)

Initial investment $1,000,000. Fixed initial distribution grows with inflation. Distribution at BEGINNING OF YEAR. Results reflect Fine Tuning Table returns.

Year	100% S&P	10/90	20/80	30/70	40/60	50/50	60/40	70/30	80/20	90/10	100% SCV	S&P 500 Idx	Distribution	CPI (%)
2000	$5,645,132	$8,648,465	$11,849,447	$15,227,842	$18,758,462	$22,411,199	$26,151,178	$29,939,049	$33,731,417	$37,481,413	$41,139,391	$5,813,946	$178,568	3.39%
2001	$4,810,030	$7,717,099	$11,005,295	$14,681,389	$18,745,540	$23,190,319	$27,999,827	$33,148,917	$38,602,581	$44,315,534	$50,232,033	$4,960,240	$184,615	1.55%
2002	$3,599,789	$5,963,360	$8,710,153	$11,860,052	$15,427,505	$19,420,237	$23,837,966	$28,671,154	$33,899,869	$39,492,783	$45,406,387	$3,717,905	$187,480	2.38%
2003	$4,384,264	$7,589,912	$11,449,546	$16,027,816	$21,385,281	$27,575,856	$34,643,968	$42,621,495	$51,524,556	$61,350,240	$72,073,386	$4,537,555	$191,936	1.88%
2004	$4,643,021	$8,301,522	$12,795,567	$18,228,483	$24,702,836	$32,317,152	$41,162,073	$51,315,995	$62,840,223	$75,773,772	$90,127,916	$4,814,370	$195,544	3.26%
2005	$4,657,901	$8,521,038	$13,288,574	$19,076,836	$26,002,237	$34,177,699	$43,708,413	$54,686,982	$67,187,989	$81,262,110	$96,929,902	$4,839,060	$201,910	3.42%
2006	$5,150,364	$9,673,252	$15,300,484	$22,184,209	$30,479,016	$40,337,596	$51,905,491	$65,314,952	$80,677,963	$98,078,527	$117,564,398	$5,361,667	$208,806	2.54%
2007	$5,205,884	$9,814,138	$15,397,704	$22,056,718	$29,884,970	$38,965,775	$49,367,400	$61,138,141	$74,301,178	$88,849,385	$104,740,274	$5,430,351	$214,111	4.08%
2008	$3,138,478	$6,047,161	$9,576,018	$13,788,375	$18,743,141	$24,492,086	$31,076,847	$38,525,721	$46,850,338	$56,042,338	$66,070,181	$3,280,879	$222,850	0.09%
2009	$3,685,865	$7,412,330	$11,979,910	$17,482,559	$24,009,372	$31,640,680	$40,443,680	$50,467,691	$61,739,176	$74,256,691	$87,985,974	$3,867,038	$223,054	2.72%



The John C. Bogle
Center for Financial Literacy

Report 3: Average U.S. Equity Fund Performance (Equal-Weighted) (cont.)

Category	1-Year (%)	3-Year (Annualized, %)	5-Year (Annualized, %)	10-Year (Annualized, %)	20-Year (Annualized, %)
Small-Cap					
S&P SmallCap 600 Growth	-21.08	4.99	6.11	11.13	10.97
Small-Cap Growth Funds	-28.04	3.74	6.54	9.82	8.92
S&P SmallCap 600	-16.10	5.80	5.88	10.82	10.64
Small-Cap Core Funds	-15.24	4.87	4.29	8.28	8.79
S&P SmallCap 600 Value	-11.04	6.10	5.38	10.33	10.19
Small-Cap Value Funds	-8.65	6.73	4.17	8.18	8.75

The John C. Bogle Center for Financial Literacy

What You Might Not Know About Asset Class Returns

2008-2022

CRSP US Small Cap Value	9.33
S&P SmallCap 600 Value	8.43
Morningstar US Small Value	8.28
Wilshire US Small Value	8.13
MSCI US Small Cap Value	6.94
Russell 2000 Value	6.81
	2.52

S&P SmallCap 600	8.89
CRSP US Small Cap	8.64
MSCI USA Small Cap	8.35
Wilshire US Small	8.24
Morningstar US Small	7.69
Russell 2000	7.16
	1.73

