



Using the Endowment Toolset to Level-Up Client Portfolios

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INTRODUCTION TO RQA



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Formative Moments for John Ellison

GENERAL ELECTRIC (GE) AND THE FINANCIAL CRISIS



Source: Norgate Premium Data, AmiBroker, RQA

A VALUE TRADE ALL MY OWN - OCEAN FREIGHT (OCNF)



Source: Norgate Premium Data, AmiBroker, RQA

FAMOUS QUOTES THAT RING TRUE

“It ain’t what you don’t know that gets you into trouble. It’s what you know for sure that just ain’t so.”

(Mark Twain)

“Markets can remain irrational longer than you can remain solvent.”

(John Maynard Keynes)

“Everyone has a plan until they get punched in the mouth.”

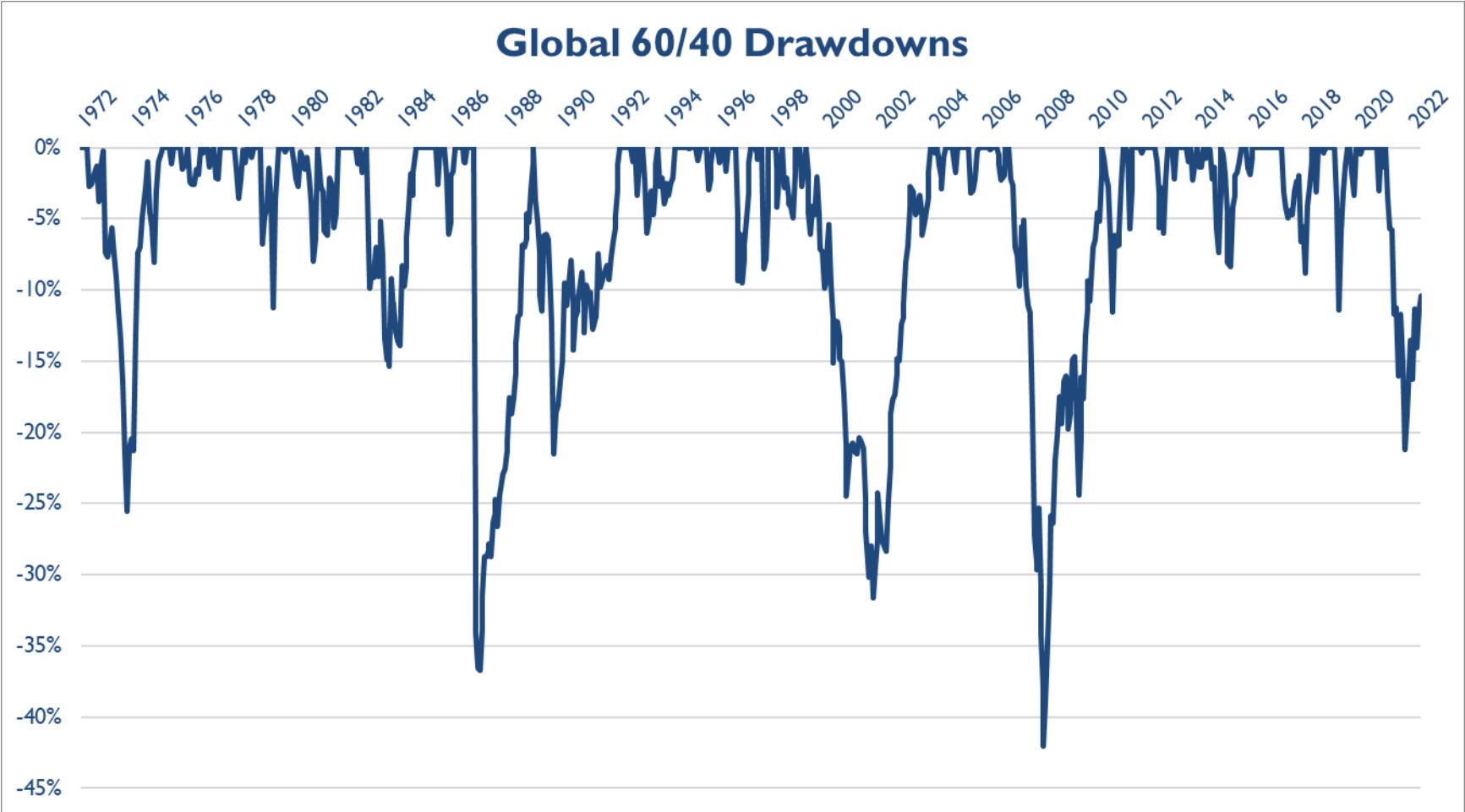
(Mike Tyson)

WHAT DID I LEARN

- *Bumpy Ride = Unpleasant Experience*
- *Stocks can be a super bumpy ride*
- *Over-estimated my tolerance for risk and downside*
- *Needed better consistency & confidence*
- *Needed better diversification*
- *Needed better risk management*

