

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

Financial Planning Workshops
Investing ... Part 1

Website: www.siliconvalleyaai.org

Email: dstikes.svaai@gmail.com

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Silicon Valley Chapter

American Association of Individual Investors

Please check us out!

- Chapter website: www.siliconvalleyaaii.org
- Meetups: www.meetup.com/AAll-Silicon-Valley-Meetup
- Facebook: www.facebook.com/sv.aa
- YouTube Channel

www.youtube.com/channel/UC4GepcU8lzx8rZMaWNBeJtA

- AAll National website: www.aaii.com
- My email address: dstikes.svaaii@gmail.com

Our Next Event and Special Interest Group Webcasts

- **Taxes**
 - Saturday October 14 Estate Planning with James A. Ward
- **Investing Discussion Group**
 - Lynn Gillette: Fourth Monday of each month except December at 6:30pm
- **Computerized-Mechanical Investing Group**
 - Bill Paseman, Don Mauer: First Thursday of each month at 6:30pm
- **Financial Planning Discussion Group**
 - Debra Stikes: Second Wednesday of each month from September to June at 6:30pm

Financial Planning Workshops

We cover a full range of topics in the cycle:

- **Financial Planning ... The Big Picture**
- **Investing I: Modern Portfolio Theory, Building a diversified portfolio**
- **Investing II: Efficient Market Hypothesis; Can you beat the market?**
- **Taxes: TRJA, SECURE Act, Tax diversification, Asset location, QCDs**
- **Retirement Planning I: Tax-advantaged plans, RMDs**
- **Retirement Planning II: 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**

Overview for Today's Workshop

- **The 5-step investing process**
- **Asset class characteristics**
- **Modern Portfolio Theory**
- **Building simple multi-asset portfolios**

The 5-Step Investing Process

- 1. Define your Personal Investor Profile**
- 2. Document your Investor Policy Statement**
- 3. Design your personalized portfolio**
- 4. Implement your portfolio**
- 5. Review and rebalance periodically**

First know thyself !

- *“If you don’t know who you really are,
the stock market is an expensive place to find out.”*

Adam Smith (1722 – 1790)

1. The Personal Investor Profile, PIP

- **Who am I?**
 - Age, Marital status, Retired, Mortgage etc.
- **Time horizon?**
 - Short-term goals, long-term goals
- **Risk tolerance?**
 - Eat well versus sleep well decision
 - Questionnaires at Schwab, Vanguard, Fidelity, etc.
- **Income needs?**

Need to generate income, capital gains
- **Tax status?**
 - FIT and SIT brackets, AMT status

Techniques to Control Risk

- **Diversification of asset classes**
 - Cash / Bonds / Stocks
 - Domestic / International
- **Tax diversification**
 - Taxable, tax-deferred and tax-free accounts
- **Time diversification**
 - Dollar cost averaging
 - Value averaging

Dollar Cost Averaging

- Invest a fixed \$ amount at equal periods

<u>Month</u>	<u>\$Amt</u>	<u>SharePr</u>	<u>#Shares</u>	<u>TotalSh</u>	<u>TotalVal</u>
1	\$1000	\$10	100	100	\$1000
2	\$1000	\$9	111	211	\$1899
3	\$1000	\$8	125	337	\$2696
4	\$1000	\$10	100	437	\$4370
5	\$1000	\$12	83	520	\$6240
6	<u>\$1000</u>	<u>\$11</u>	<u>91</u>	611	\$6721
Total	\$6000	\$10.00	611		

Average cost of purchased shares = $\$6000/611 = \9.83

Value Averaging

- Adjust balance each period to target value

<u>Month</u>	<u>\$Amt</u>	<u>SharePr</u>	<u>#Shares</u>	<u>TotalSh</u>	<u>TotalVal</u>
1	\$1000	\$10	100	100	\$1000
2	\$1100	\$9	122	222	\$2000
3	\$1224	\$8	153	375	\$3000
4	\$250	\$10	25	400	\$4000
5	\$200	\$12	17	417	\$5000
6	<u>\$1413</u>	<u>\$11</u>	<u>128</u>	545	\$6000
Total	\$5187	\$10.00	545		

Average cost of purchased shares = $\$5187 / 545 = \9.52

Typical Life Cycle Investing

	Early Career	Mid Career	Late Career	Early Retrmnt	Late Retrmnt
Time Horizon	Long	Long	Long	Long	Medium
Risk Tolerance	High	High	Medium	Low	Low
Income Needs	No	No	No	Yes	Yes
Tax Status	Low	Medium	High	Medium	Low

2. The Investment Policy Statement, IPS

- **Outlines the general philosophy and objectives for managing the portfolio**
- **Sets the rules and limitations**
- **Defines the asset classes to be used and the broad asset allocation**
- **Decision on asset location**
- **Limits on tactical deviations for market conditions**
- **Documents the rebalancing strategy**
- **Spells out any prohibitions, e.g. no derivatives**

Can you Summarize Your IPS on an Index Card?

- **Example: Christine Benz, Morningstar**
 - Favor equity funds but gradually enlarge bond positions as retirement approaches
 - Hold cash and municipal-bond funds for near-term expenditures
 - Check up once a year; rebalance if asset allocation is +/-10% off target allocation
- **Ten words or less: Fred Smith**
 - Build a diversified portfolio of cheap index funds; Rebalance annually.

3. Design Your Personalized Portfolio

- **Research the asset classes defined in your IPS**
 - Example: Which specific funds do you prefer to track U.S. stocks? Real estate? Emerging market?
 - Lowest cost? Least tracking error?, etc.
- **Asset allocation**
 - Pick an allocation to match your risk tolerance
- **Asset location**
 - Decide which funds belong in which accounts
 - Fixed income funds in tax-deferred retirement accounts
 - Risky hi-growth funds in tax-free Roth accounts
 - Remaining funds in taxable accounts

Asset Location: Traditional Portfolio

Rebalance each account separately

	Traditional IRA, 401(k), etc.	Regular account	Roth IRA
Fixed Income	30%	30%	30%
Conserv. stocks US stocks	50%	50%	50%
Hi-growth stocks Intl. Stocks	20%	20%	20%
Tax status Distributions	Tax-deferred Gains taxed as Ord.Income	Taxable Gains taxed as Cap.Gain	Tax-free No taxes

Asset Location: Household Portfolio

Rebalance total portfolio

	Traditional IRA, 401(k), etc.	Regular account	Roth IRA
Fixed Income	30%	-	-
Conserv. Stocks US stocks	-	50%	-
Hi-growth stocks Intl. stocks	-	-	20%
Tax status Distributions	Tax-deferred Gains taxed as Ord.Income	Taxable Gains taxed as Cap.Gain	Tax-free No taxes

4. Implement Your Portfolio

- **Execute the trades to implement the portfolio for each account**
- **Accounts may be at different financial institutions**
 - Traditional IRAs and Roth IRA at Vanguard
 - Taxable account at Schwab, etc.
- **Execute all trades ...**
 - ... immediately
 - ... or Dollar cost average
 - ... or Value average

5. Review and Rebalance

- **Follow the review strategy defined in your IPS**
- **For a passive portfolio ...**
 - ... calendar driven
 - ... or threshold driven
- **For an active portfolio ...**
 - ... may be necessary to monitor weekly or even daily
 - ... execute trades as spelled out in your IPS
- **Have you met the return projection and risk level defined in your IPS?**

Rebalancing Your Portfolio

- **Rebalancing is necessary to reduce risk**
- **Most helpful when it is most difficult**
Opposite of “Feed the winners and starve the losers”
- **Periodic or calendar driven: Rebalance annually**
Rebalancing more often is not useful
- **Threshold or data driven: Rebalance as necessary**
Check monthly or quarterly, but only rebalance when an actual asset allocation deviates from its strategic value by more than a predetermined amount, say 10% of the strategic value.

Practical Aspects of Rebalancing

- **Use cash flows into or out of portfolio to rebalance**
e.g. monthly contributions, withdrawals, RMDs, etc.
- **Do not reinvest dividend distributions**
Let dividends accumulate in money market account,
then use this to make rebalancing purchases
- **Many retirement plans offer automatic rebalancing**

Asset Classes

- **Fixed income**
 - Cash and cash equivalents
 - Bonds
- **Equities**
 - Domestic stocks
 - International stocks
- **Alternative investments**
 - Real estate investment trusts (REITs)
 - Commodities
 - etc.

