

**Silicon Valley Chapter  
American Association of Individual Investors**

***Financial Planning Workshops***

**Retirement Planning II**

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# Silicon Valley Chapter American Association of Individual Investors

Please check us out!

- Chapter website: [www.siliconvalleyaaii.org](http://www.siliconvalleyaaii.org)
- Meetups: [www.meetup.com/AAll-Silicon-Valley-Meetup](http://www.meetup.com/AAll-Silicon-Valley-Meetup)
- Facebook: [www.facebook.com/sv.aa](http://www.facebook.com/sv.aa)
- Slides and Recordings  
[www.siliconvalleyaaii.org/financialplanning/](http://www.siliconvalleyaaii.org/financialplanning/)
- AAI National website: [www.aaii.com](http://www.aaii.com)
- My email address: [dstikes.svaaii@gmail.com](mailto:dstikes.svaaii@gmail.com)

# **Our Next Event and Special Interest Group Webcasts**

- Monthly Event: Saturday March 9<sup>th</sup> at 9:00am; webcast only
  - Christine Benz
- Financial Planning Discussion Group
  - Debra Stikes: Second Wednesday of each month at 6:30pm
- Investing Discussion Group
  - Lynn Gillette: Fourth Monday of each month at 6:30pm except Dec.
- Computerized Investing Group
  - Don Mauer: First Thursday of each month at 6:30pm

# Financial Planning Workshops

- Financial Planning ... The Big Picture
- Investing 1: Modern Portfolio Theory, Building a diversified portfolio
- Investing 2: Efficient Market Hypothesis; Can you beat the market?
- Taxes: TCJA, SECURE Act, Tax diversification, Asset location, QCDs
- Retirement Planning 1: Tax-advantaged plans, RMDs
- Retirement Planning 2: Safe withdrawal rates, Bengen's 4% rule
- Risk Management/Insurance: Annuities, Long-term care, Litigation
- Social Security and Medicare: Claiming strategies, Medicare traps
- Estate Planning: Probate, Executor/trustee duties, Philanthropy
- Wrap-up: Case study reviewing previous material

## Today We Will Cover ...

- Bengen's Four Percent Rule
- Variations on Bengen's Rule
- RMD drawdown method
- Bucket strategies
- Equity glide paths

*Most people spend more time planning a two-week vacation than their retirement.*

***Anonymous***

## Background to Bengen's Rule

- Ibbotson data from 1926 to 1992
  - Common stocks 10.3% annual growth rate
  - Intermediate Treasuries 5.1% growth rate
  - Inflation 3% per annum
- Portfolio of 60% stocks/40% bonds
  - Average return = 8.2% per annum
  - Real Return = 5.2% per annum
- Withdrawal rate of 5% pa should be OK ?

# Let's Try An Experiment

- Assume \$1M retirement portfolio on 1/1/1980
  - Invest 60% stock index + 40% intermediate bonds
  - Rebalance annually
- Withdraw 4% (\$40,000) to fund expenses for 1980
- Withdraw the same amount on January 1 each year increased 3% per annum for inflation
- How long does the portfolio last?
- Repeat for various withdrawal rates



# Simple Diversified Portfolio

- 60% Stock: S&P 500 Index (VFINX)