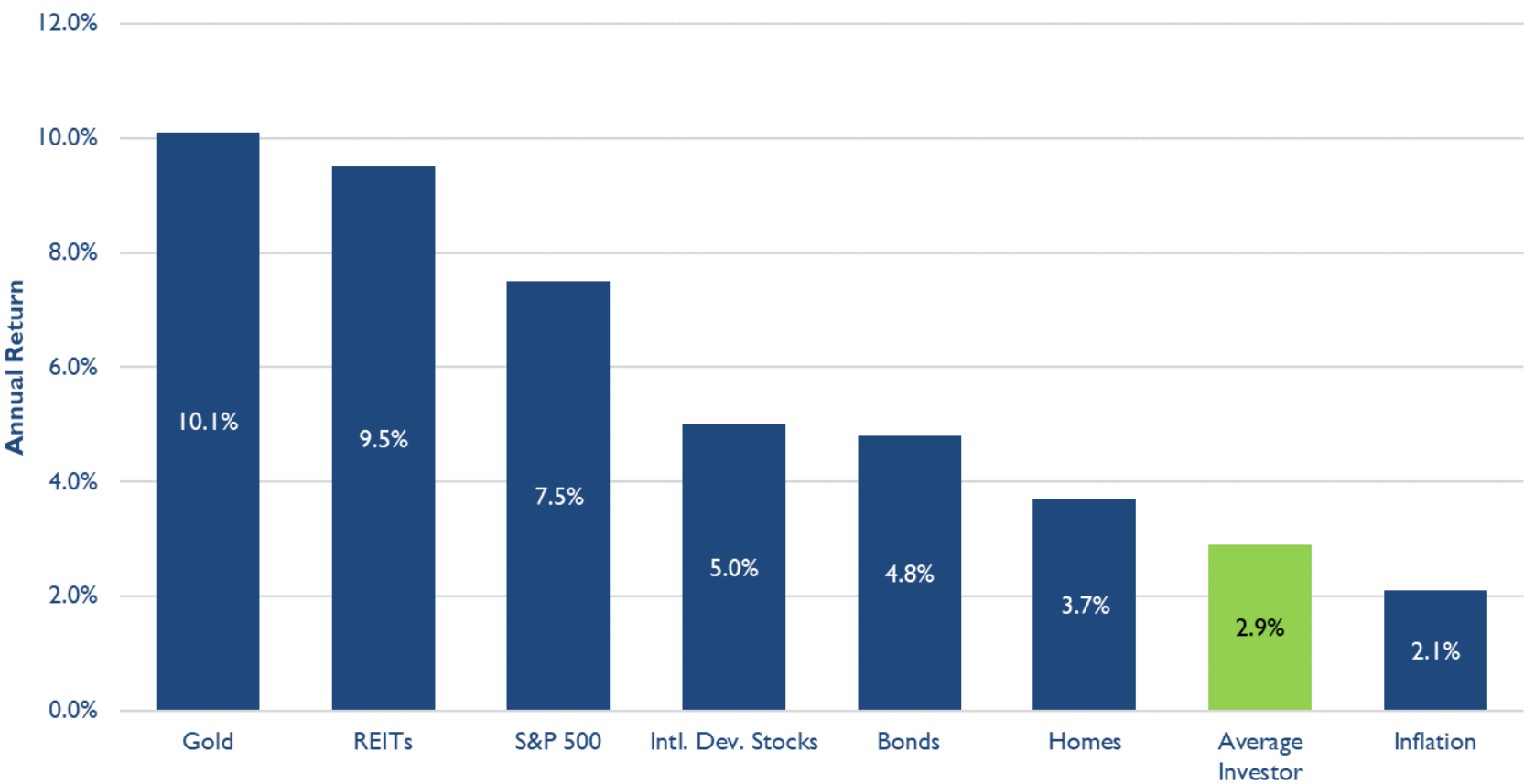
EVEN 60/40 HAS ITS PROBLEMS

“This time is different...”



Source: Norgate Premium Data, Global Financial Data, RQA

The Behavioral Effect on Investor Returns



Source: Morningstar Direct, Bloomberg, DALBAR, Darnall Sikes, RQA

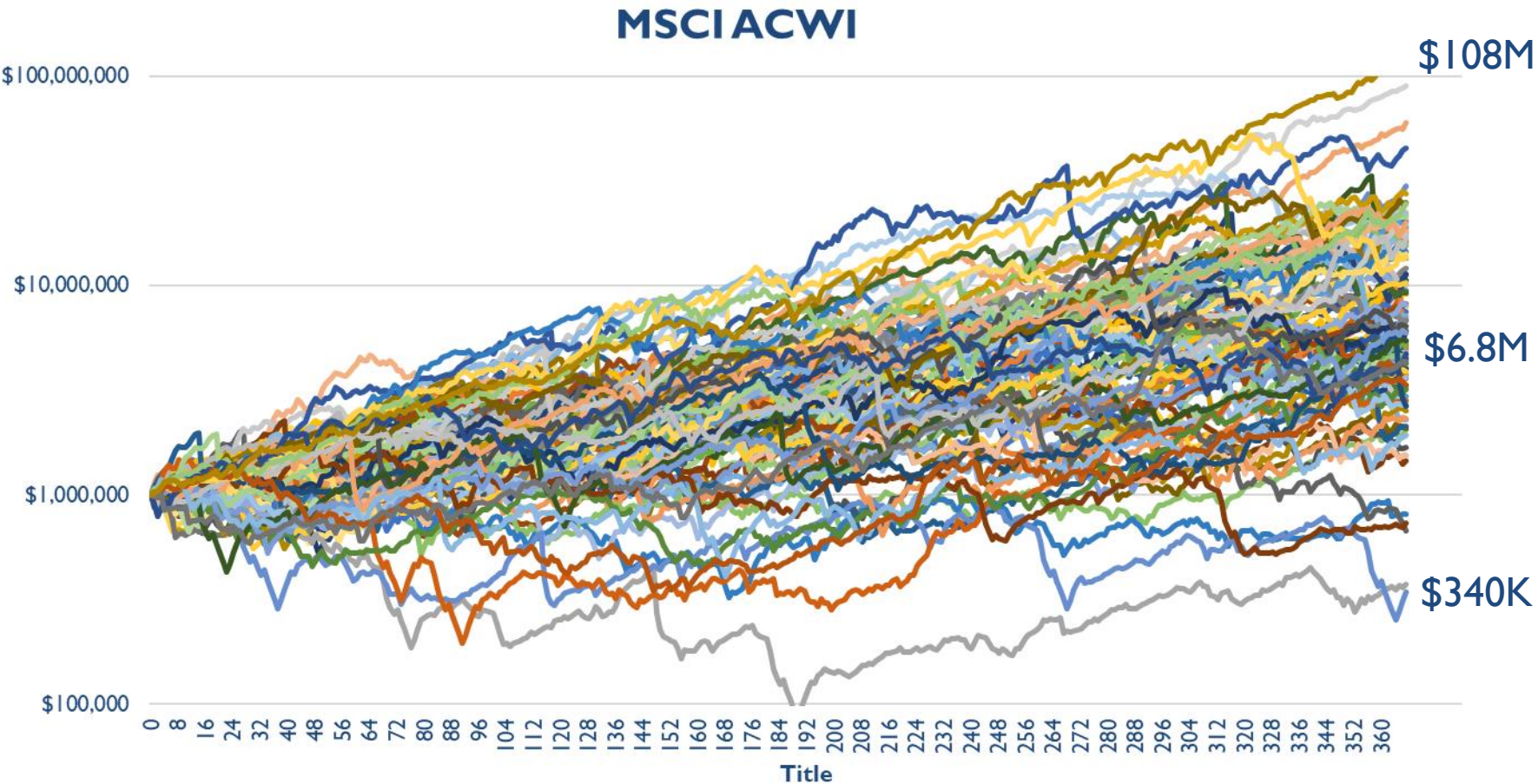
WHAT ARE WE TRYING TO ACHIEVE

- *Investing outcomes that meet or exceed our goals*
- *A journey that we can stick with – and not get shaken off*