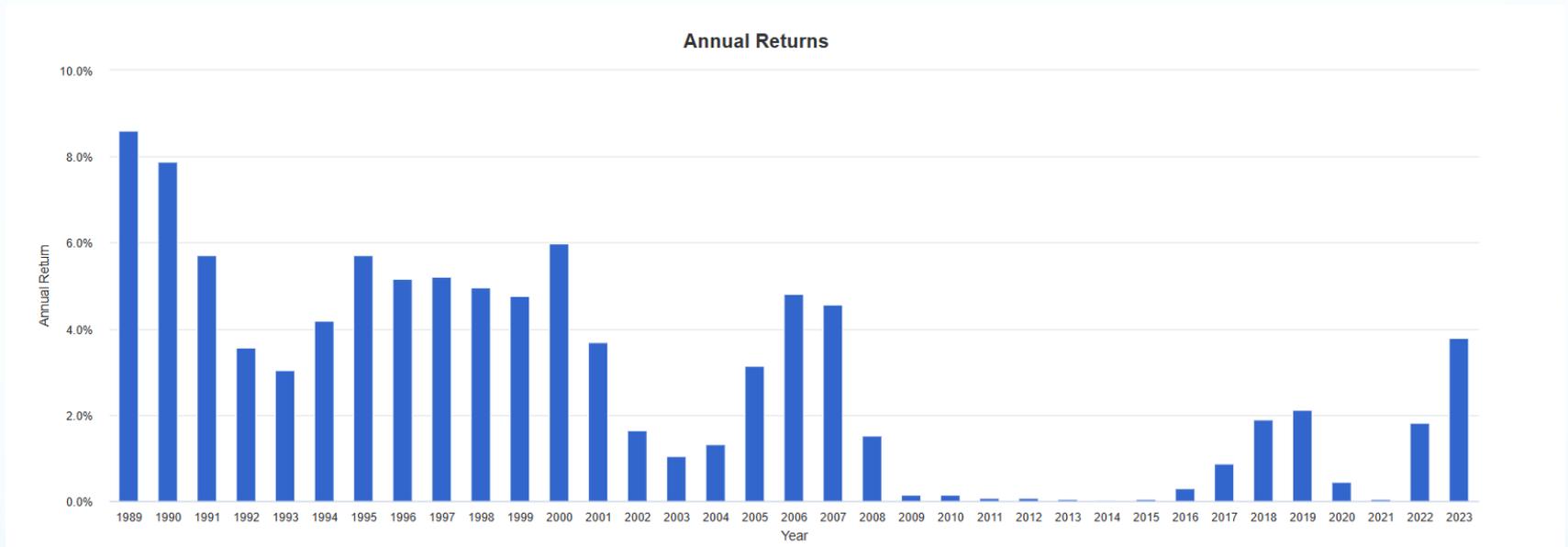
The Brinson Study

- **1986 Study by Gary Brinson et al., Updated 1991 Survey of 82 major pension funds**
- **Contributions to variance in portfolio performance**
 - >91% Investment policy decisions**
 - i.e. deciding on asset classes and weights**
 - <5% Security selection within asset class**
 - i.e. stock picking**
 - <2% Market timing**

Portfolio Virtualizer

- **Graphs and statistics are generated using portfoliovirtualizer.com**
 - **Basic use is free**
 - **Supports comparing portfolios**
 - **Three portfolios used for comparison**
 - **Cash**
 - **Total US Bond Market**
 - **Total US Stock Market**

Cash (1989/2023-09)



Name	Total Return			Annualized Return				Annualized Standard Deviation	
	3 Month	Year To Date	1 year	3 year	5 year	10 year	Full	3 year	5 year
Cash	1.33%	3.78%	4.79%	1.88%	1.75%	1.13%	2.81%	0.62%	0.51%

Portfolio	Initial Balance	Final Balance	CAGR	Stdev	Best Year	Worst Year	Max. Drawdown	Sharpe Ratio	Sortino Ratio	Market Correlation
Cash	\$10,000	\$26,166 ⓘ	2.81% ⓘ	0.70%	8.61%	0.03%	0.00%	N/A	N/A	0.01

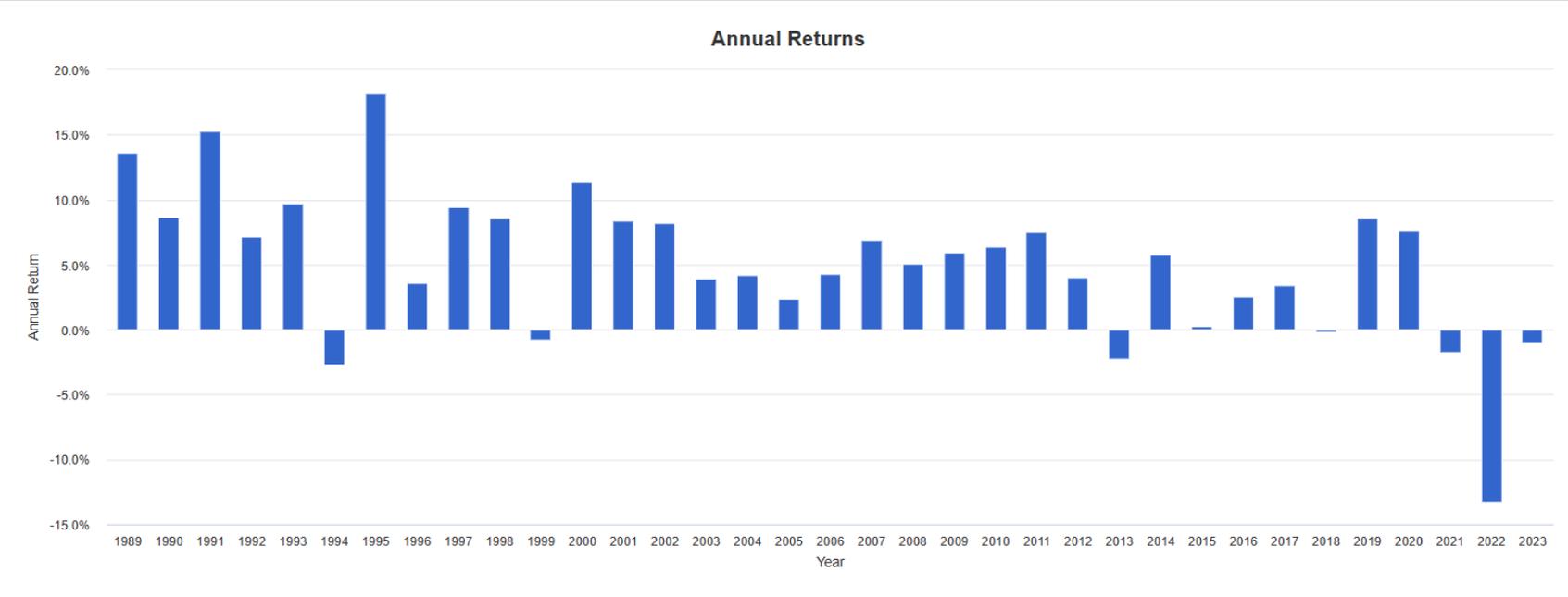
Characteristics for Cash and Cash Equivalents (1989/2023-09)

- **Low return**
Compound Annual Growth Rate = 2.81%
- **Low risk**
Standard deviation = 0.70%
- **Sharpe ratio = N/A**
- **Best year: 8.61% (1989)**
- **Worst year: 0.03% (2014)**
- **Number of down years: 0/35**

Total U.S. Bond Market (1989 - 09/2023)

portfoliovisualizer.com

Annual Returns



Name	Total Return			Annualized Return				Annualized Standard Deviation	
	3 Month	Year To Date	1 year	3 year	5 year	10 year	Full	3 year	5 year
Total US Bond Market	-3.11%	-1.00%	0.62%	-5.31%	0.03%	1.01%	5.00%	6.22%	5.64%