Compound annual growth rate 1980-2020 = 11.1%

- + 40% Bonds: 5-year Treasuries

Compound annual growth rate 1980-2020 = 5.2%

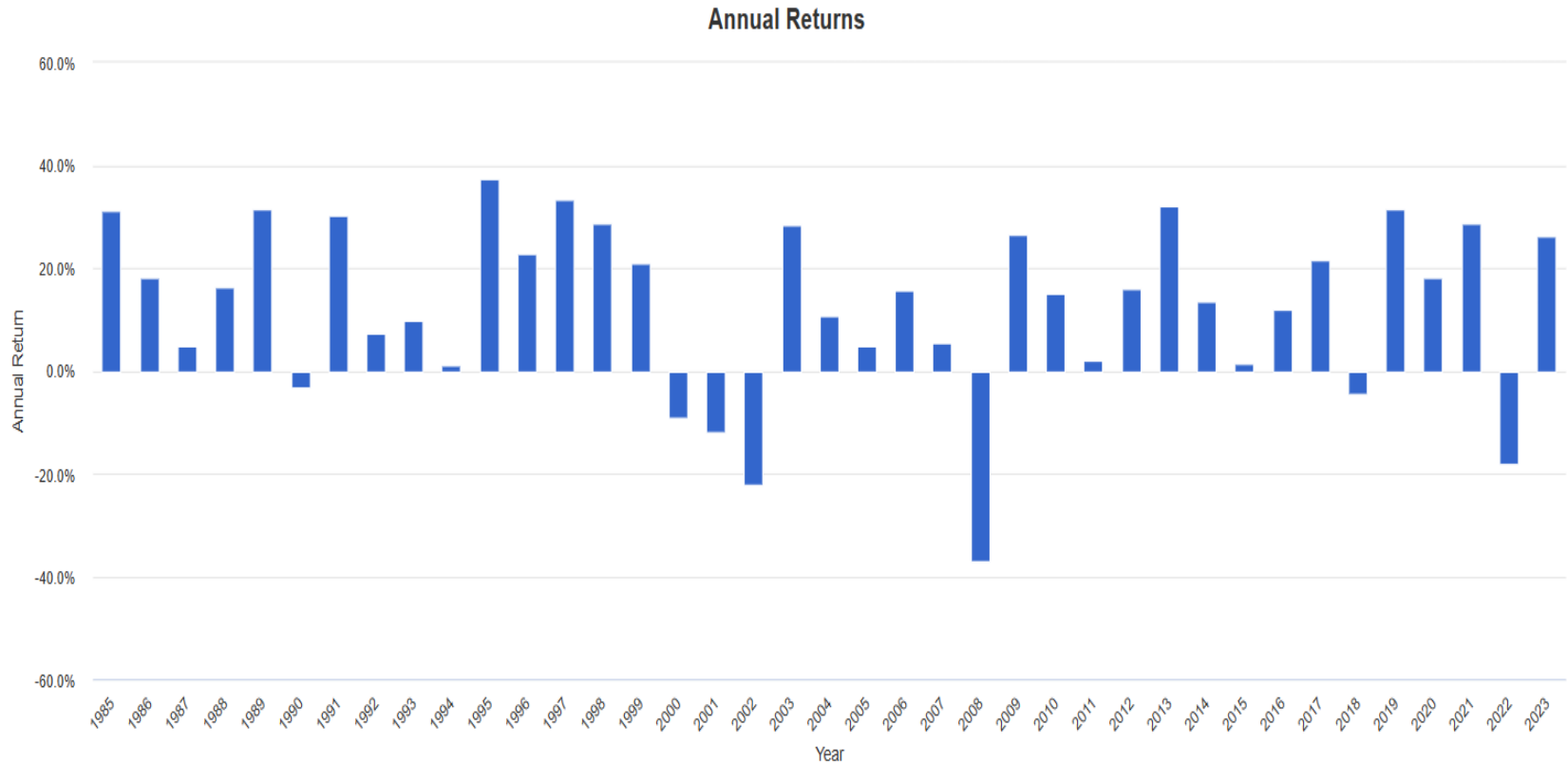
- = Simple diversified portfolio

Compound annual growth rate 1980-2020 = 9.1%

Real growth rate after 3% annual inflation = 6.1%

\$1M grows to \$35M over 41 years with no withdrawals

# S&P 500 Total Return (VFINX) (1985-2023)

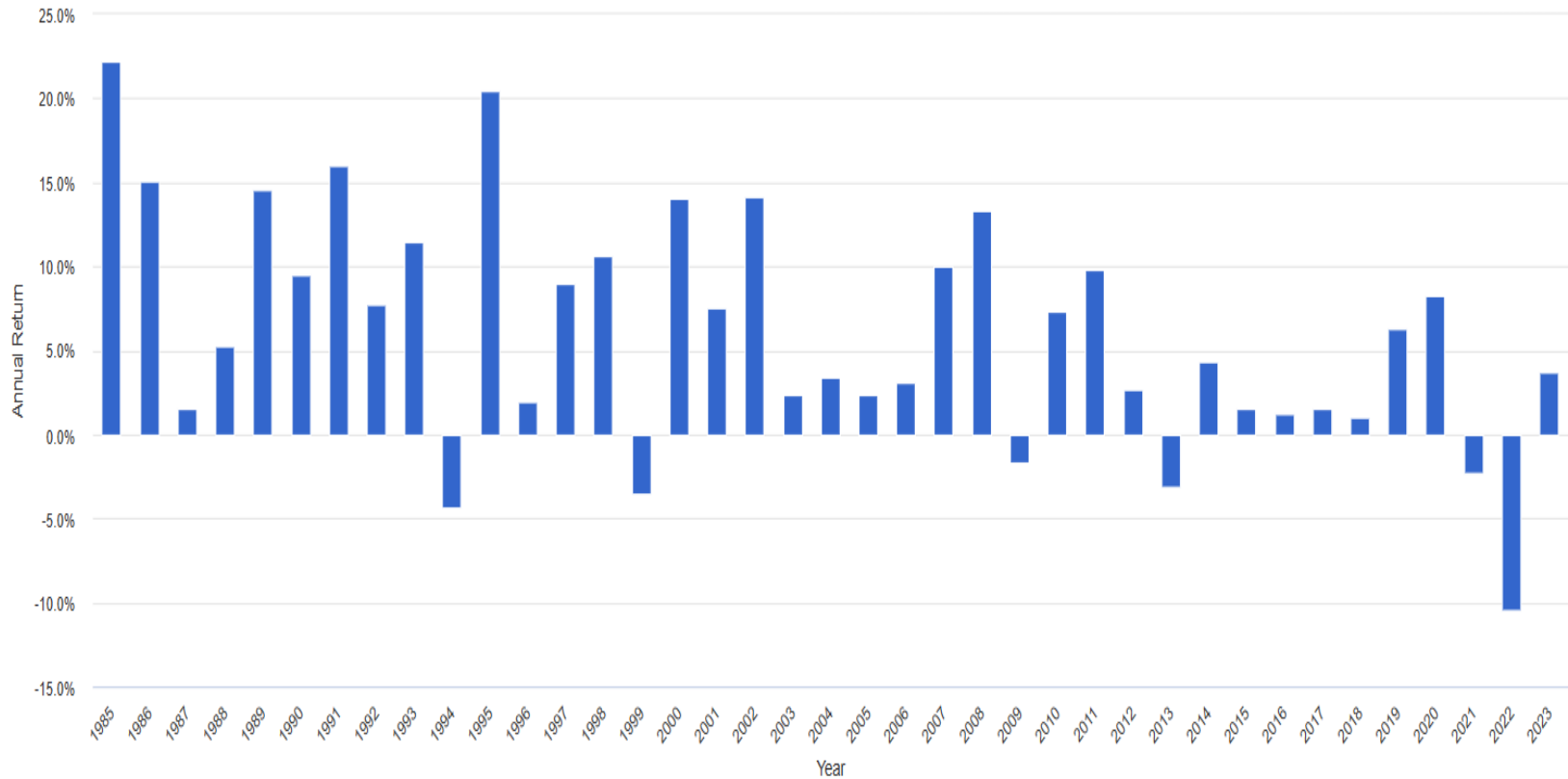


## Performance Summary

Portfolio	Initial Balance	Final Balance	CAGR	Stdev	Best Year	Worst Year	Max. Drawdown	Sharpe Ratio	Sortino Ratio	Market Correlation
Vanguard 500 Index Investor	\$10,000	\$648,237 ⓘ	11.29% ⓘ	15.33%	37.45%	-37.02%	-50.97% ⓘ	0.57	0.84	0.99

# Intermediate Term Treasuries (1985-2023)

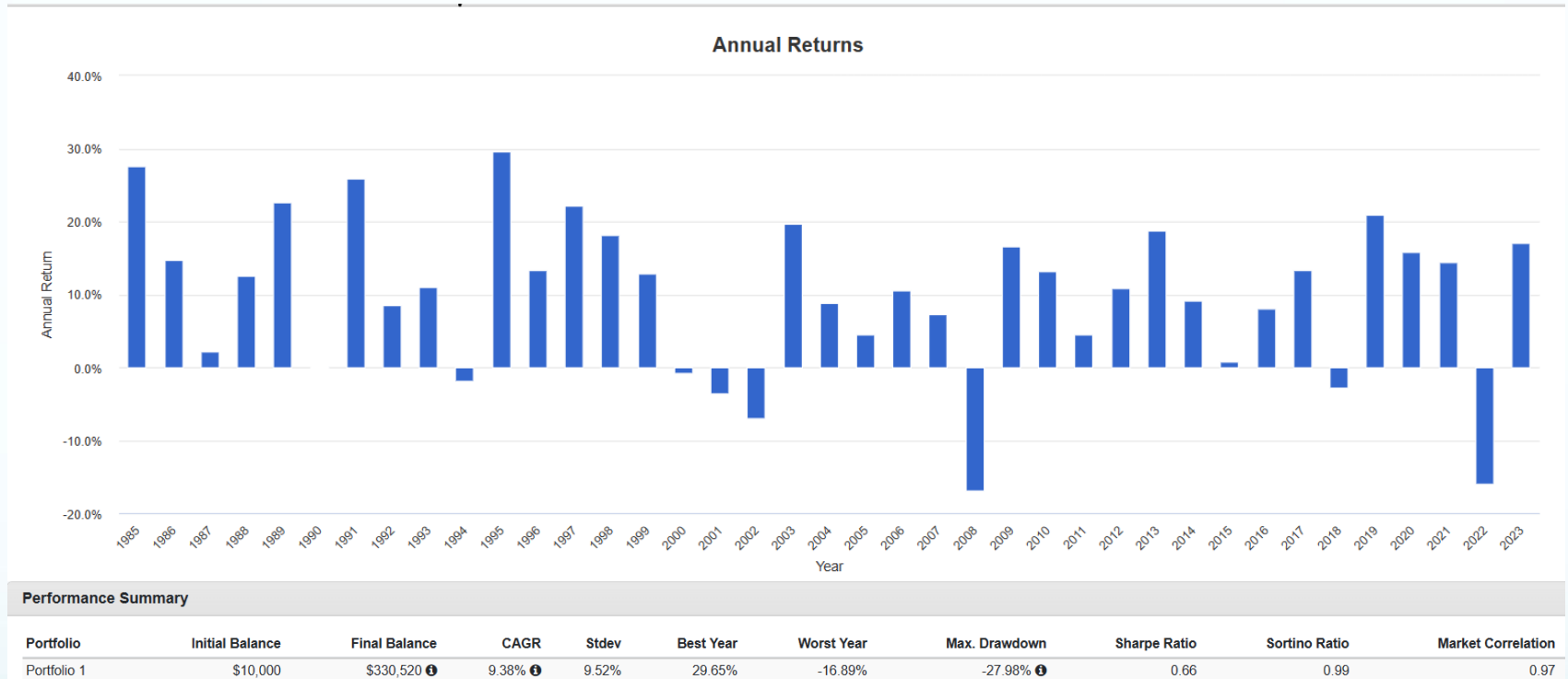
Annual Returns



Performance Summary

Portfolio	Initial Balance	Final Balance	CAGR	Stdev	Best Year	Worst Year	Max. Drawdown	Sharpe Ratio	Sortino Ratio	Market Correlation
Intermediate Term Treasury	\$10,000	\$92,479 ⓘ	5.87% ⓘ	5.02%	22.24%	-10.43%	-14.45% ⓘ	0.54	0.87	0.00