*“The first rule of compounding: Never interrupt it unnecessarily.”
– Charlie Munger*

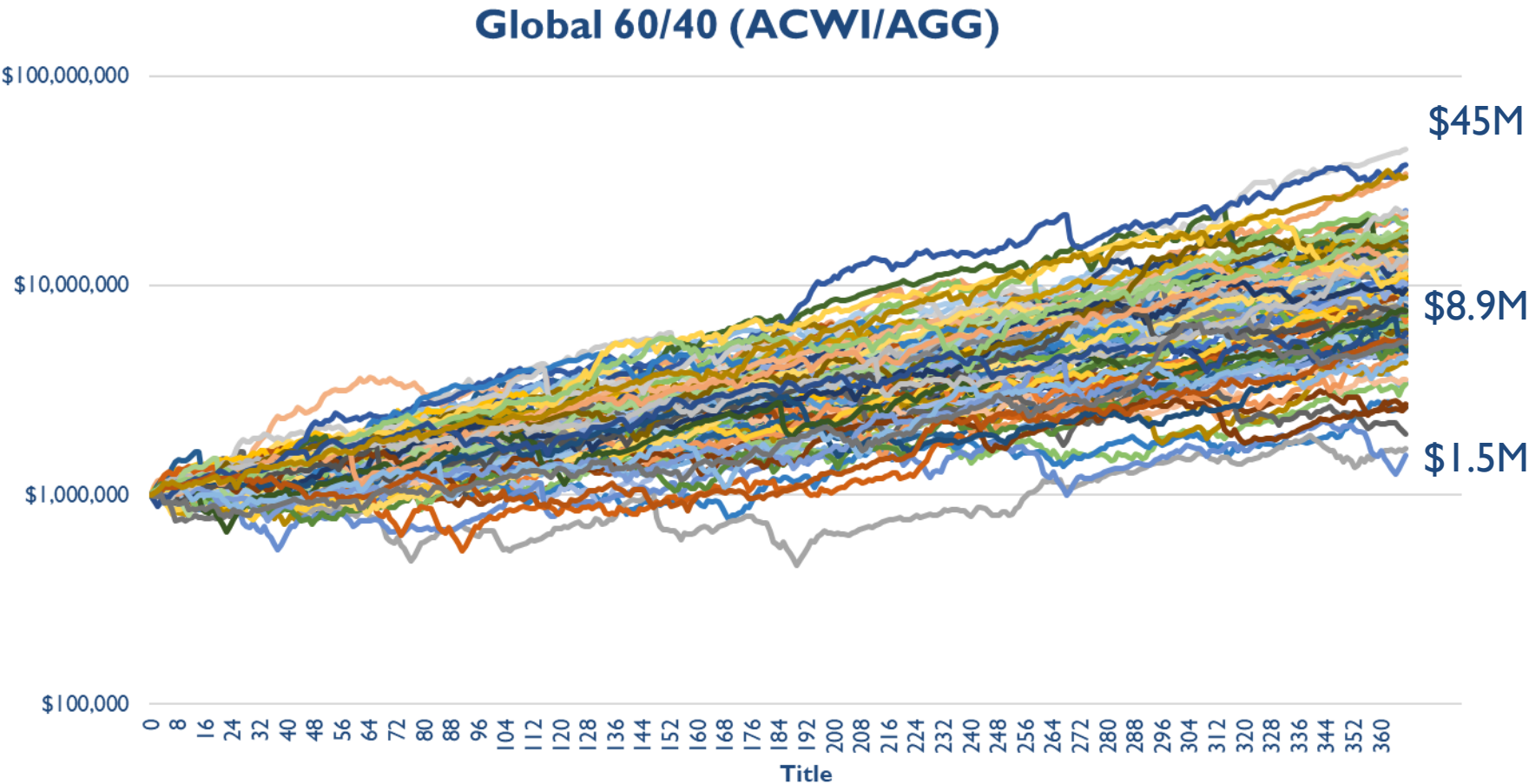
- *Make our portfolios robust and anti-fragile*
- *Use time-tested methods - gain confidence through evidence*
- *Narrow our expected range of potential outcomes*