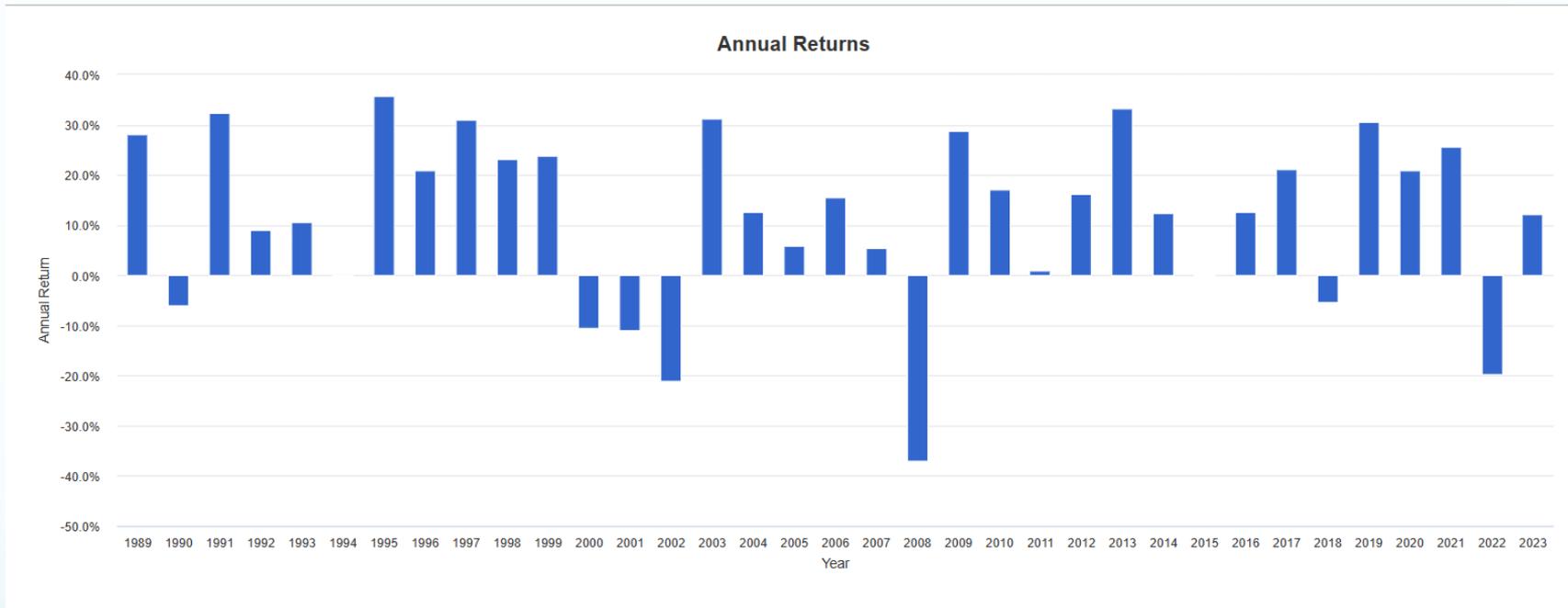
Portfolio	Initial Balance	Final Balance	CAGR	Stdev	Best Year	Worst Year	Max. Drawdown	Sharpe Ratio	Sortino Ratio	Market Correlation
Total US Bond Market	\$10,000	\$54,548 ⓘ	5.00% ⓘ	4.04%	18.18%	-13.25%	-17.57% ⓘ	0.55	0.83	0.16

Characteristics for Total US Bond Market (1989/2023-09)

- **Higher return than cash**
Compound Annual Growth Rate = 5.00%
- **Higher risk**
Standard deviation = 4.04%
- **Sharpe ratio = 0.55**
- **Best year: 18.18% (1995)**
- **Worst year: -13.25% (2022)**
- **Number of down years: 6/35**

Total U.S. Stock Market (1989 – 09/2023)

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Name	3 Month	Year To Date	1 year	3 year	5 year	10 year	Full	3 year	5 year
US Stock Market	-3.33%	12.24%	20.23%	9.12%	8.94%	11.10%	10.21%	18.18%	19.57%

Portfolio	Initial Balance	Final Balance	CAGR	Stdev	Best Year	Worst Year	Max. Drawdown	Sharpe Ratio	Sortino Ratio	Market Correlation
US Stock Market	\$10,000	\$292,832	10.21%	15.13%	35.79%	-37.04%	-50.89%	0.54	0.78	1.00

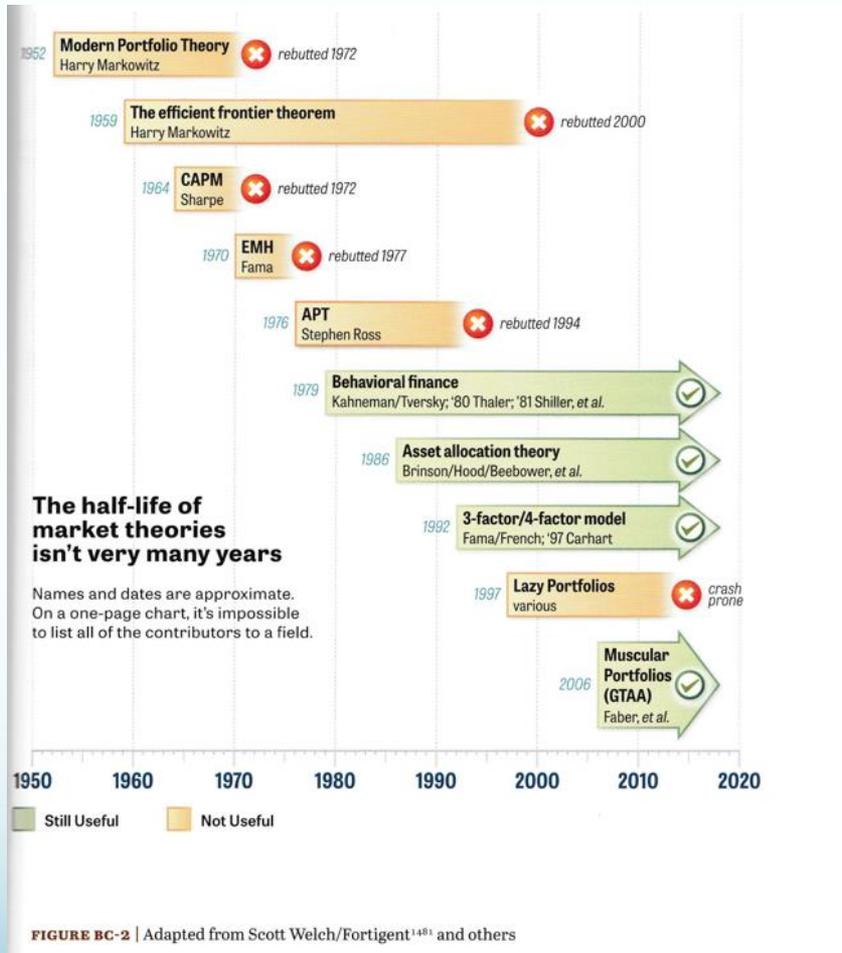
Characteristics for Total US Stock Market (1989-09/2023)

- **Higher return than cash or bonds**
Compound Annual Growth Rate = 10.21%
- **Significantly higher risk**
Standard deviation = 15.13%
- **Sharpe ratio = 0.54**
- **Best year: 35.79% (1995)**
- **Worst year: -37.04% (2008)**
- **Number of down years: 7/35**