# 60% Stock/40% Intermediate Bond (1985-2023)



# Comparisons (1985-2023)

Performance Summary										
Portfolio	Initial Balance	Final Balance	CAGR	Stdev	Best Year	Worst Year	Max. Drawdown	Sharpe Ratio	Sortino Ratio	Market Correlation
Vanguard 500 Index Investor	\$10,000	\$648,237 ⓘ	11.29% ⓘ	15.33%	37.45%	-37.02%	-50.97% ⓘ	0.57	0.84	0.99

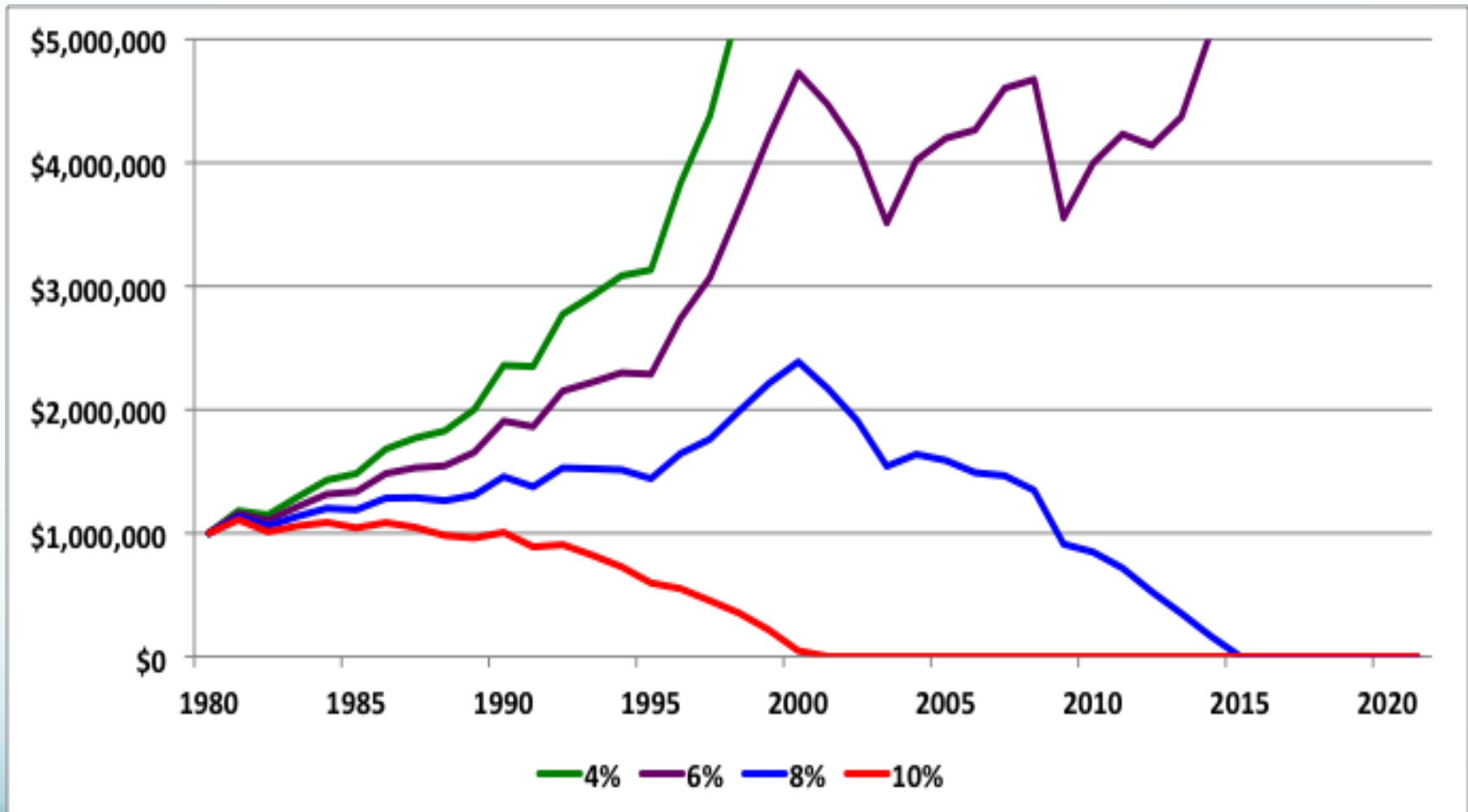
Performance Summary										
Portfolio	Initial Balance	Final Balance	CAGR	Stdev	Best Year	Worst Year	Max. Drawdown	Sharpe Ratio	Sortino Ratio	Market Correlation
Intermediate Term Treasury	\$10,000	\$92,479 ⓘ	5.87% ⓘ	5.02%	22.24%	-10.43%	-14.45% ⓘ	0.54	0.87	0.00

US Stock Market 60.00%

Intermediate Term Treasury 40.00%

Performance Summary										
Portfolio	Initial Balance	Final Balance	CAGR	Stdev	Best Year	Worst Year	Max. Drawdown	Sharpe Ratio	Sortino Ratio	Market Correlation
Portfolio 1	\$10,000	\$330,520 ⓘ	9.38% ⓘ	9.52%	29.65%	-16.89%	-27.98% ⓘ	0.66	0.99	0.97

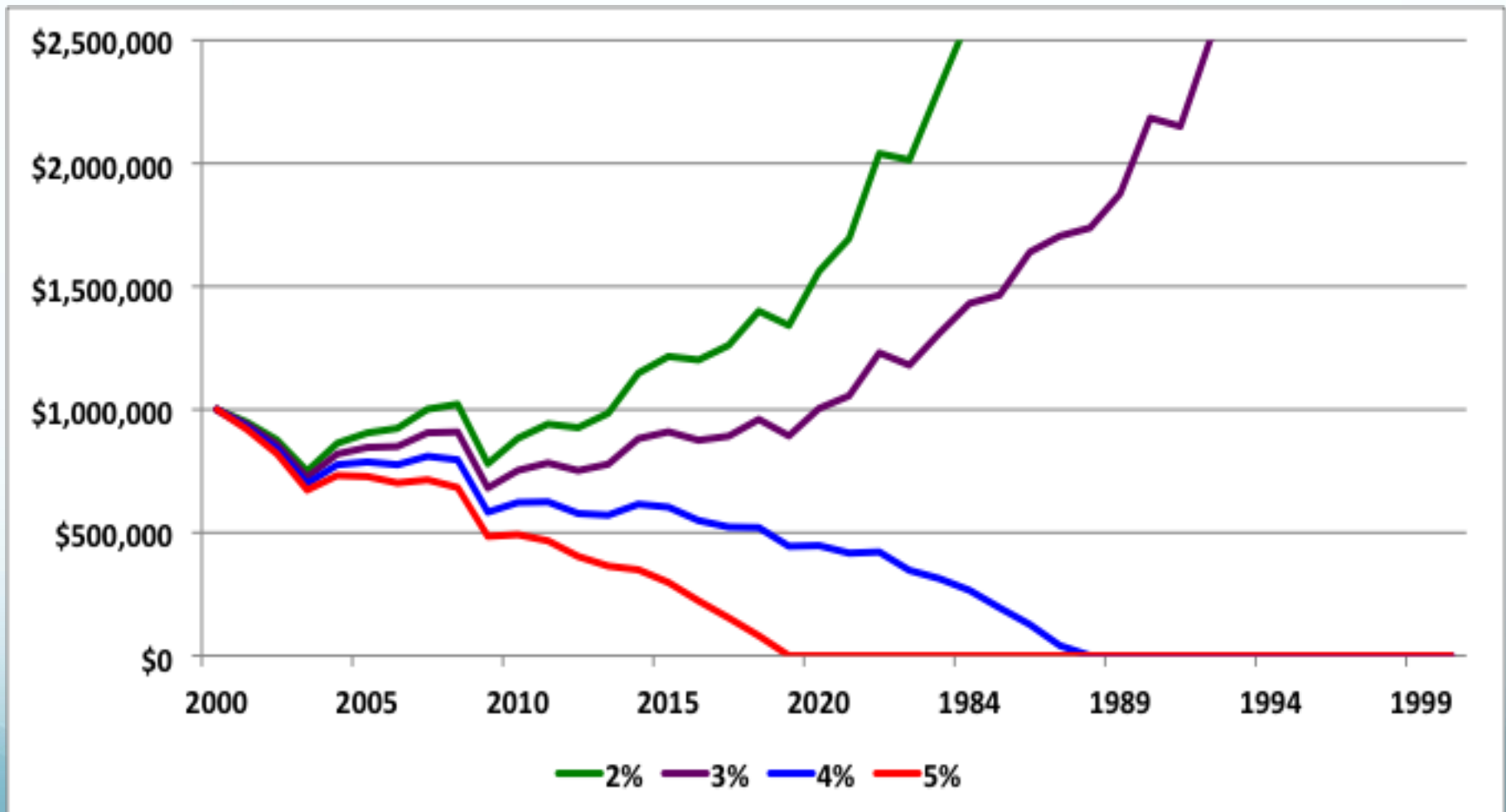
# Portfolio Value with Various Withdrawal Rates