30-YEAR MONTE CARLO: STOCKS ONLY



Source: Norgate Premium Data, Global Financial Data, RQA

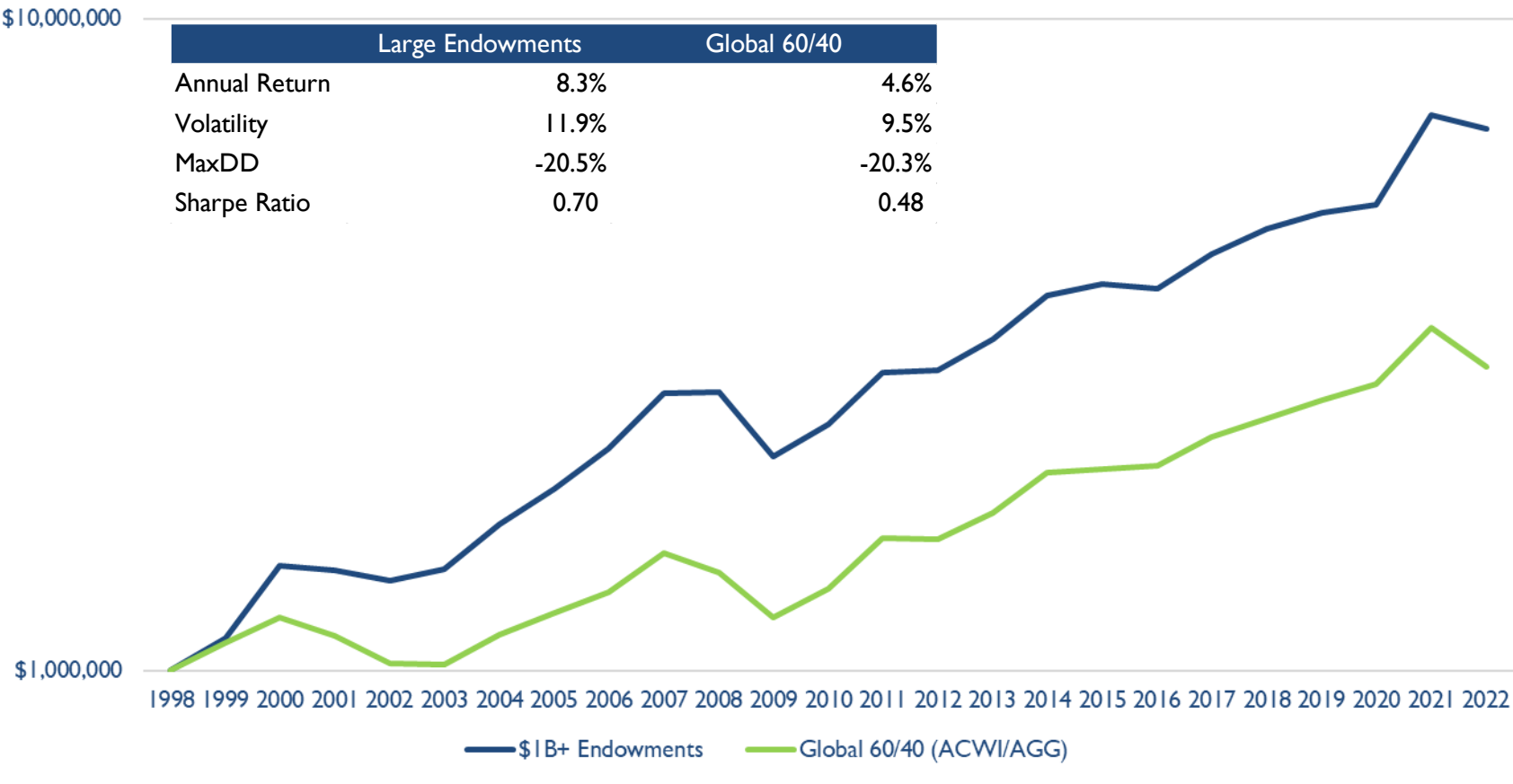
30-YEAR MONTE CARLO: STOCKS & BONDS



Source: Norgate Premium Data, Global Financial Data, RQA

The Endowment Approach: “All-Weather” Investing That Beats Benchmarks