S&P SmallCap 600 Growth	9.23
MSCI US Small Cap Growth	8.43
Wilshire US Small Growth	8.28
CRSP US Small Cap Growth	7.63
Russell 2000 Growth	7.26
Morningstar US Small Growth	6.76
	2.47

The John C. Bogle Center for Financial Literacy

Source: Morningstar


GET OUR FREE BOOK AND NEWSLETTER
DONATE
PAUL MERRIMAN
BOOTCAMP
BEST ADVICE
PORTFOLIOS
PODCASTS
ABOUT
VIDEOS
WRITINGS
The Merriman Financial Education Foundation
MORE MONEY WITH LESS RISK AND MORE PEACE OF MIND
Our Mission: Empower Do-It-Yourself Investors with Free Academic-based Research & Resources for Life-long Investing

[Ultimate Buy and Hold Strategy]

[Sound Investing Portfolios Risk and Return History]

[Fine-Tuning Your Asset Allocation]

[Fixed Contributions]

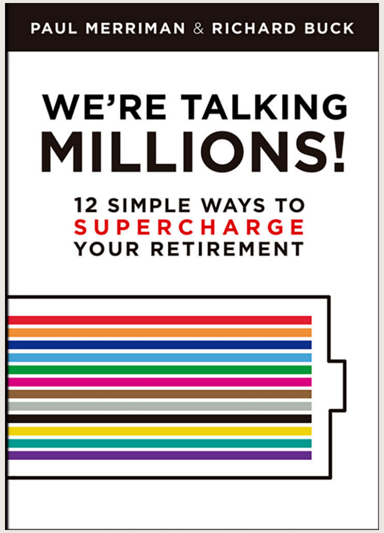
[Fixed Distributions]

[Flexible Distributions]

[The Simple Story About 2 Funds for Life]

[Selecting the Best in Class ETFs]

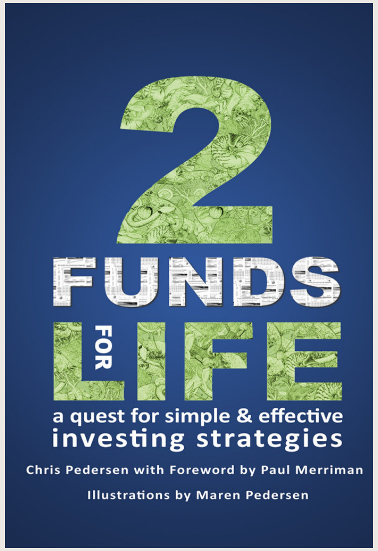
The John C. Bogle
Center for Financial Literacy



Published December 2020, this concise book is intended for young and first-time investors to learn why and how to make a handful of smart choices that can turn modest regular savings into a secure future.

You'll discover "12 Small Steps with Big Payoffs," each of which can add $1 **million** or more to your retirement nest egg if you start in your 20s or 30s.

Click for a free copy of a pdf and audio book of We're Talking Millions!



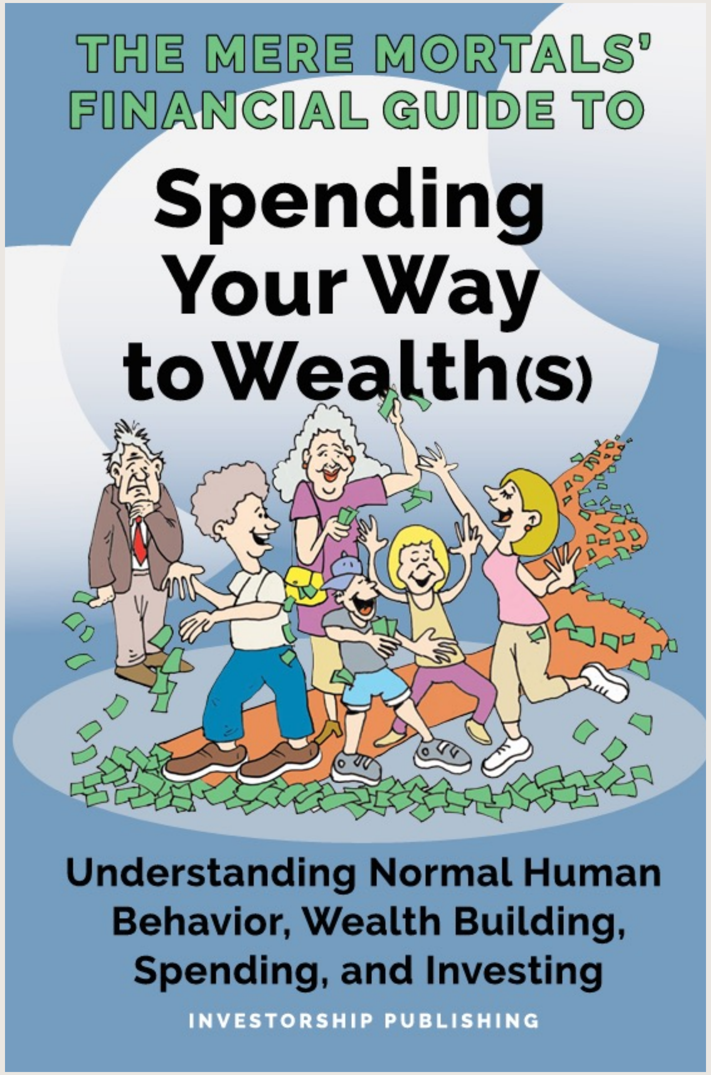
Simplify investing & simplify life.