## How About Less Favorable Timing?

- What happens if we start the draw downs in 2000?
- Use the total returns from 2000 thru 2020 for the first years of retirement, followed by the data from years 1980 thru 1999
- Same 9.1% compound annual growth rate over the total 41 year period so long as there are no cash-flows
- How does this affect our retirement plan with annual draw downs?

# Portfolio Value with Various Withdrawal Rates and Unfavorable Timing





## Lessons Learned

- Not good enough to look just at the averages for investment returns and inflation
- Must look at what actually happened year-by-year
- Performance during the early retirement years is critically important
  - Sequence of returns risk
  - Beware a severe stock market downturn “event” coupled with high inflation at start of retirement
  - Similar problem also exists for later years of the accumulation phase according to Michael Kitces

## Bengen's Research (1994)

- Use Ibbotson's annual data from 1926 thru 1992
  - 50% common stocks + 50% intermediate treasuries
  - Rebalanced annually
- Withdraw 3% of portfolio at the start of every year
  - Adjusted for 3% per annum inflation
- Evaluate portfolio performance over consecutive 30-year periods, e.g. 1926-1955, 1927-1956, etc.
- Repeat for 4%, 5%, 6% withdrawal rates

# Bengen's Results

## Initial withdrawal rate

3% pa

4% pa

5% pa

6% pa

## Portfolio longevity

> 50 years

35 years

20 years

17 years

- Worst starting years, ranked by severity of problem:

1966, 1965, 1968, 1969, 1937, 1962, 1973, 1939, 1940

## Bengen's Four Percent Rule

- Set up 50% - 75% of portfolio in equities with the balance in intermediate Treasuries
- Withdraw 4% of assets in first year
- Increase by inflation for subsequent years
- Most portfolios should last over 50 years
- Worst case portfolio lasts 35 years

# Variations on Bengen's 4% Rule

- Bengen (2004)
  - OK to use 4.5% withdrawal rate if small cap stocks are included
    - 35% Large cap stocks
    - 18% Small cap stocks
    - 47% Intermediate Treasuries
- Bengen (2012)
  - Informal Rule: Take pre-emptive action if current withdrawal rate exceeds the initial rate by 25%

## Trinity Study (1998)

- Similar to Bengen's research except ...
  - Used long-term high-grade corporate bonds instead of intermediate treasuries
  - Used Ibbotson data from 1926 through 1995
  - Calculated “portfolio success rates” instead of worst case portfolio longevity
    - i.e. percentage of all past payout periods where the portfolio ended with a positive balance
  - 75% Stocks/25% Bonds with CPI adjusted withdrawals
- Results:

Withdrawal rates:	<u>3%</u>	<u>4%</u>	<u>5%</u>	<u>6%</u>	<u>7%</u>
Port success rate:	100%	98%	83%	68%	49%

## Israelsen (2016)

- Evaluated two different portfolios using Ibbotson data from 1926 through 2014
  - Conservative portfolio:
    - 15% large cap + 10% small cap stocks  
+ 55% bonds + 20% cash
  - Moderate portfolio:
    - 40% large cap + 25% small cap stocks  
+ 25% bonds + 10% cash
- Used fixed inflation from 0% thru 6%/year

# Israelsen's Results

Probability of Success (COLA = 3%)

<u>W'draw Rate</u>	<u>Conserv. Port.</u>	<u>Moderate Port.</u>
3%	100%	100%
4%	93%	98%
5%	58%	91%
6%	33%	87%
7%	20%	71%



## Guyton and Klinger (2006)

- Eight-asset diversified portfolio, 40 year longevity
- Portfolio management rule
  - Determines the source of each withdrawal
  - Limits withdrawals from equities with negative returns
- Inflation rule
  - Caps maximum annual CPI increase at 6%
- Capital preservation and prosperity rules
  - Act as +/- 20% “guardrails” around initial rate
- With these rules 5.2% to 6.2% initial rate OK

## Kitces (2015)

- Most people following the 4% rule die with a final portfolio significantly greater than the original value
- Ratcheting 4% Rule
  - Start with a conservative withdrawal rate for the early retirement years, say 4%
  - Any year the portfolio balance is greater than 50% higher than the original value, increase the withdrawal rate, including all COLA increases, by 10%
  - Limit this 10% ratchet to a maximum of once every third year.

## Pfau and Dokken (2015)

- Current Environment
  - Dangerous to use historic data
  - The 4% rule may be optimistic today
    - Unprecedented low interest rates
    - High stock market valuations (Shiller PE10)
    - 40 year horizon from retirement date is more appropriate
  - 4% withdrawal rate from a 75% stock portfolio has only a 73% success rate
  - Even a 2% withdrawal rate has only a 90% success rate i.e. 10% chance of failure

## William Sharpe (2013)

- For any retirement portfolio the amount you withdraw should depend on
  1. How much money you have in the account
  2. How long you are likely to need it
- After the first year all Bengen's "x"% rules no longer depend on Item 1 above.

## Limitations of Bengen-Like Rules

- Cash flow determined only by initial portfolio value; no dependence on current market value
- Constant fixed real cash flow
- Unravels in periods of high inflation
- Assumes historical worst case sequence of returns risk
- Typically \$\$\$ from excess returns left on the table for heirs
  - May be significantly greater than initial portfolio
  - Could have funded improved life style