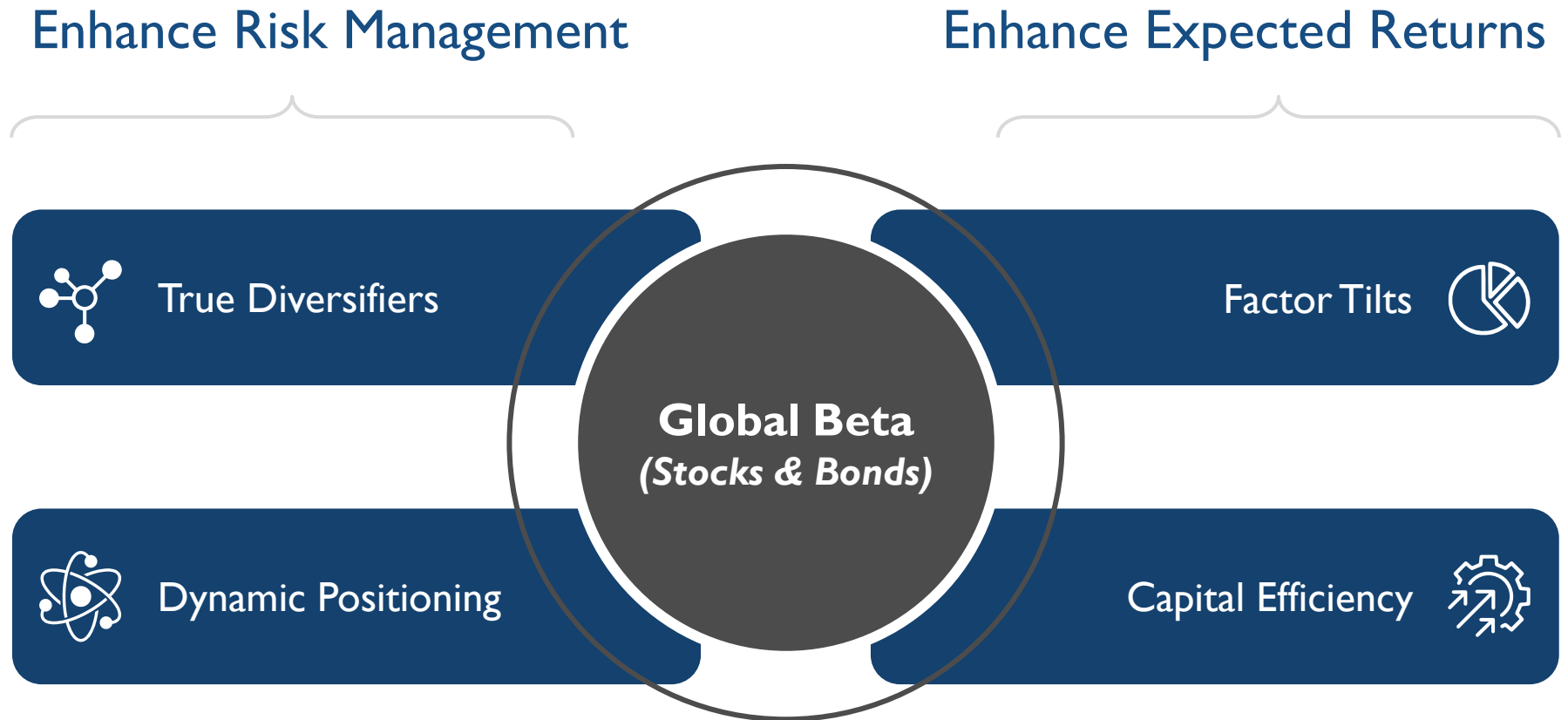
Large Endowments vs. Global 60/40



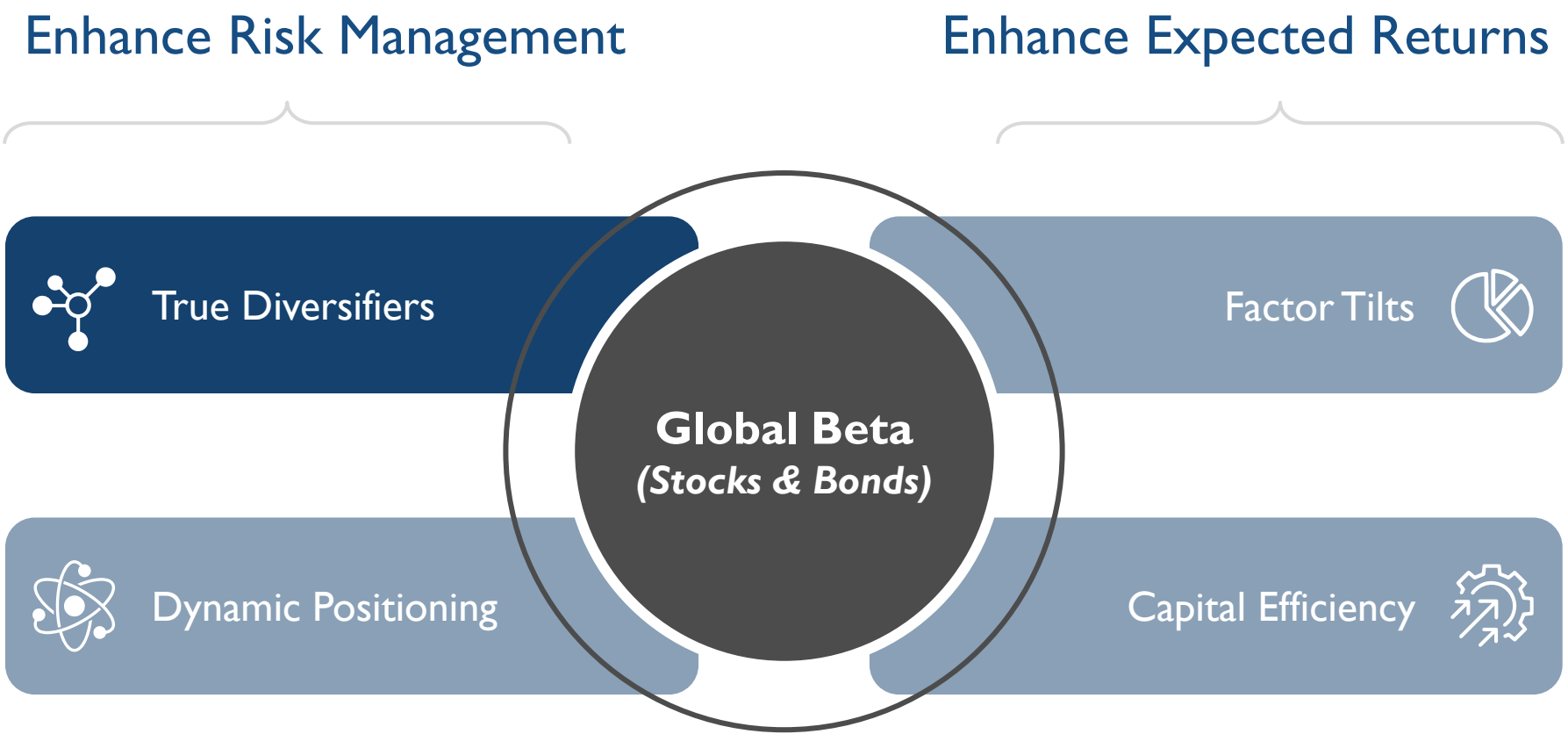
Source: NACUBO Historic Endowment Study Data, Norgate Premium Data, Global Financial Data, RQA

How Do They Do This?