If you want to know WHY 2-Funds-for-Life strategies increase likely lifetime returns by 25% to more than 130%, and what you need to do to reap those benefits? Then this deep-dive owner's manual is for you!

We're all wired to invest for the future, but when it comes to personal finance few of us know how. How much should I save? How much risk can I take? How does risk tolerance change with age? How can I get the most while risking the least? How complex does it have to be? Could I really do everything I need with just two funds?

Click for a free copy of 2 funds for Life

The John C. Bogle
Center for Financial Literacy



Paul Heys updated book now available as a free PDF

"It is a brilliant reframing of the psychological concepts that influence wealth-related decisions—told in a clear, engaging and down-to-earth style" Ronald E. Smith Ph.D., Psychology Professor, University of Washington

"Kudos to Paul Heys for this wise and lucid guide to financial and psychological wealth. By applying and simplifying economic and cognitive science he shows us the path to both fiscal fitness and human flourishing." David Myers, Ph.D.,

Psychology Professor, Hope College. Don't miss Appendix E. It contains a brilliantly written summary of Nobel laureate Daniel Kahneman's 500 page masterpiece, "*Thinking, Fast and Slow.*" Paul Merriman

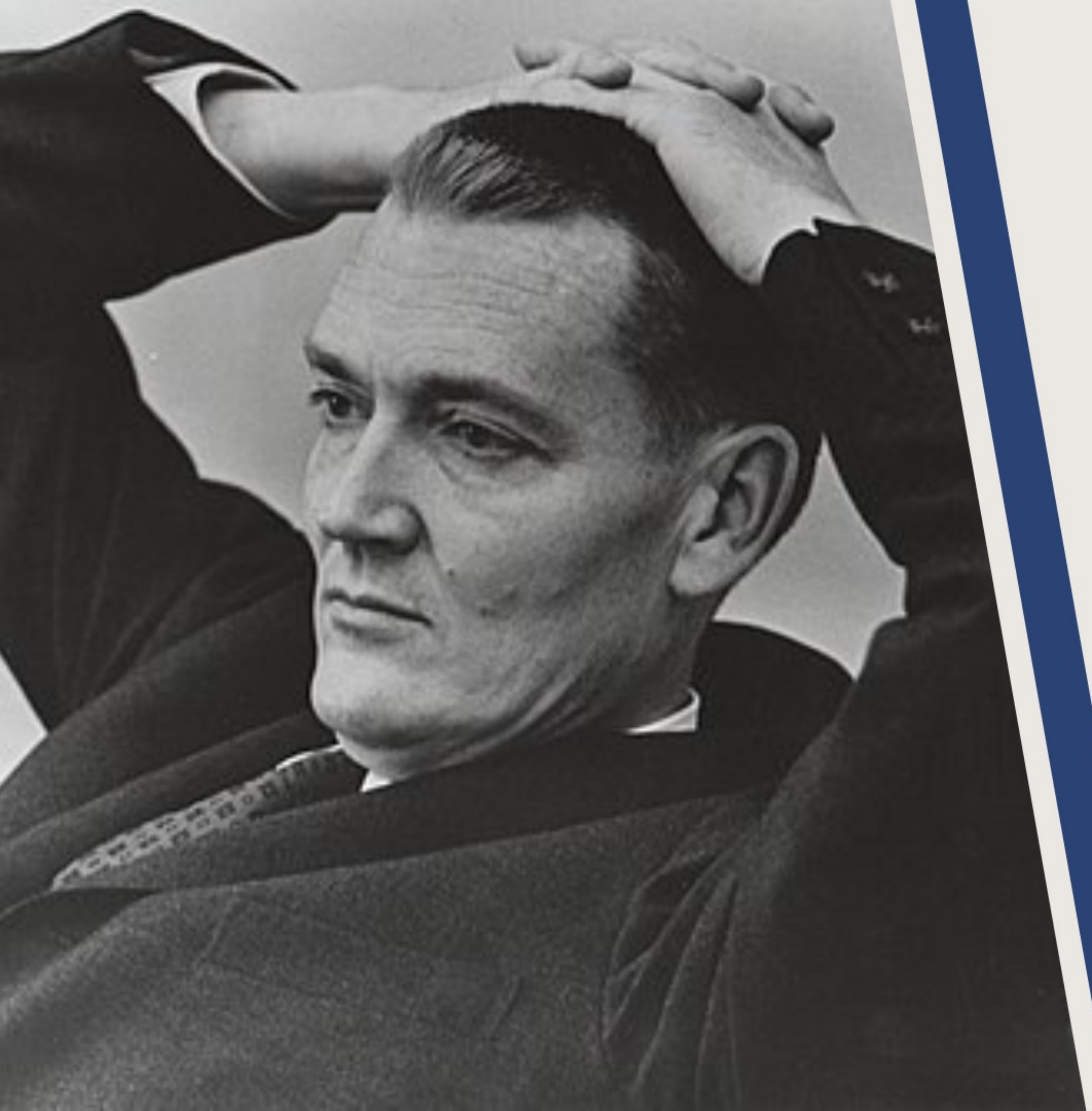
"I wish someone had given me this book when I was younger. It would have directed my spending and investing in ways that would have made me re-think my career, relationships and what I truly wanted out of life." Tyler R. Tichelaar, Ph.D., Author: *Narrow Lives* and *The best Place.*

The John C. Bogle
Center for Financial Literacy

Thank you.

If you have any questions,
please email Paul@paulmerriman.com

Sign-up for FREE weekly newsletter
and join Paul on
Facebook, LinkedIn and Twitter.



The Case Against Factor Investing

Rick Ferri

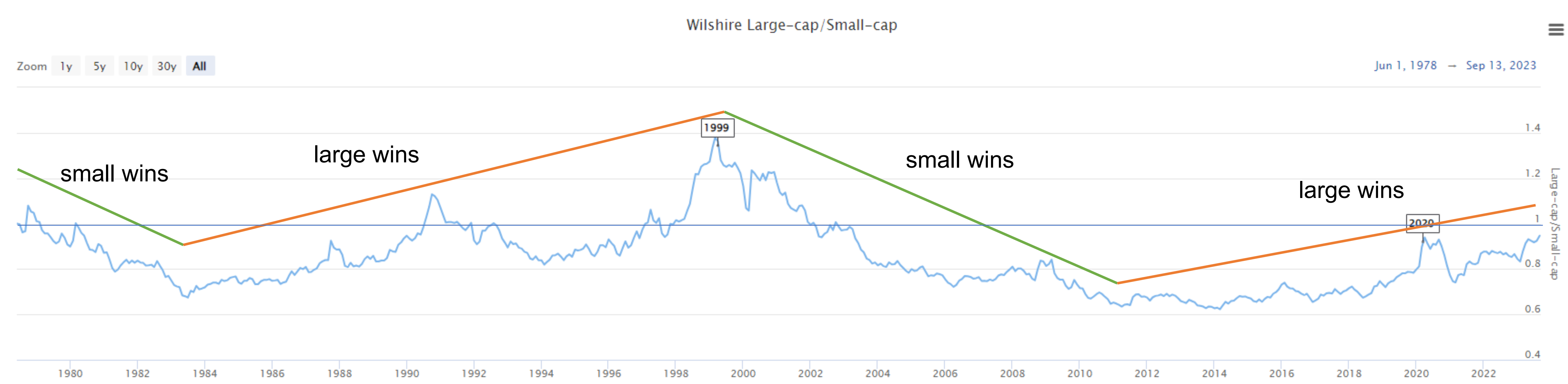
The John C. Bogle Center for Financial Literacy