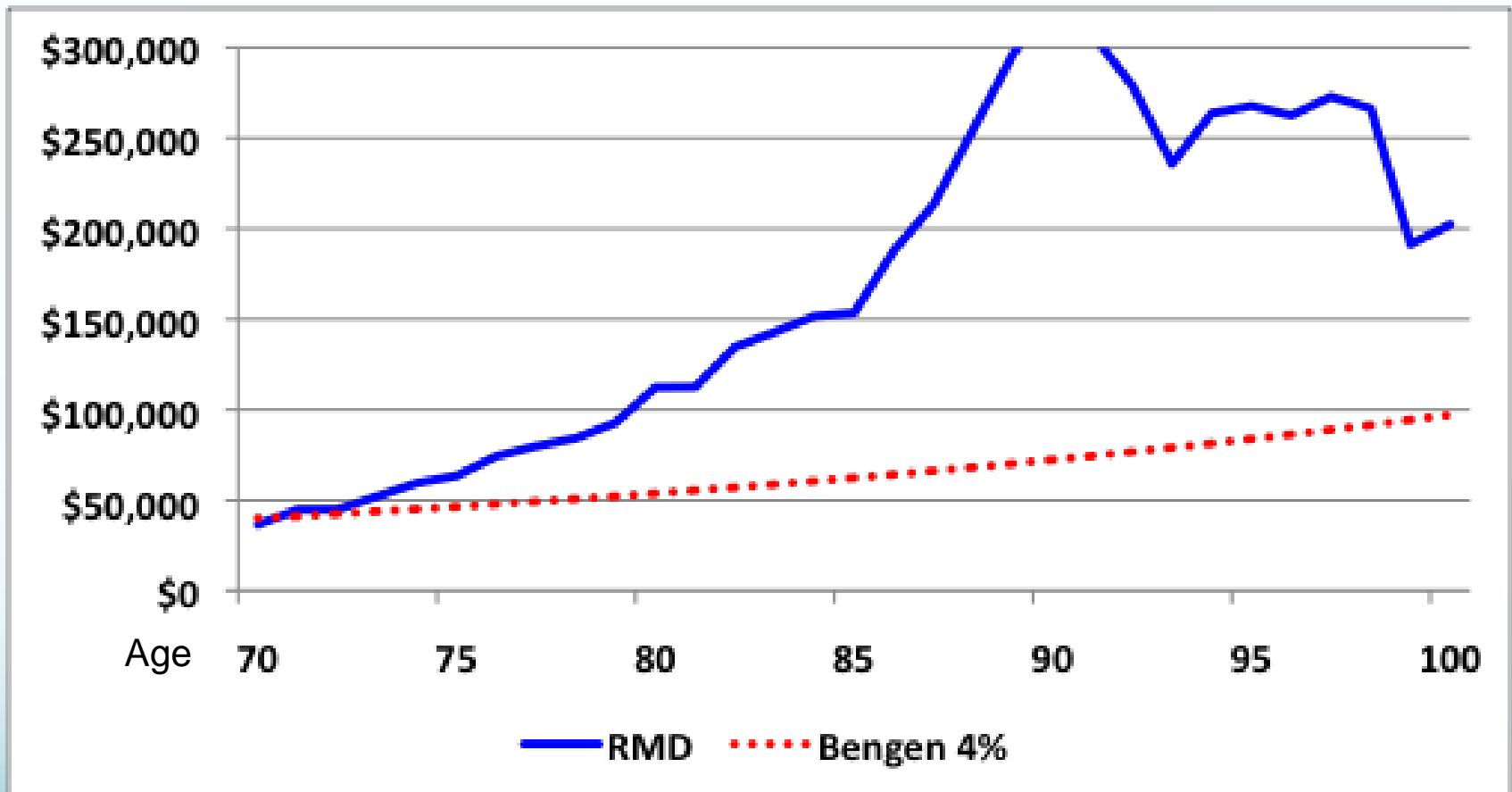
# IRS Required Minimum Distribution RMD Method

- Sun and Webb (2012)
- Advantages
  - Easy to follow
  - Conservative withdrawal rate
  - Does not drive asset allocation
  - Responds to current market value
- Disadvantages
  - Variable withdrawals
  - Withdrawals not tailored to needs

# IRS RMD Table III Uniform Lifetime

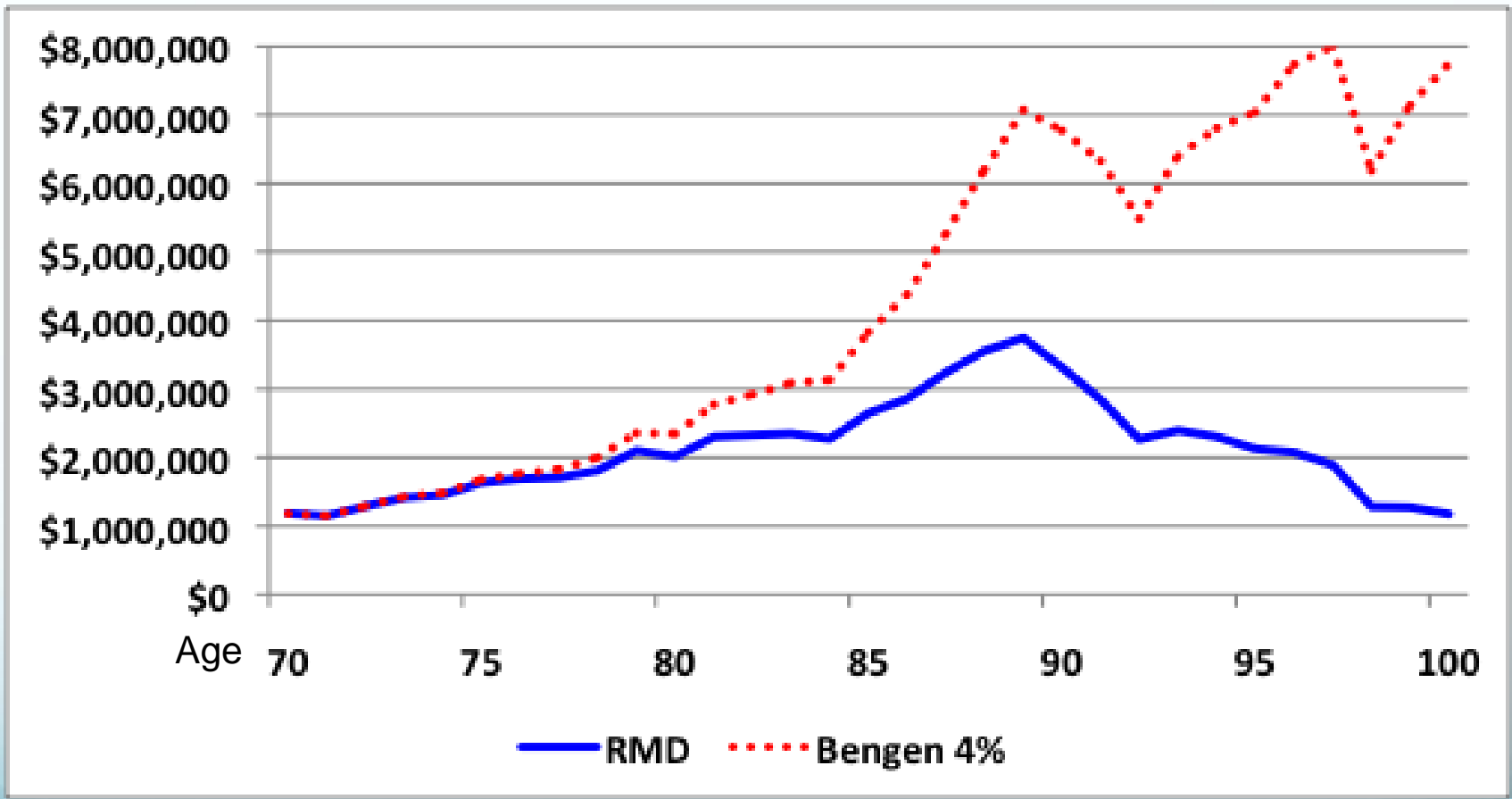
Age	Years	RMD		Age	Years	RMD
70	27.4	3.6%		86	14.1	7.1%
71	26.5	3.8%		87	13.4	7.5%
72	25.6	3.9%		88	12.7	7.9%
73	24.7	4.0%		89	12.0	8.3%
74	23.8	4.2%		90	11.6	8.8%
75	22.9	4.4%		91	10.8	9.3%
76	22.0	4.5%		92	10.2	9.8%
77	21.2	4.7%		93	9.6	10.4%
78	20.3	4.9%		94	9.1	11.0%
79	19.5	5.1%		95	8.6	11.6%
80	18.7	5.3%		96	8.1	12.3%
81	17.9	5.6%		97	7.6	13.2%
82	17.1	5.8%		98	7.1	14.1%
83	16.3	6.1%		99	6.7	14.9%
84	15.5	6.5%		100	6.3	15.9%
85	14.8	6.8%		.	.	.