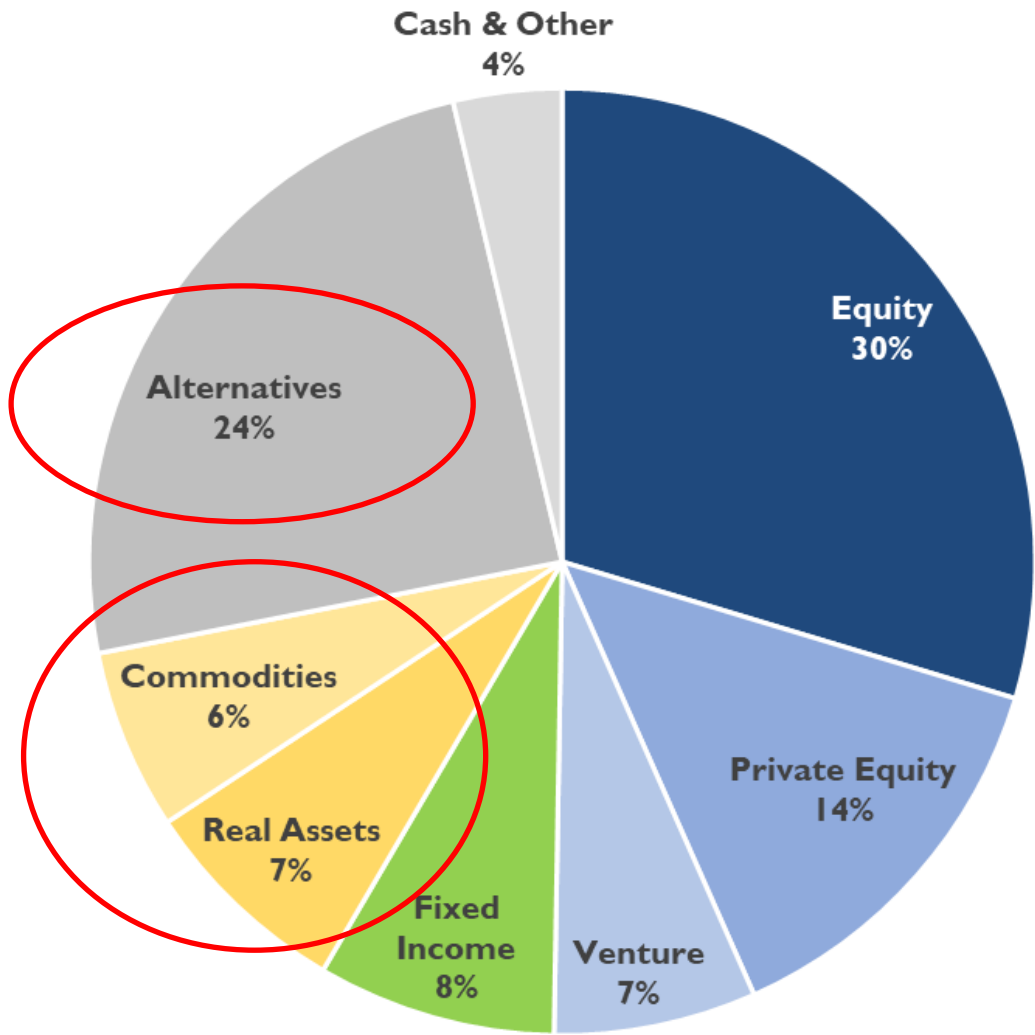
FOUR PRIMARY TOOLS



TAKING DIVERSIFICATION SERIOUSLY



AVERAGE ALLOCATION OF LARGE ENDOWMENTS



Source: NACUBO Historic Endowment Study Data, RQA

ASSET CLASS CORRELATIONS (1973-2022)

Global Equities

	ACWI	S&P 500	Intl. Stocks	EM Stocks	U.S. REITs
ACWI	1.00				
S&P 500	0.87	1.00			
Intl. Dev. Stocks	0.86	0.74	1.00		
EM Stocks	0.62	0.54	0.64	1.00	
U.S. REITs	0.55	0.59	0.52	0.40	1.00

Bonds

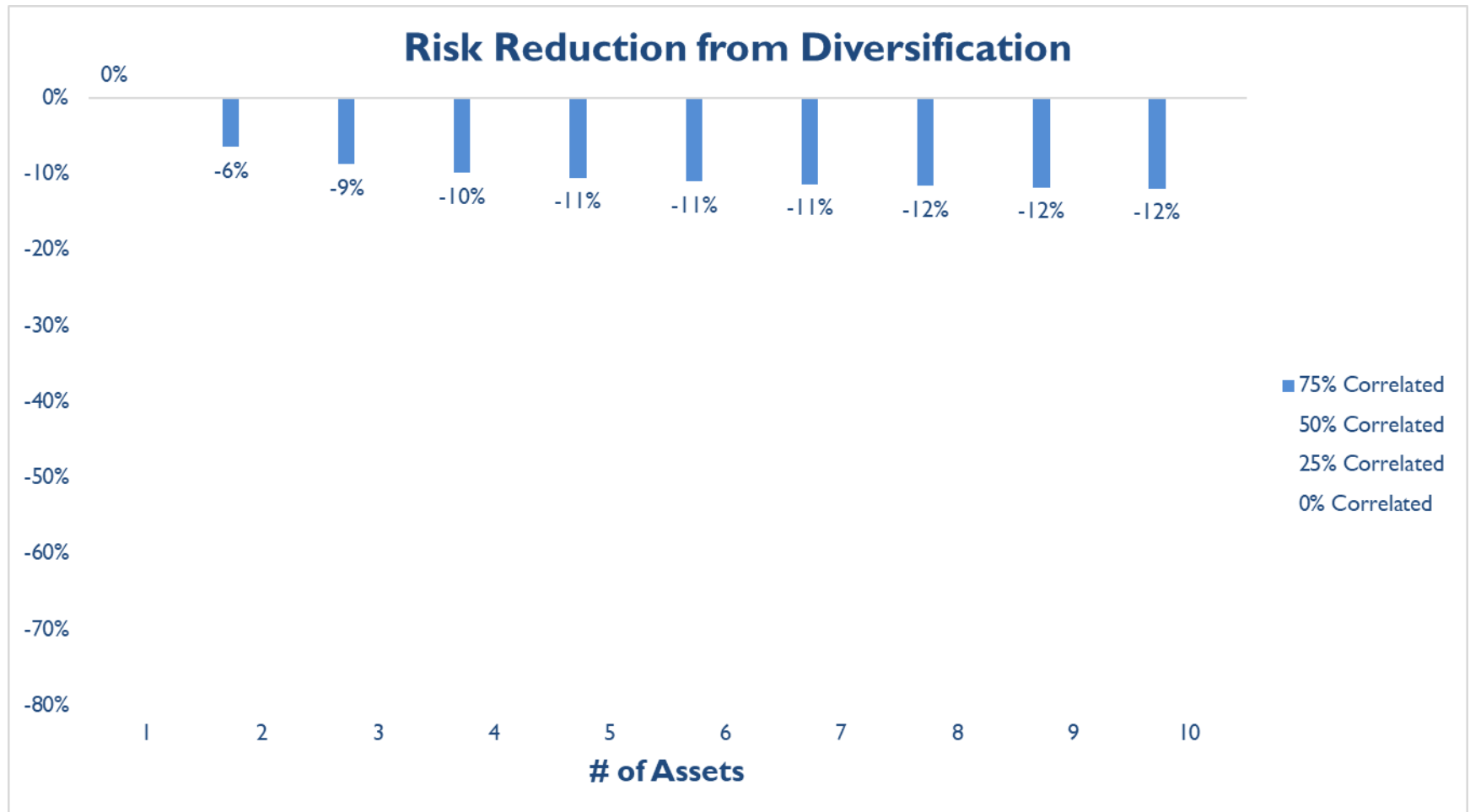
	ACWI	S&P 500	Intl. Stocks	EM Stocks	U.S. REITs	U.S. LT Treas	U.S. Agg Bond
U.S. LT Treas	(0.01)	0.04	0.00	(0.09)	0.14	1.00	
U.S. Agg Bond	0.19	0.24	0.21	0.13	0.30	0.74	1.00