Market Beta, Additional Betas (factors), and Risk Premiums

- Market beta explains most of the return of any diversified portfolio.
- Additional factors (size, value, quality, price momentum) explain most of the rest (up to 18% of the return variability from beta).
- The more weight to additional factors, the greater the tracking error to the market, which investors hope is positive (risk premiums).
- Factor "titled" portfolios come with extra costs: higher management fees, additional trading. This creates a "hurdle rate" that must be overcome before any alpha is earned.
- If the factor premiums are 0% (or less) during your time horizon, a factor tilted portfolio will underperform the market.
- The only way to benefit is to remain disciplined for a long time and hope the factor premiums ultimately exceed the hurdle rate.

Large Stocks Vs. Small Stocks

Large-cap vs. Small-cap Stocks

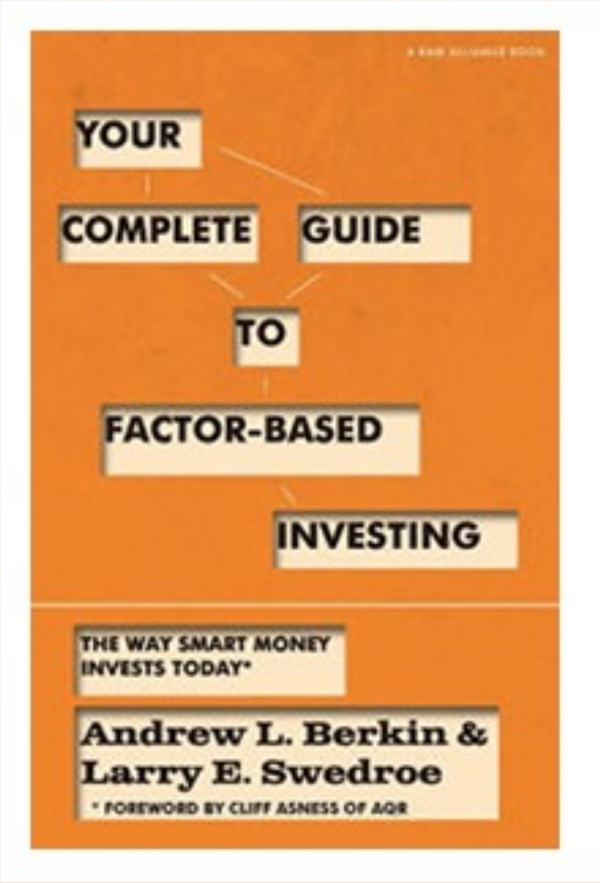


The John C. Bogle
Center for Financial Literacy

Value Stocks Vs. Growth Stocks

The John C. Bogle Center for Financial Literacy

Are the Academics Wrong?



- Larry has a library of over 3,000 academic articles on the “factor zoo”. He and Andrew cite 106 major academic papers in their book. This is heady stuff. It’s not for the casual investor.

- What’s one thing all these papers have in common?

The John C. Bogle
Center for Financial Literacy

Back-tested Data is Not Real-World Data

A rare photo of Leonardo da Vinci and Mona Lisa, Florence 1504.