# RMD and Bengen Withdrawals Favorable Conditions Starting in 1980

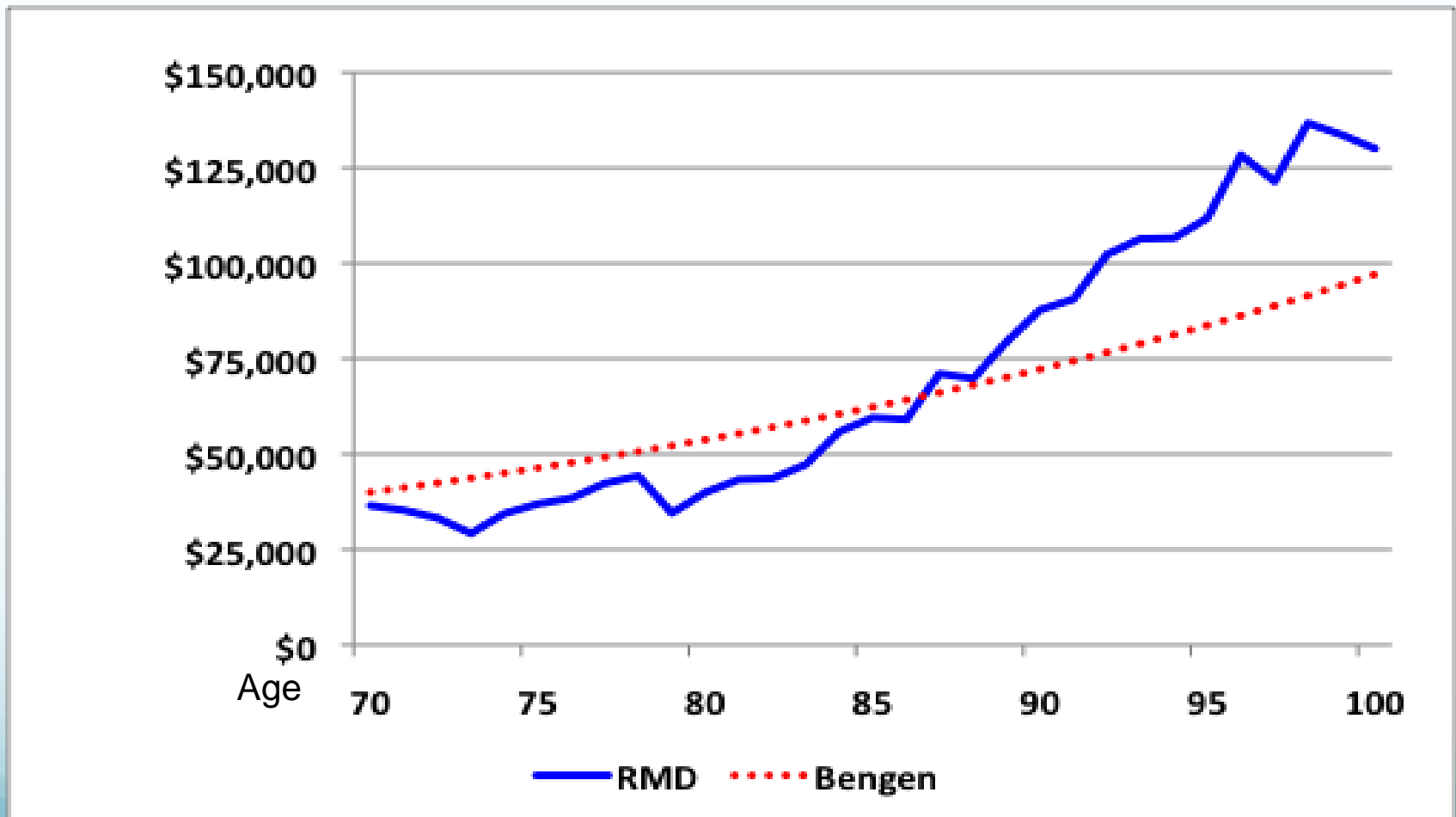




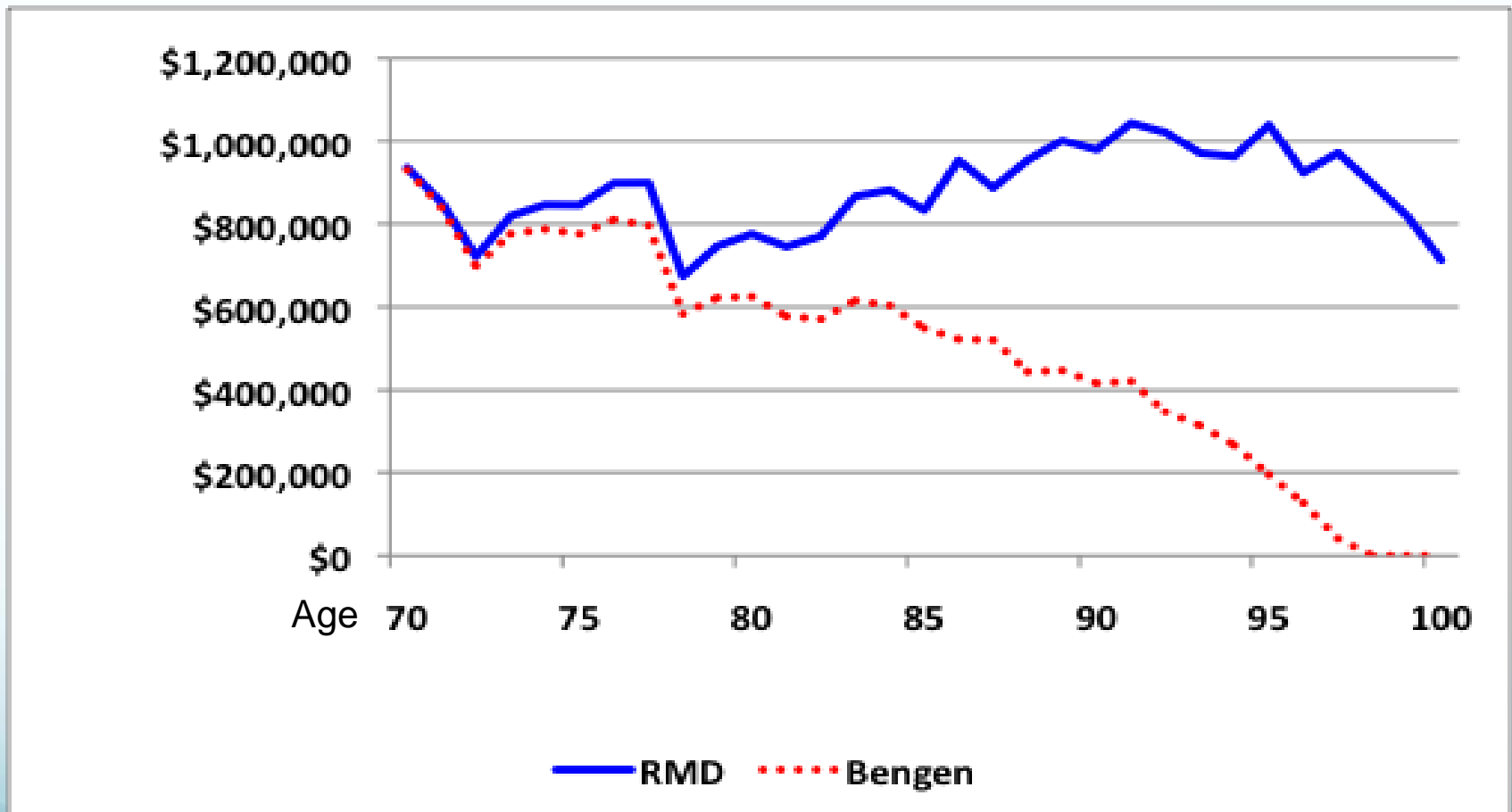
# Portfolio Value Favorable Conditions Starting in 1980



# RMD and Bengen Withdrawals Unfavorable Conditions Starting in 2000



# Portfolio Value Unfavorable Conditions Starting in 2000



# Simple Bucket Model

	<u>Bucket 1</u>	<u>Bucket 2</u>
Purpose:	Living expenses Inflation protection	Growth
Timeframe:	Short-term	Long-term
Assets:	Cash, CDs, T-bills MM funds, etc.	Diversified portfolio Stocks, Bonds, etc.