Modern Portfolio Theory

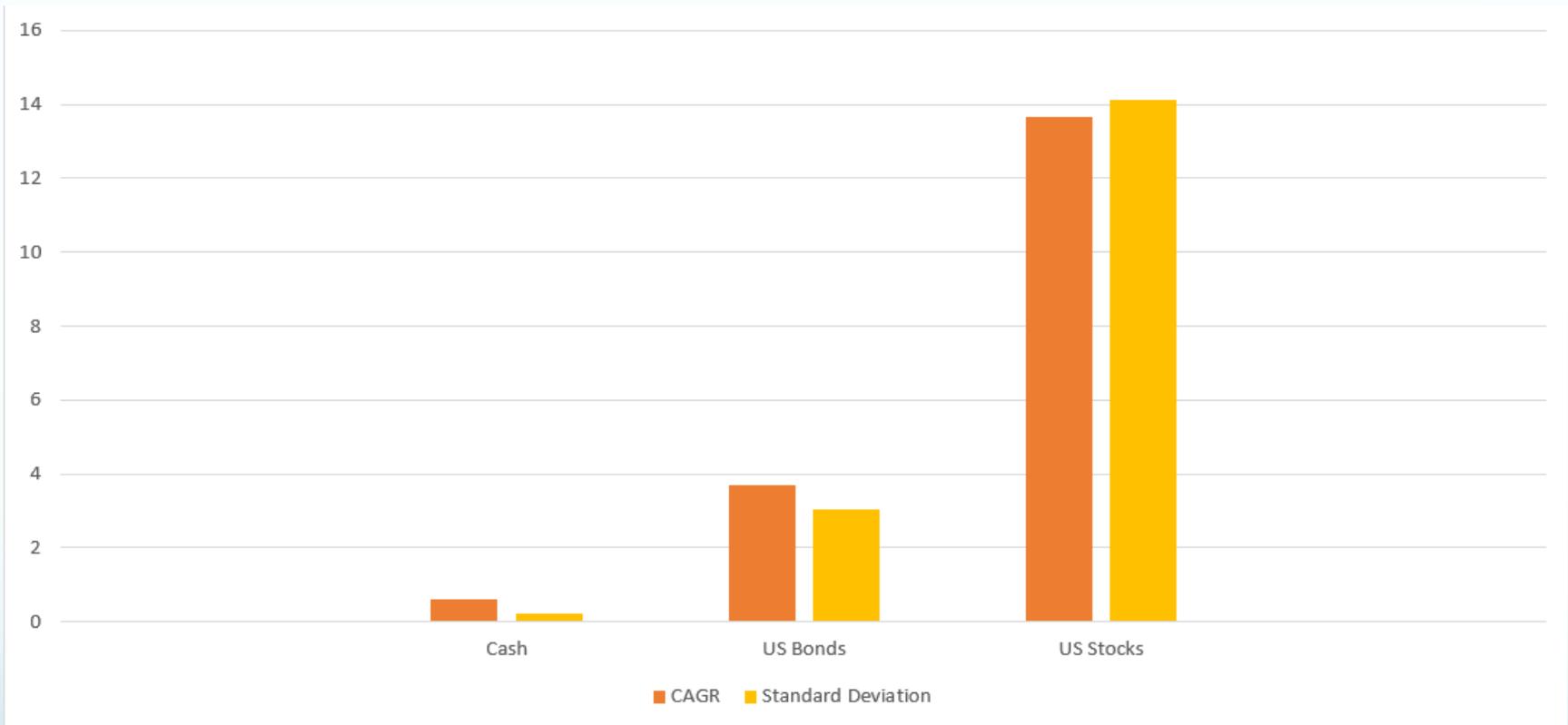
- Theory on how risk-averse investors can construct a portfolio to maximize the expected return for a given level of market risk
- First formulated by Harry Markowitz in 1952
- Further developed by Bill Sharpe et al over the next two decades

Many Portfolio Theories



From Muscular Portfolios by Brian Livingston

Risk and Return are Correlated



Standard Deviation (10 years)

T-Bills

Bonds

Stocks

The Third Dimension ... Correlation

- Total return, R
- Standard deviation, S
- Correlation, C

Measures how well two assets track each other

$C = 1$ for perfect tracking, i.e. zig and zag together

$C = 0$ for no correlation

$C = -1$ for perfect negative correlation

i.e. one asset zigs every time the other zags

Basic MPT Equations

- For a portfolio, P, with 2 risky assets, A and B with expected total returns R_A and R_B , and standard deviations S_A and S_B and correlation C_{AB} and weights W_A and W_B in the portfolio

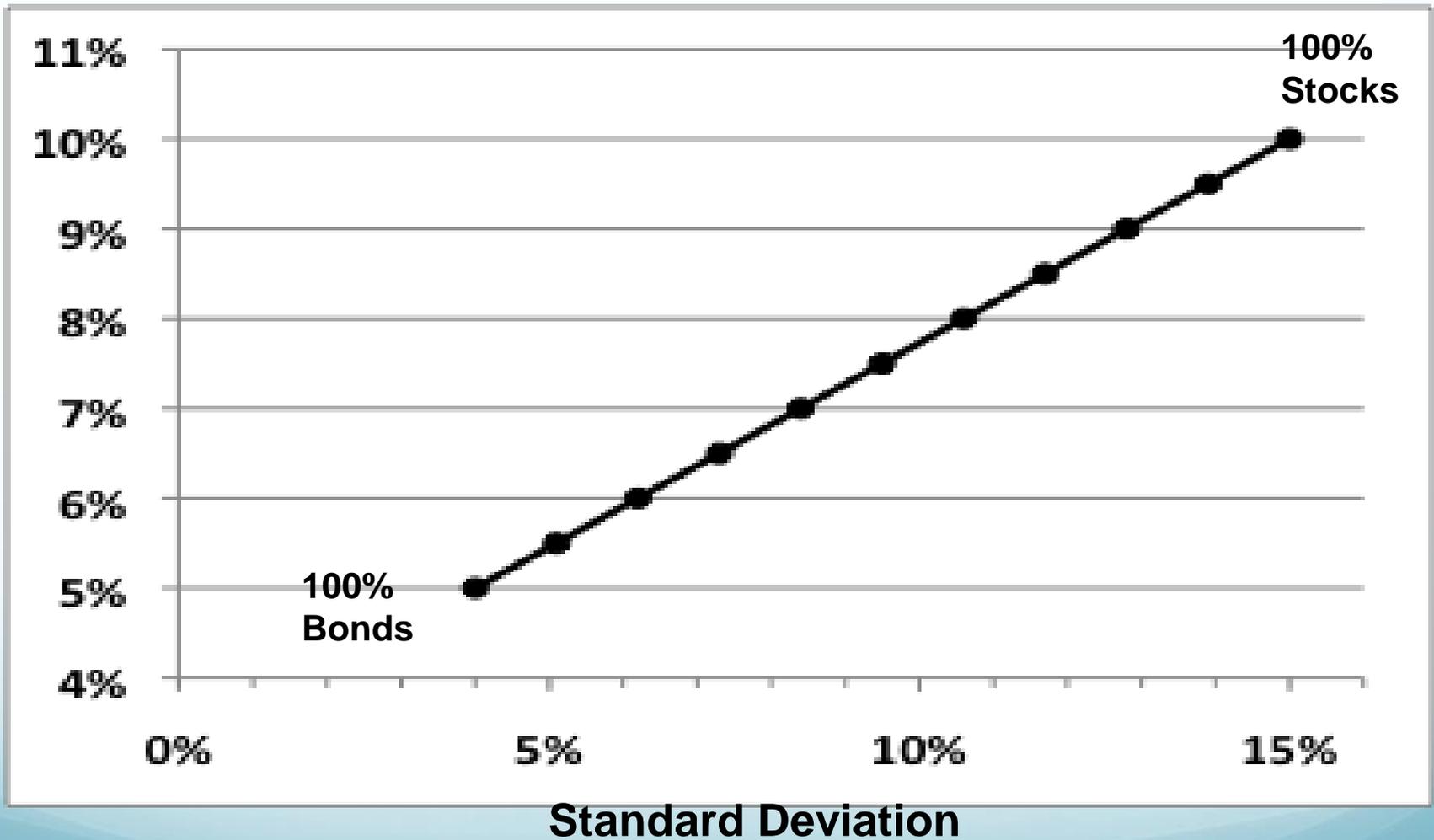
$$R_P = W_A \times R_A + W_B \times R_B$$

$$S_P = \text{SqRt}\{(W_A \times S_A)^2 + (W_B \times S_B)^2 + 2 \times W_A \times S_A \times W_B \times S_B \times C_{AB}\}$$