Diversifiers

	ACWI	S&P 500	Intl. Stocks	EM Stocks	U.S. REITs	U.S. LT Treas	U.S. Agg Bond
Gold	0.10	(0.01)	0.14	0.17	0.03	0.06	0.09
Commodities	0.25	0.20	0.26	0.30	0.20	(0.18)	(0.04)
Trend	(0.06)	(0.07)	(0.05)	(0.00)	(0.03)	0.08	0.03

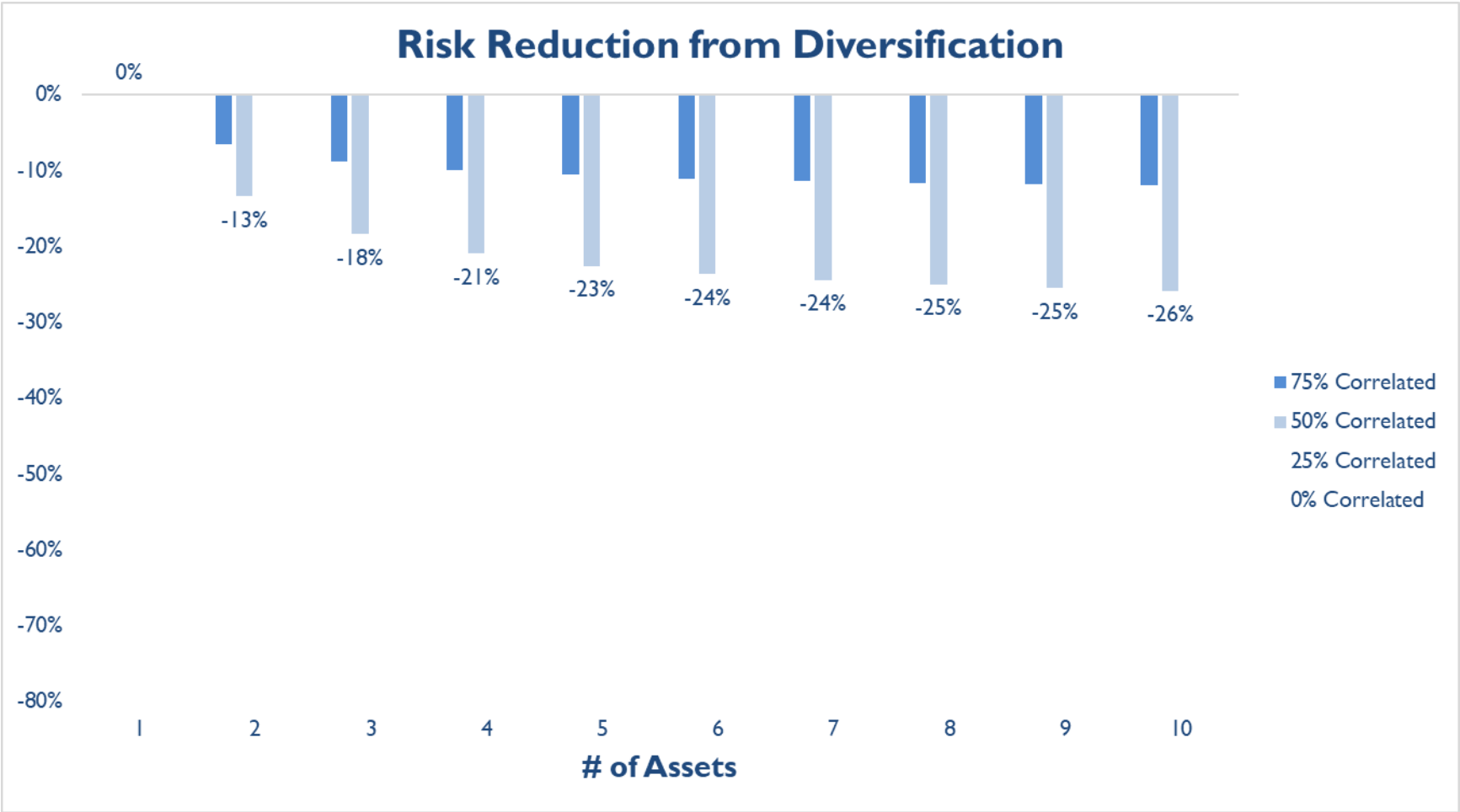
Source: Norgate Premium Data, Global Financial Data, RQA