# Simple Bucket Strategy

- Every year ...
  - ... Withdraw living expenses from Bucket 1
  - ... Transfer 3% to 5% from Bucket 2 to Bucket 1

Transfer may include: Interest and dividends

Proceeds from rebalancing

Proceeds from tax-loss harvesting

Sale of principal

# Three Bucket Variation

- Bucket 1: Short-term (1-2 years)
  - Cash, Checking/savings accounts
  - Money market fund, T-bills, Short-term CDs, etc.
- Bucket 2: Intermediate term (2-10 years)
  - CD ladder, short/intermediate-term bonds, etc.
  - High quality dividend paying stocks
- Bucket 3: Long-term (>10 years)
  - Diversified long-term portfolio
  - Stocks, long-term bonds, etc.

# Funnel View

\* Long-term diversified portfolio (10+ years) \*

\* \$\$\$\$\$ \*

\* Intermediate-term portfolio (5 yrs) \*

\* \$\$\$ \*

\* Short-term account (1 yr) \*

\* \$ \*

\* \$ \*

\* \$ \*

\* \$ \*

## Constant Percentage Strategy

- Typical mechanical approach
  - Transfer say 3 to 5% annually of Bucket 3 to Bucket 2
  - Transfer say 20% annually of Bucket 2 to Bucket 1
  - Withdraw monthly living expenses from Bucket 1
- Easy to implement
- May require selling from Bucket 3 in down market



# Setting Up a Bucket Strategy

- Estimate “paycheck” needs
  - Living expenses less Social Security, pension, etc.
- Select a bucket management strategy
  - Pick a sustainable withdrawal rate
- Create and fund buckets
  - Buckets 1, 2 and 3 (1-2yrs, 2-10yrs and 10+ yrs)
- Document the plan
- Monitor progress annually

# **Standby Reverse Mortgage and Your Bucket Strategy**

- Consider integrating a Home Equity Conversion Mortgage (HECM) line of credit into your bucket strategy
- Use a smaller short-term bucket to minimize “dead money” in today’s environment, plus a HECM line of credit to supplement it for emergencies
- Also use the HECM to avoid selling assets in a bear market
  - Borrow against HECM line of credit in down markets  
Repay in bull market

# Equity Glide Paths for Your Retirement Portfolio

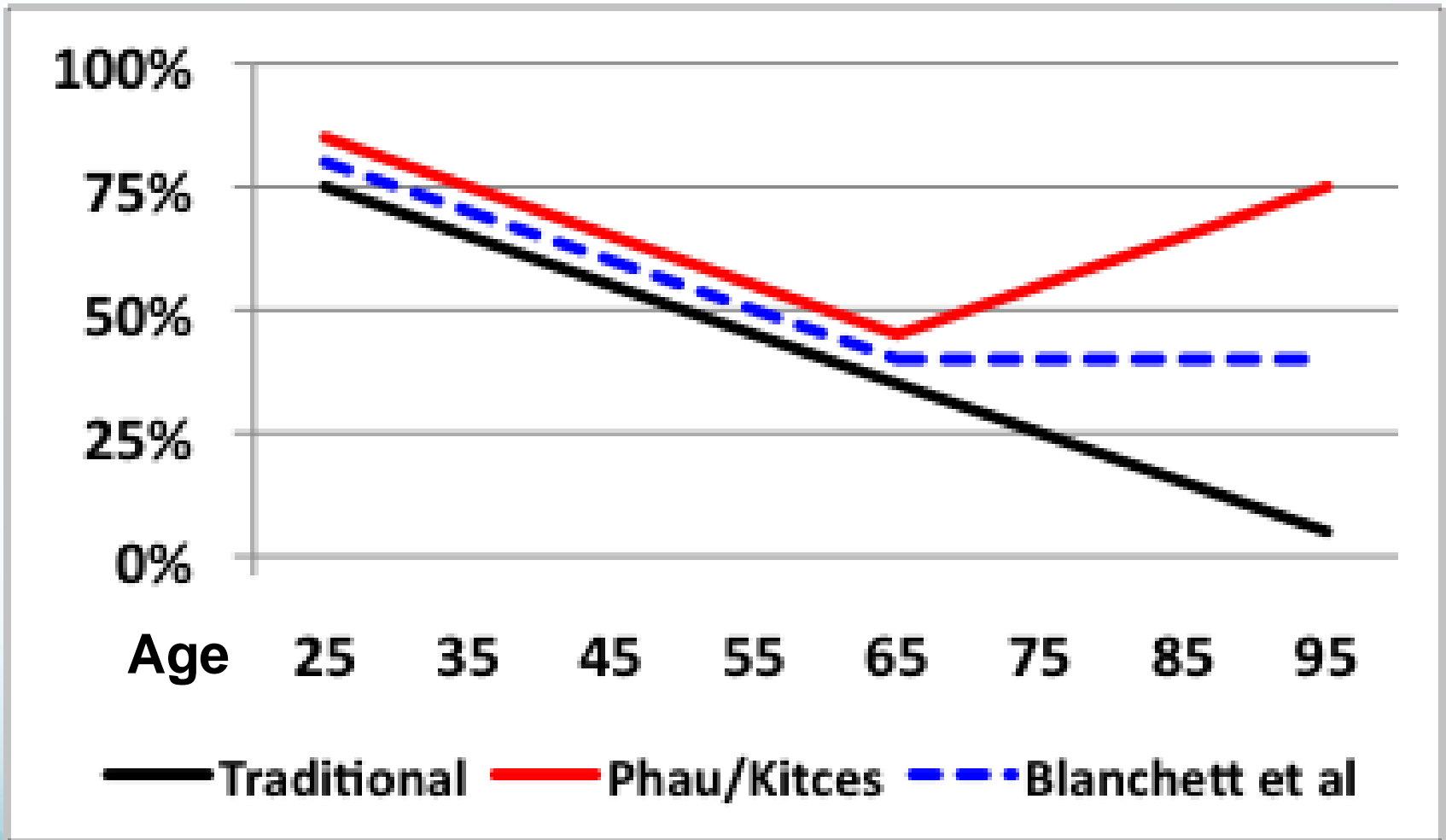
- Traditional glide path
  - “Age in fixed income”, Balance in equities
  - Declining equity glide path thru accumulation and decumulation phases

<u>Age</u>	<u>Fixed Income</u>	<u>Equities</u>
25	25%	75%
45	45%	55%
65	65%	35%
85	85%	15%
95	95%	5%

## Recent Research

- Retirees face maximum risk on retirement day
  - Longevity risk (30-40 years)
  - Sequence of return risk
  - Lowest allocation to stocks
- Pfau and Kitces (2014)
  - V-shaped equity glide path
  - High early in career, 80% to 100%
  - Lowest on retirement day, most vulnerable, 20% to 40%
  - Increasing thereafter as we age, 60% to 80%
- Blanchett (2015)
  - Optimum glide path depends on initial environment

# Equity Glide Paths



# Personal Philosophical Question

- Two approaches to funding your retirement
  - Probability-based approach
    - Diversified portfolio of “risky” assets
    - Withdraw  $X\%$  annually to fund living expenses
    - Accept some probability of success, risk of failure
  - Safety-first approach
    - Fund essential expenses with “risk-free” investments
      - Social Security, pension
      - Bond ladder
      - Immediate or deferred annuity
    - Fund discretionary expenses with more volatile investments; greater upside, but also downside risk
- Subjective tradeoff: Current live-style versus safety

## When Does “Safety-First” Trump Current Lifestyle?

- Picking too high a withdrawal rate may necessitate reducing your withdrawals significantly to avoid running out of money
- Picking too low a withdrawal rate could mean that you end up with a significant unintended portfolio surplus when you die, while missing out on lifestyle when alive
- Know thyself! Review your Personal Investor Profile (PIP) and Investment Policy Statement (IPS) to determine where you stand

## Parting Thoughts

- There is no rule to satisfy an optimum withdrawal stream from a retirement portfolio of volatile assets with unknown expected returns for an indeterminate period
- The future may be very different to the past
- There is no such thing as a “safe withdrawal rate”
  - “Safe” means “Safe **as far as we can tell**”
- Be conservative initially, more aggressive later
- Consider a longevity annuity starting at age 85
- Stay flexible; Review your plan regularly.