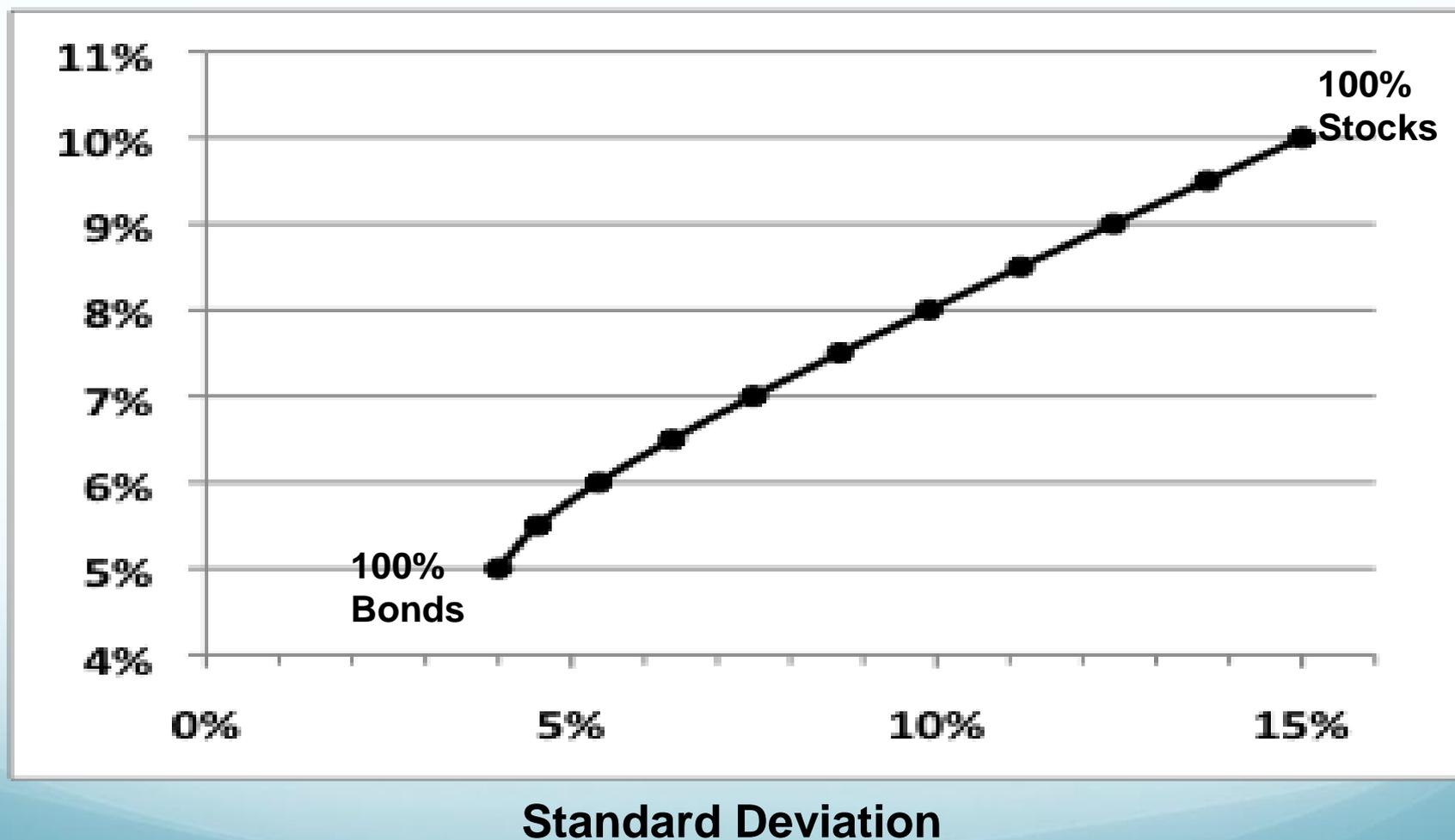
Simple Portfolio with 2 Risky Assets

- **First asset (e.g. a bond fund)**
 - **Return = 5%**
 - **Standard deviation = 4%**
- **Second asset (e.g. a stock fund)**
 - **Return = 10%**
 - **Standard deviation = 15%**
- **Weights: Vary from 0, 10%, 20% ... 100%**
- **Correlation: Vary from +1.0, +0.5, 0, -0.5, -1.0**