The Silent Issue: Bad Investor Behavior

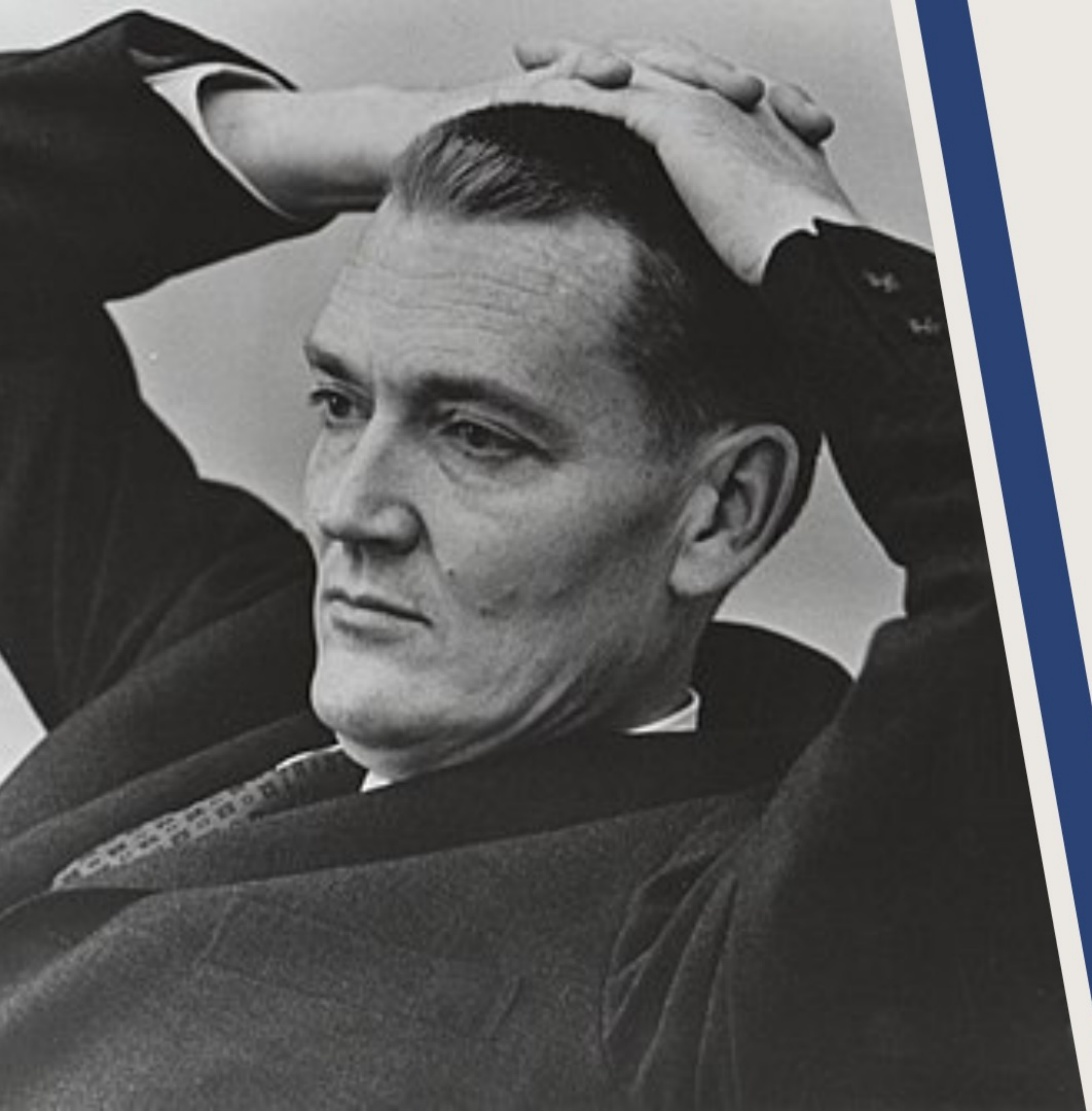
- Factor tilts create more "behavioral risk" than holding the market because factor investing is about outperforming the market.
- During 2000 to 2007, thousands cried, "Gotta have DFA funds!" and advisers pounced on the marketing opportunity.
- Regression to the mean followed, and weak hands threw in the towel. This locked in their underperformance.
- The performance-chasing mindset of most factor investors is left out of academic literature, but fund flow data shows it exists.
- It's easier to stay the course in a simple market portfolio. ~John Bogle

Rick’s Bottom Line

- You may be rewarded for including additional factors to your portfolio in the long-term, but premiums are not guaranteed.
- The only guarantees are more risk, more cost, more complexity, and tracking error to the market that can result in permanent underperformance due to bad timing by investors.
- If you are in, stay in. If you thinking of adding factors, limit your exposure to ~25% of your equity and stay the course, probably for LIFE, and that might not be long enough.
- Remember, the most important decision we make as investors is our beta allocation - how much to invest in stocks, fixed-income, real estate, and cash, then let the markets take care of the rest.

The Case Against Factor Investing

It's hard to talk the talk <u>and</u> walk the walk



Thank You

Rick Ferri

The John C. Bogle
Center for Financial Literacy

Q&A With the Faculty

- Mary Beth Franklin (Social Security)
- Dana Anspach (Portfolio Structure)
- Wade Pfau (Roth Conversions)
- Jim Dahle (Real Estate)
- Paul Merriman (Factor Investing)
- Rick Ferri (Total Market Investing)