# Further Reading

- *Determining Withdrawal Rates Using Historical Data*, William P. Bengen, Journal of Financial Planning, October 1994
- *How Much Is Enough?*, William P. Bengen, Financial Advisor Magazine, May 2012
- *Retirement Savings: Choosing a Withdrawal Rate That Is Sustainable*, Phillip I. Cooley et al, AAI Journal, February 1998 (Trinity study)
- *Decision Rules and Maximum Initial Withdrawal Rates*, Jonathan T. Guyton and William J. Klinger, Journal of Financial Planning, March 2006
- *The Mathematics of Retirement Portfolios*, Craig Israelsen, AAI Journal, January 2016
- *Many Retirees Limit Withdrawals to the RMD Amount*, AAI Journal, November 2020
- *Estimating the End (of Retirement)*, David Blanchett, Morningstar, April 2020

## Further Reading continued

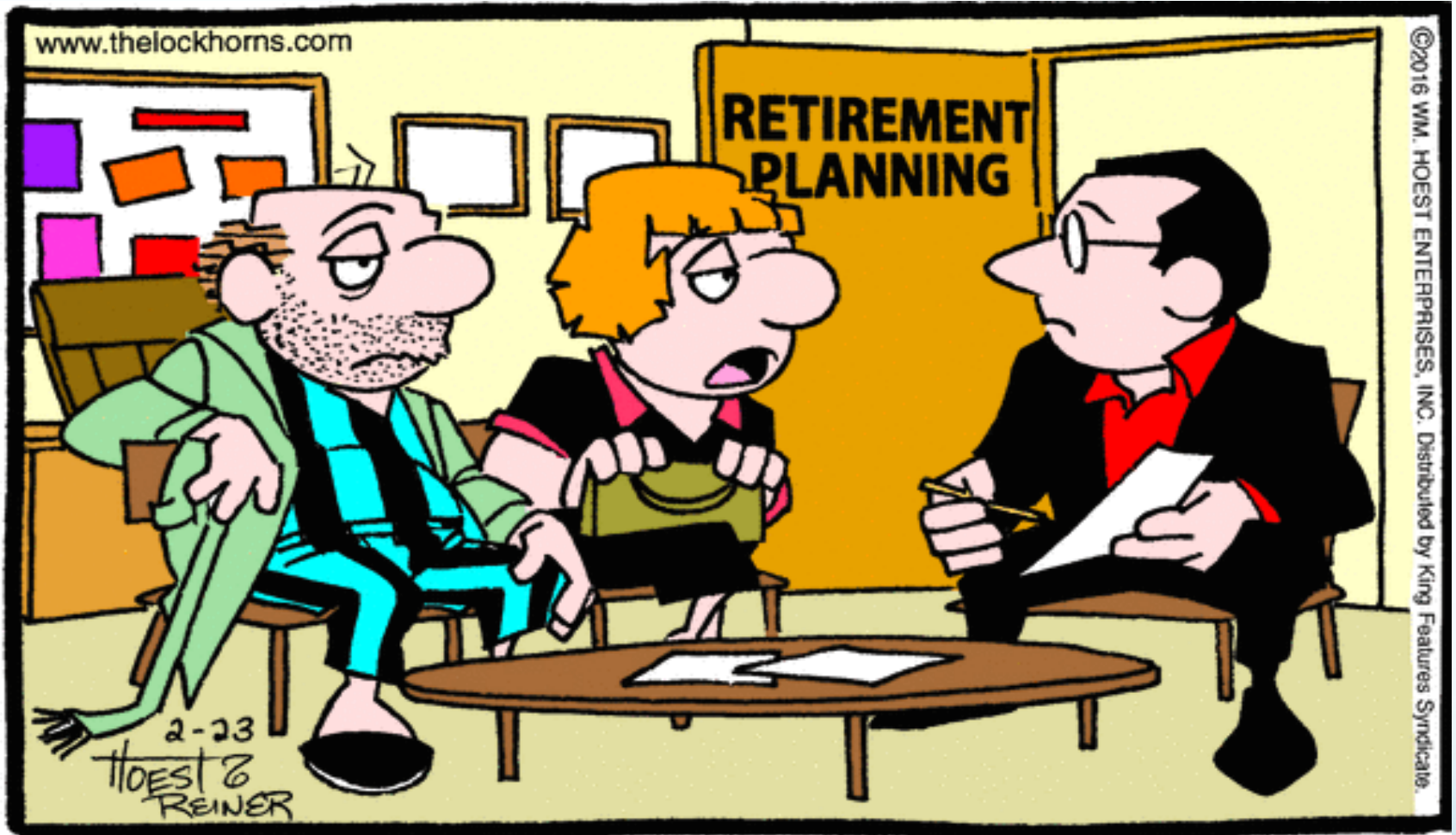
- *Why 4% Could Fail*, Wade Pfau and Wade Dorken, Financial Advisor Magazine, September 2015
- *The X% Rule*, William Sharpe, Retirement Income Scenarios blog, December 2013
- *Retirement Withdrawals: Can You Base Them on RMDs?*, Wei Sun and Anthony Webb, AAI Journal, December 2012
- *A More Dynamic Approach to Retirement Spending*, Colleen Jaconetti et al, AAI Journal, April 2014
- *Using the Bucket Approach With Your Retirement Portfolio*, Christine Benz, AAI Journal, October 2013
- *Standby Reverse Mortgages: A Risk Management Tool for Retirement Distributions*, John Salter, Shaun Pfeiffer and Harold Evensky, Journal of Financial Planning, August 2011

## Further Reading continued

- *Reducing Retirement Risk with a Rising Equity Glide Path*, Wade D. Pfau and Michael E. Kitces, Journal of Financial Planning, January 2014
- *Reduce Stock Exposure in Retirement, or Gradually Increase It?*, Michael Kitces and Wade Pfau, AAll Journal, April 2014
- *Retirement Risk, Rising Equity Glide Paths, and Valuation-Based Asset Allocation*, Michael Kitces and Wade Pfau, Journal of Financial Planning, March 2015
- *Increasing Retirement Withdrawal Rates Through Asset Allocation*, Michael Kitces and Wade Pfau, AAll Journal, April 2015
- *Mathematical Support for Rising Equity Glide Paths*, Luke Delorme, AAll Journal, September 2015
- *Initial Conditions and Optimal Retirement Glide Paths*, David Blanchett, Journal of Financial Planning, September 2015
- *Exploring the Optimal Equity Allocation path for Retirees*, David Blanchett, AAll Journal, December 2015

# Useful Websites

- <http://aaii.com> Broad selection of investing material
- <http://siliconvalleyaaii.org> Previous presentations on various topics
- <https://scclid.org/resources/business/> Business & Money  
Morningstar Research Center, S&P's NetAdvantage, Value Line
- <https://vanguard.com> Numerous articles on Retirement Planning
- <https://RetirementIncomeScenarios.blogspot.com> Bill Sharpe
- <https://caniretireyet.com/the-best-retirement-calculators/> Darrow Kirkpatrick
- <https://Livingto100.com> Calculates your life expectancy
- <https://Reversefunding.com> FAQs on reverse mortgages
- <https://bogleheads.org/>



**"LEROY HAS A CERTAIN LIFESTYLE HE WANTS TO MAINTAIN."**