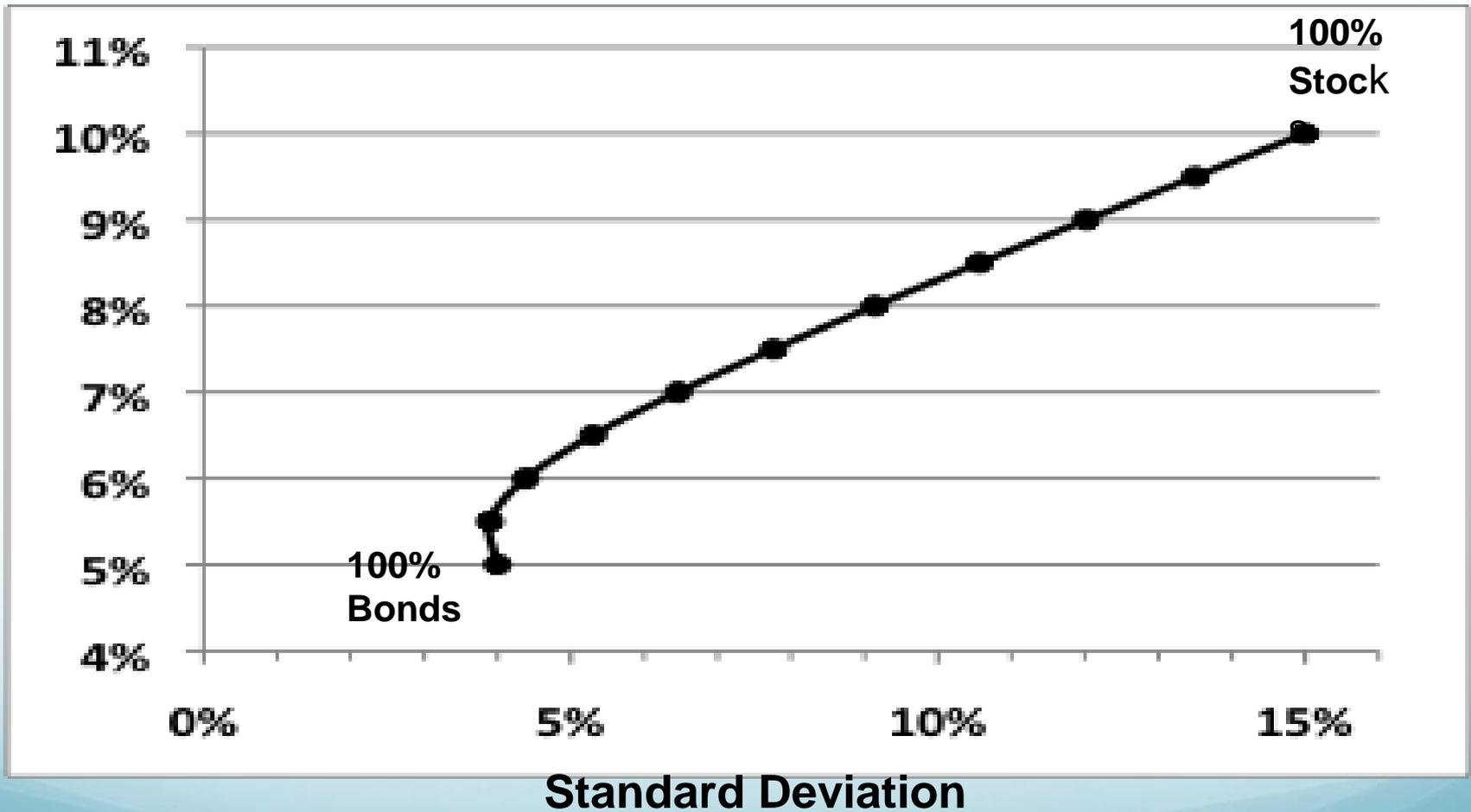
2 Assets: Correlation = 1.0



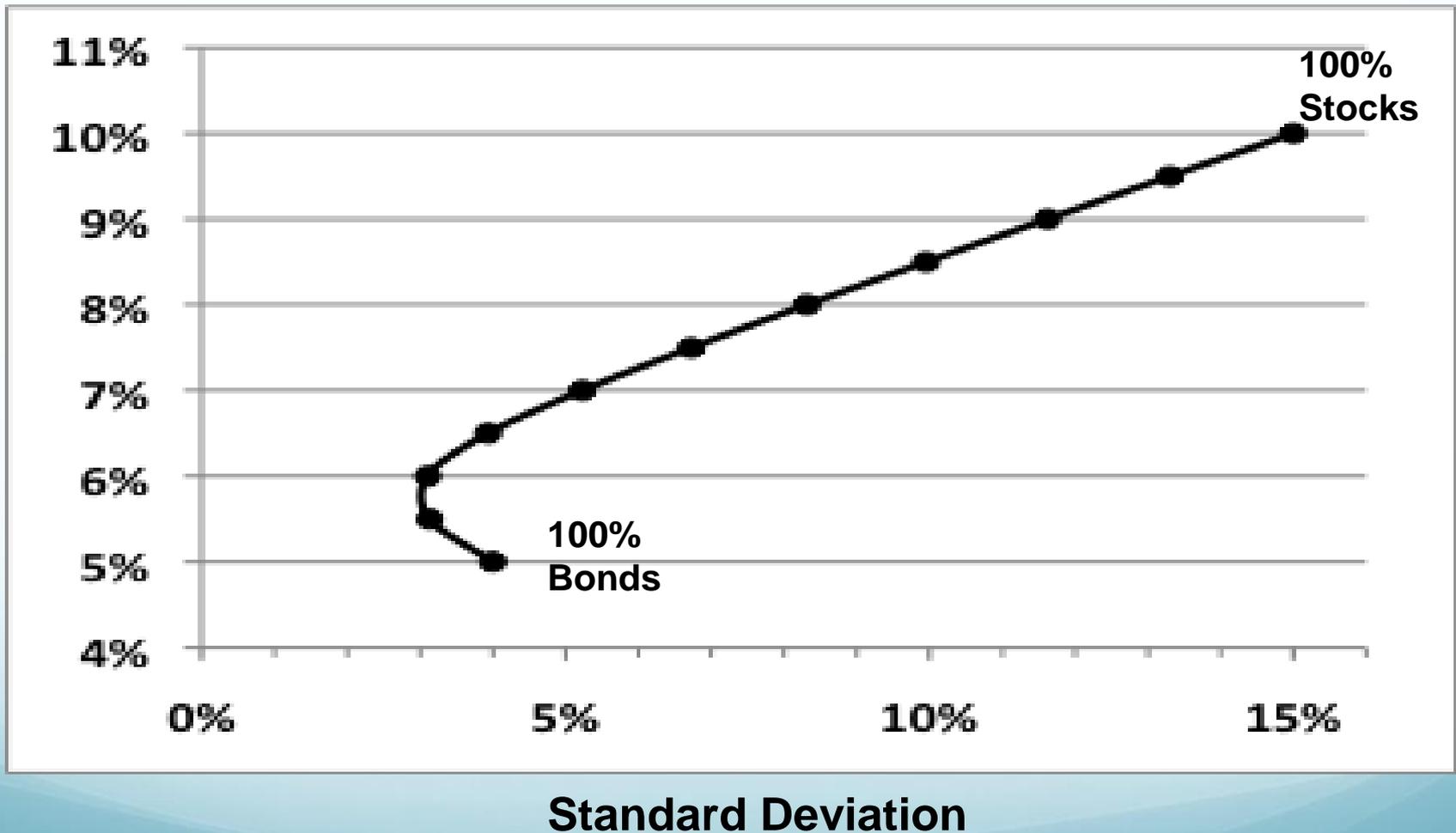
2 Assets: Correlation = 0.5



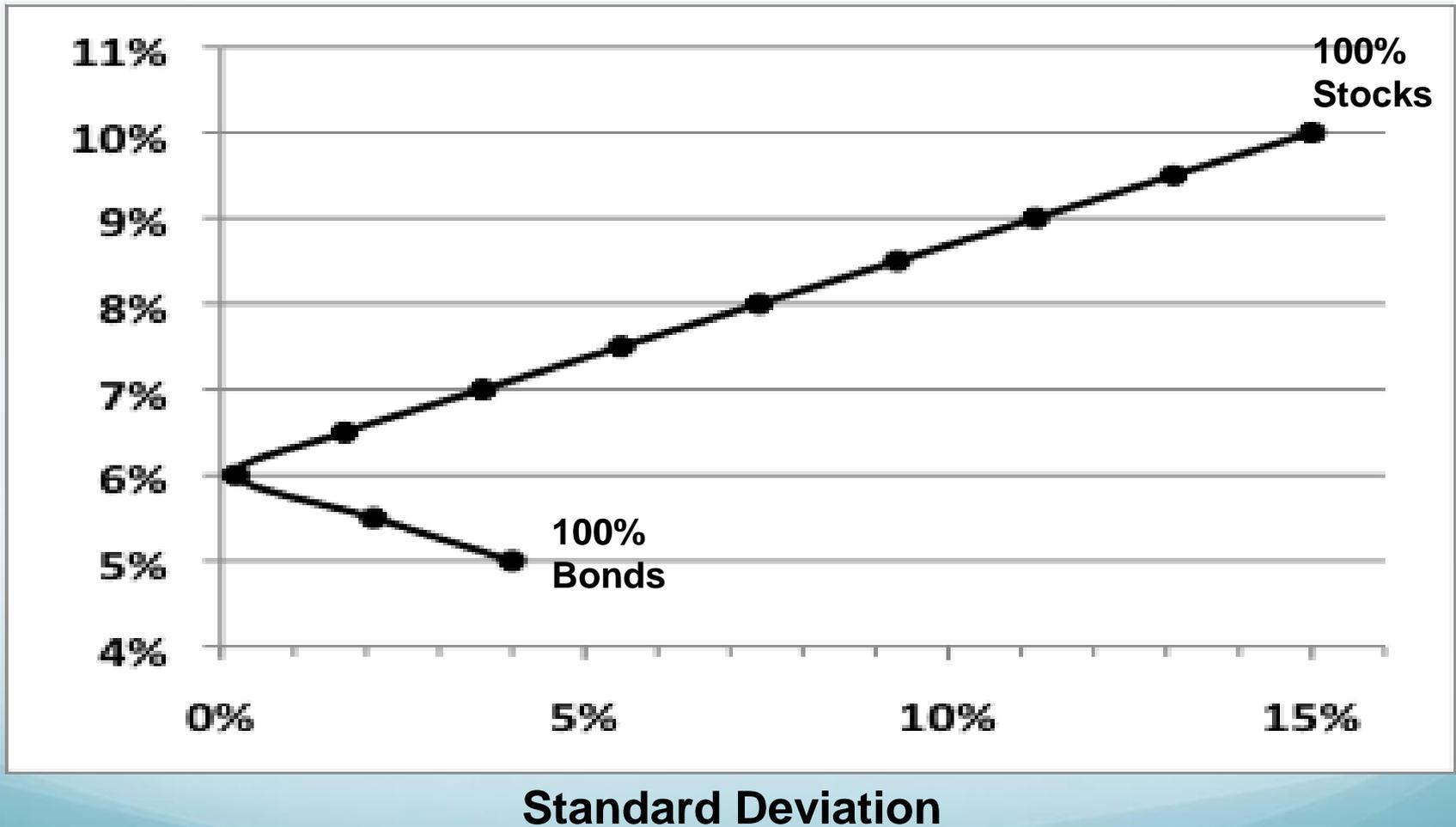
2 Assets: Correlation = 0



2 Assets: Correlation = -0.5



2 Assets: Correlation = -1.0



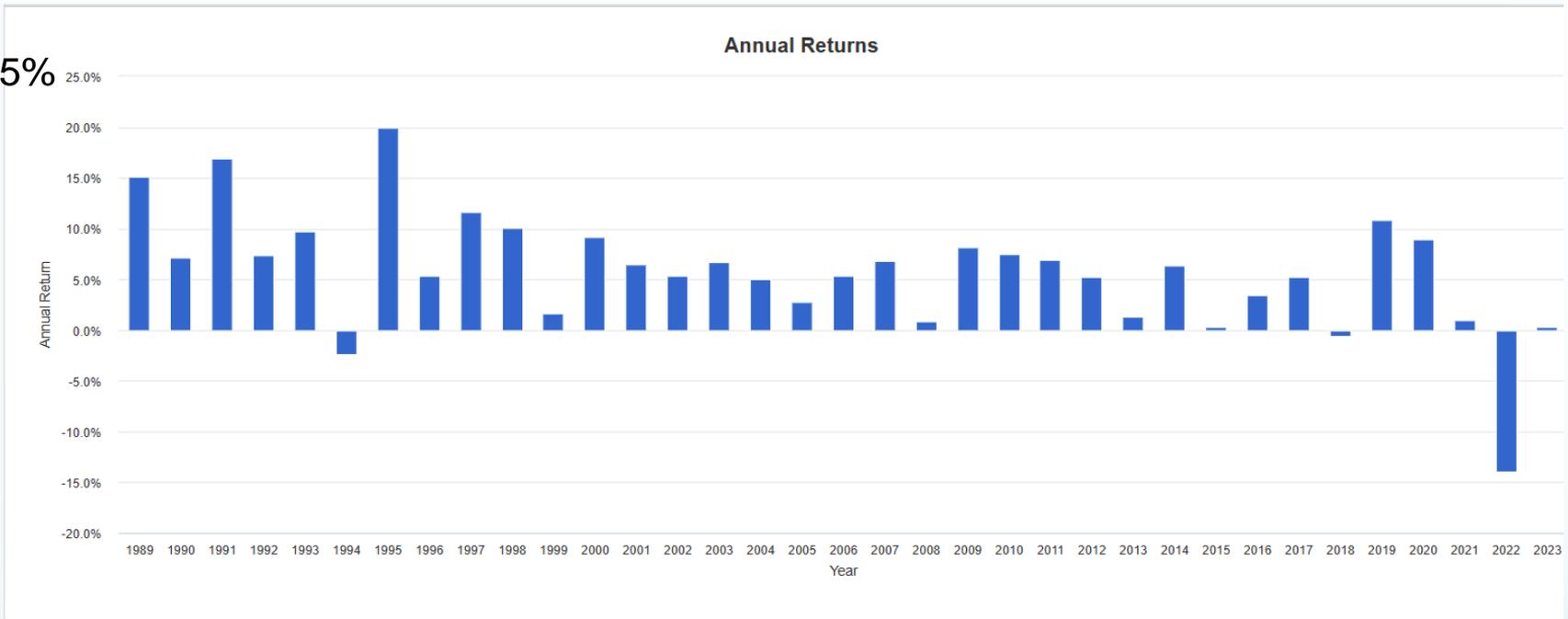
How Well Does MPT Work in Practice?

- **Let's look at simple portfolios comprising the total US bond and stock funds we examined earlier**
- **Portfolio 1**
 - **90% Total US bond fund**
 - **10% Total US stock fund**
- **Portfolio 2**
 - **30% Total US bond fund**
 - **70% Total US stock fund**

Simple 2-Asset Portfolio 1

90% Bond Market + 10% Stock Market

25%



Name	Total Return			Annualized Return				Annualized Standard Deviation	
	3 Month	Year To Date	1 year	3 year	5 year	10 year	Full	3 year	5 year
Portfolio 1	-3.13%	0.32%	2.46%	-3.81%	1.00%	2.08%	5.65%	6.91%	6.07%

Portfolio	Initial Balance	Final Balance	CAGR	Stdev	Best Year	Worst Year	Max. Drawdown	Sharpe Ratio	Sortino Ratio	Market Correlation
Portfolio 1	\$10,000	\$67,594	5.65%	4.15%	19.94%	-13.88%	-16.46%	0.69	1.04	0.50

Simple 2-Asset Portfolio 2

30% Bond Market + 70% Stock Market



Name	Total Return			Annualized Return				Annualized Standard Deviation	
	3 Month	Year To Date	1 year	3 year	5 year	10 year	Full	3 year	5 year
Portfolio 1	-3.27%	8.27%	14.03%	4.92%	6.44%	8.22%	8.96%	13.97%	14.33%

Portfolio	Initial Balance	Final Balance	CAGR	Stdev	Best Year	Worst Year	Max. Drawdown	Sharpe Ratio	Sortino Ratio	Market Correlation
Portfolio 1	\$10,000	\$197,565 📈	8.96% 📈	10.74%	30.50%	-24.41%	-36.08% 📉	0.60	0.88	0.99

Characteristic data for Simple 2-Asset Portfolios (1989 – 9/2023)

	Bond Fund	Portfolio 1	Portfolio 2	Stock Fund
Weight Bnd/St	100%/0	90%/10%	30%/70%	0/100%
35yr CAGR	5.00%	5.65%	8.96%	10.21%
Std Deviation	4.04	4.15	10.74%	15.13
Sharpe Ratio	0.55	0.69	0.60	0.54
US Mkt Corr.	0.16	0.50	0.99	1.00
Best Year	18.18%	19.94%	24.41%	35.79%
Worst year	-13.25%	-16.46%	-24.41%	-37.04%
# Down years	6	3	8	7

How Can We Diversify Further?

- **Replace Total US bond fund**
with short-term and intermediate term bonds
- **Replace Total US stock fund**
with large/small cap, value/growth index funds
- **Add real estate index, commodity index funds**
- **Add international index funds**
 - **Developed markets, emerging markets**

The Callan Periodic Table of Investment Returns

Annual Returns for Key Indices Ranked in Order of Performance (2000–2019)

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Real Estate 13.84%	U.S. Fixed Income 8.43%	Gibl ex-U.S. Fixed 22.37%	Emerging Market Equity 55.82%	Real Estate 37.96%	Emerging Market Equity 34.00%	Real Estate 42.12%	Emerging Market Equity 39.38%	U.S. Fixed Income 5.24%	Emerging Market Equity 78.51%	Small Cap Equity 26.85%	U.S. Fixed Income 7.84%	Real Estate 27.73%	Small Cap Equity 38.82%	Real Estate 15.02%	Large Cap Equity 1.38%	Small Cap Equity 21.31%	Emerging Market Equity 37.28%	Cash Equivalent 1.87%	Large Cap Equity 31.49%
U.S. Fixed Income 11.63%	High Yield 5.28%	U.S. Fixed Income 10.26%	Small Cap Equity 47.25%	Emerging Market Equity 25.55%	Real Estate 15.35%	Emerging Market Equity 32.17%	Dev ex-U.S. Equity 12.44%	Gibl ex-U.S. Fixed 4.39%	High Yield 58.21%	Real Estate 19.63%	High Yield 4.98%	Emerging Market Equity 18.23%	Large Cap Equity 32.39%	Large Cap Equity 13.69%	U.S. Fixed Income 0.55%	High Yield 17.13%	Dev ex-U.S. Equity 24.21%	U.S. Fixed Income 0.01%	Small Cap Equity 25.52%
Cash Equivalent 6.18%	Cash Equivalent 4.42%	Real Estate 2.82%	Real Estate 40.69%	Dev ex-U.S. Equity 20.38%	Dev ex-U.S. Equity 14.47%	Dev ex-U.S. Equity 25.71%	Gibl ex-U.S. Fixed 11.03%	Cash Equivalent 2.06%	Real Estate 37.13%	Emerging Market Equity 18.88%	Gibl ex-U.S. Fixed 4.36%	Dev ex-U.S. Equity 16.41%	Dev ex-U.S. Equity 21.02%	U.S. Fixed Income 5.97%	Cash Equivalent 0.05%	Large Cap Equity 11.96%	Large Cap Equity 21.83%	High Yield -2.08%	Dev ex-U.S. Equity 22.49%
Small Cap Equity -3.02%	Small Cap Equity 2.49%	Cash Equivalent 1.78%	Dev ex-U.S. Equity 39.42%	Small Cap Equity 18.33%	Large Cap Equity 4.91%	Small Cap Equity 18.37%	U.S. Fixed Income 6.97%	High Yield -26.16%	Dev ex-U.S. Equity 33.67%	High Yield 15.12%	Large Cap Equity 2.11%	Small Cap Equity 16.35%	High Yield 7.44%	Small Cap Equity 4.89%	Real Estate -0.79%	Emerging Market Equity 11.19%	Small Cap Equity 14.65%	Gibl ex-U.S. Fixed -2.15%	Real Estate 21.91%
Gibl ex-U.S. Fixed -3.91%	Emerging Market Equity -2.61%	High Yield -1.37%	High Yield 28.97%	Gibl ex-U.S. Fixed 12.54%	Small Cap Equity 4.55%	Large Cap Equity 15.79%	Large Cap Equity 5.49%	Small Cap Equity -33.79%	Small Cap Equity 27.17%	Large Cap Equity 15.06%	Cash Equivalent 0.10%	Large Cap Equity 16.00%	Real Estate 3.67%	High Yield 2.45%	Dev ex-U.S. Equity -3.04%	Real Estate 4.06%	Gibl ex-U.S. Fixed 10.51%	Large Cap Equity -4.38%	Emerging Market Equity 18.44%
High Yield -5.86%	Gibl ex-U.S. Fixed -3.75%	Emerging Market Equity -6.16%	Large Cap Equity 28.68%	High Yield 11.13%	Cash Equivalent 3.07%	High Yield 11.85%	Cash Equivalent 5.00%	Large Cap Equity -37.00%	Large Cap Equity 26.47%	Dev ex-U.S. Equity 8.95%	Small Cap Equity -4.18%	High Yield 15.81%	Cash Equivalent 0.07%	Cash Equivalent 0.03%	Small Cap Equity -4.41%	Dev ex-U.S. Equity 2.75%	Real Estate 10.36%	Real Estate -5.63%	High Yield 14.32%
Large Cap Equity -9.11%	Real Estate -3.81%	Dev ex-U.S. Equity -15.80%	Gibl ex-U.S. Fixed 19.36%	Large Cap Equity 10.88%	High Yield 2.74%	Gibl ex-U.S. Fixed 8.16%	High Yield 1.87%	Dev ex-U.S. Equity -43.56%	Gibl ex-U.S. Fixed 7.53%	U.S. Fixed Income 6.54%	Real Estate -6.46%	U.S. Fixed Income 4.21%	U.S. Fixed Income -2.02%	Emerging Market Equity -2.19%	High Yield -4.47%	U.S. Fixed Income 2.65%	High Yield 7.50%	Small Cap Equity -11.01%	U.S. Fixed Income 8.72%
Dev ex-U.S. Equity -13.37%	Large Cap Equity -11.89%	Small Cap Equity -20.48%	U.S. Fixed Income 4.10%	U.S. Fixed Income 4.34%	U.S. Fixed Income 2.43%	Cash Equivalent 4.85%	Small Cap Equity -1.57%	Real Estate -48.21%	U.S. Fixed Income 5.93%	Gibl ex-U.S. Fixed 4.95%	Dev ex-U.S. Equity -12.21%	Gibl ex-U.S. Fixed 4.09%	Emerging Market Equity -2.60%	Gibl ex-U.S. Fixed -3.09%	Gibl ex-U.S. Fixed -6.02%	Gibl ex-U.S. Fixed 1.49%	U.S. Fixed Income 3.54%	Dev ex-U.S. Equity -14.09%	Gibl ex-U.S. Fixed 5.09%
	Dev ex-U.S. Equity -21.40%	Large Cap Equity -22.10%	Cash Equivalent 1.15%	Cash Equivalent 1.33%	Gibl ex-U.S. Fixed -8.65%	U.S. Fixed Income 4.33%	Real Estate -7.39%	Emerging Market Equity -53.33%	Cash Equivalent 0.21%	Cash Equivalent 0.13%	Emerging Market Equity -18.42%	Cash Equivalent 0.11%	Gibl ex-U.S. Fixed -3.08%	Dev ex-U.S. Equity -4.32%	Emerging Market Equity -14.92%	Cash Equivalent 0.33%	Cash Equivalent 0.86%	Emerging Market Equity -14.57%	Cash Equivalent 2.28%

Correlations of Major Asset Classes

Portfolio Visualizer 9/1/09 – 8/31/19

Name	Ticker	VTI	VO	VB	SHY	BND	TLT	TIP	MUB	VEU	VSS	VWO	VNQ	DBC	GLD
Vanguard Total Stock Market ETF	VTI	-	0.97	0.95	-0.28	-0.20	-0.48	-0.01	-0.11	0.86	0.84	0.76	0.64	0.55	0.04
Vanguard Mid-Cap ETF	VO	0.97	-	0.97	-0.27	-0.19	-0.46	-0.00	-0.08	0.84	0.84	0.75	0.68	0.52	0.07
Vanguard Small-Cap ETF	VB	0.95	0.97	-	-0.31	-0.24	-0.49	-0.03	-0.13	0.79	0.80	0.70	0.66	0.53	0.04
iShares 1-3 Year Treasury Bond ETF	SHY	-0.28	-0.27	-0.31	-	0.81	0.61	0.63	0.46	-0.15	-0.15	-0.06	0.09	-0.11	0.44
Vanguard Total Bond Market ETF	BND	-0.20	-0.19	-0.24	0.81	-	0.84	0.80	0.72	-0.08	-0.07	-0.00	0.29	-0.16	0.44
iShares 20+ Year Treasury Bond ETF	TLT	-0.48	-0.46	-0.49	0.61	0.84	-	0.59	0.63	-0.41	-0.42	-0.33	0.03	-0.45	0.25
iShares TIPS Bond ETF	TIP	-0.01	-0.00	-0.03	0.63	0.80	0.59	-	0.58	0.13	0.15	0.23	0.36	0.08	0.53
iShares National Muni Bond ETF	MUB	-0.11	-0.08	-0.13	0.46	0.72	0.63	0.58	-	0.00	0.00	0.03	0.31	-0.16	0.26
Vanguard FTSE All-Wld ex-US ETF	VEU	0.86	0.84	0.79	-0.15	-0.08	-0.41	0.13	0.00	-	0.96	0.92	0.59	0.61	0.17
Vanguard FTSE All-Wld ex-US SmCp ETF	VSS	0.84	0.84	0.80	-0.15	-0.07	-0.42	0.15	0.00	0.96	-	0.90	0.56	0.64	0.24
Vanguard FTSE Emerging Markets ETF	VWO	0.76	0.75	0.70	-0.06	-0.00	-0.33	0.23	0.03	0.92	0.90	-	0.56	0.58	0.28
Vanguard Real Estate ETF	VNQ	0.64	0.68	0.66	0.09	0.29	0.03	0.36	0.31	0.59	0.56	0.56	-	0.25	0.15
Invesco DB Commodity Tracking	DBC	0.55	0.52	0.53	-0.11	-0.16	-0.45	0.08	-0.16	0.61	0.64	0.58	0.25	-	0.36
SPDR Gold Shares	GLD	0.04	0.07	0.04	0.44	0.44	0.25	0.53	0.26	0.17	0.24	0.28	0.15	0.36	-

The Vanguard “Lazy Portfolios”

	Total Bond Market	Total Stock Market	Intl. Stock Market	REIT
Rick Ferri	40%	60%	-	-
Rick Ferri	40%	40%	20%	-
Rick Ferri	40%	40%	24%	6%
Bill Schulteis	40%	10+10+10+10%	10%	10%
William Bernstein	40%	15+10+5+10	5+5+5%	5%
Frank Armstrong	30%	7+9+6+9%	31%	8%
David Swenson	15+15%	30%	15+10%	15%

To Keep It Really Simple! One-Fund Solutions

- Vanguard Life Strategy Funds

	<u>Fixed Income</u>		<u>Equities</u>	
	<u>U.S.</u>	<u>Intl.</u>	<u>U.S.</u>	<u>Intl.</u>
VASIX Income Fund	56%	24%	12%	8%
VSCGX Conservative Growth Fund	42%	18%	24%	16%
VSMGX Moderate Growth Fund	28%	12%	36%	24%
VASGX Growth Fund	14%	6%	48%	32%

- Target Date Funds: 2020, 2025, 2030 ... 2055
 - Vanguard, Fidelity, T Rowe Price, etc.

Rick Ferri's

6 Rules for Disciplined Investing

1. Have a long-term investment philosophy.
2. Form a prudent asset allocation based on this philosophy.
3. Select low-cost funds to represent asset classes in the allocation.
4. Maintain this portfolio through all market conditions.
5. Don't change the asset allocation due to recent market activity.
6. Don't hold back on new investments while waiting for market clarity.

To Probe Further

- **Making Sense of Investment Risk, Paul Merriman, AAI Journal, March 2020**
- **Rebalancing: A Sound Strategy for Limiting Risk, Vanguard, June 2019**
- **Global Equity Investing, The Benefits of Diversification and Sizing Your Allocation, Vanguard, February 2019**
- **The Importance of Diversification in Retirement Portfolios, Craig Israelsen, AAI Journal, April 2015**
- **Portfolio Selection, Harry Markowitz, Journal of Finance, 1952**
- **A Random Walk Down Wall Street, Burton Malkiel, Norton & Co.**
- **Winning the Loser's Game, Charles Ellis, McGraw-Hill**
- **Investing at Level 3, James Cloonan, AAI**

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://portfoliovisualizer.com> Free access to a wide selection of tools
- <https://vanguard.com> <https://fidelity.com> <https://schwab.com>
- <http://scallan.com> Callan chart
- <http://bogleheads.org> Interesting blog
- <https://obliviousinvestor.com/index-funds/> Mike Piper blog
- <https://rickferri.com/investment-philosophy/> Rick Ferri blog
- <https://muscularportfolios.com> Brian Livingston



“Are you ready to start investing or do you want to keep throwing your money away on food, clothing and shelter?”