DIVERSIFICATION MATH: 75% CORRELATED



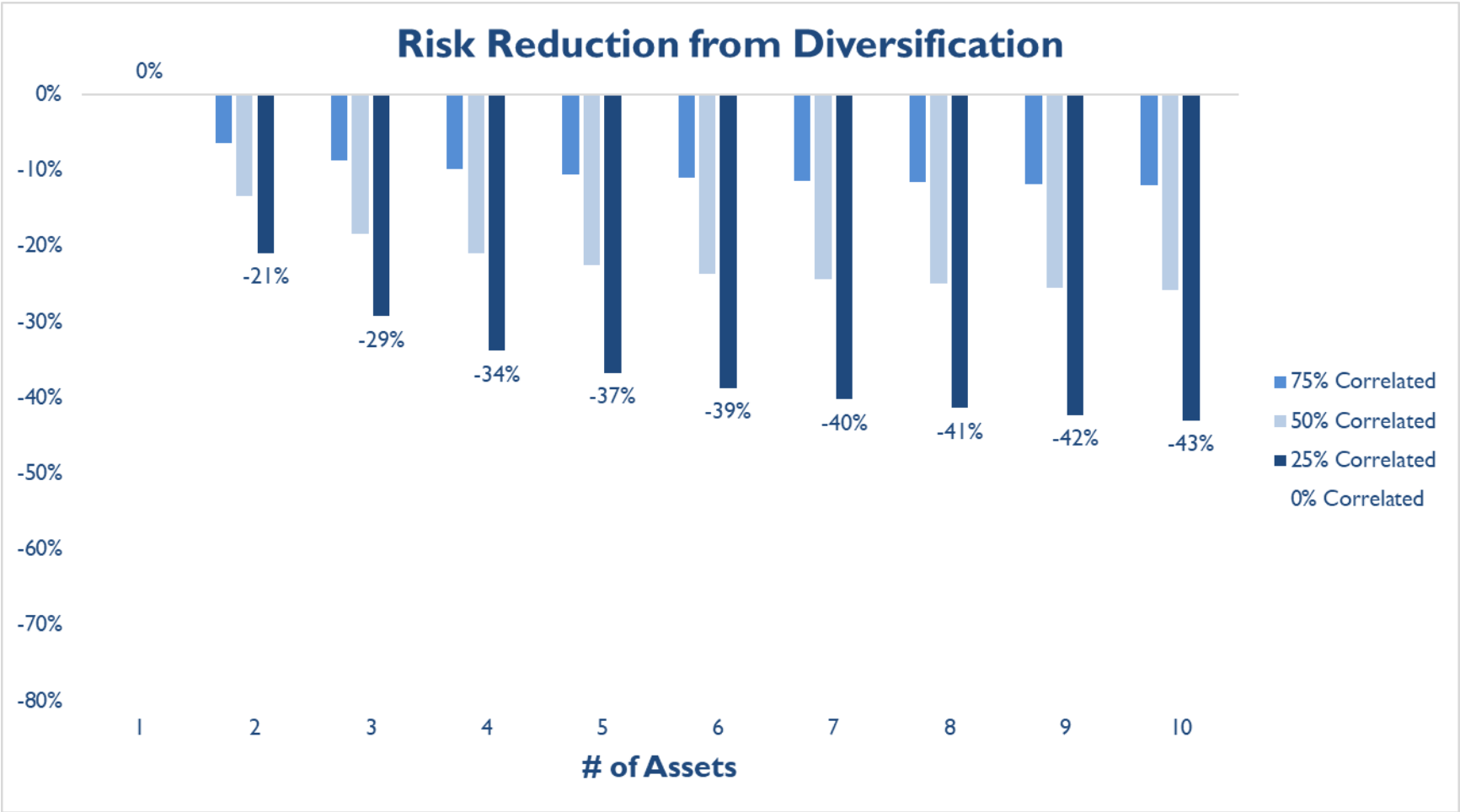
Source: RQA

DIVERSIFICATION MATH: 50% CORRELATED



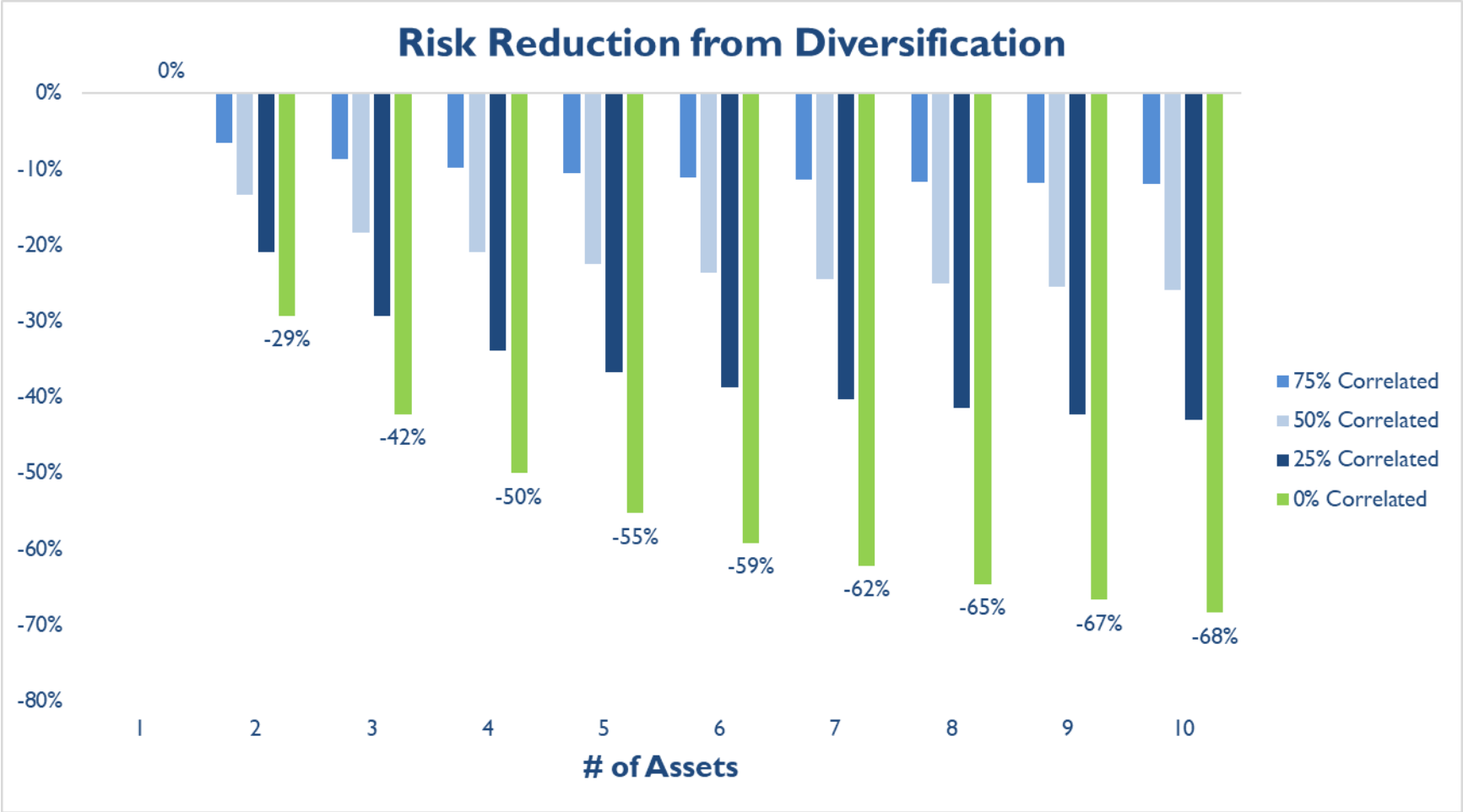
Source: RQA

DIVERSIFICATION MATH: 25% CORRELATED



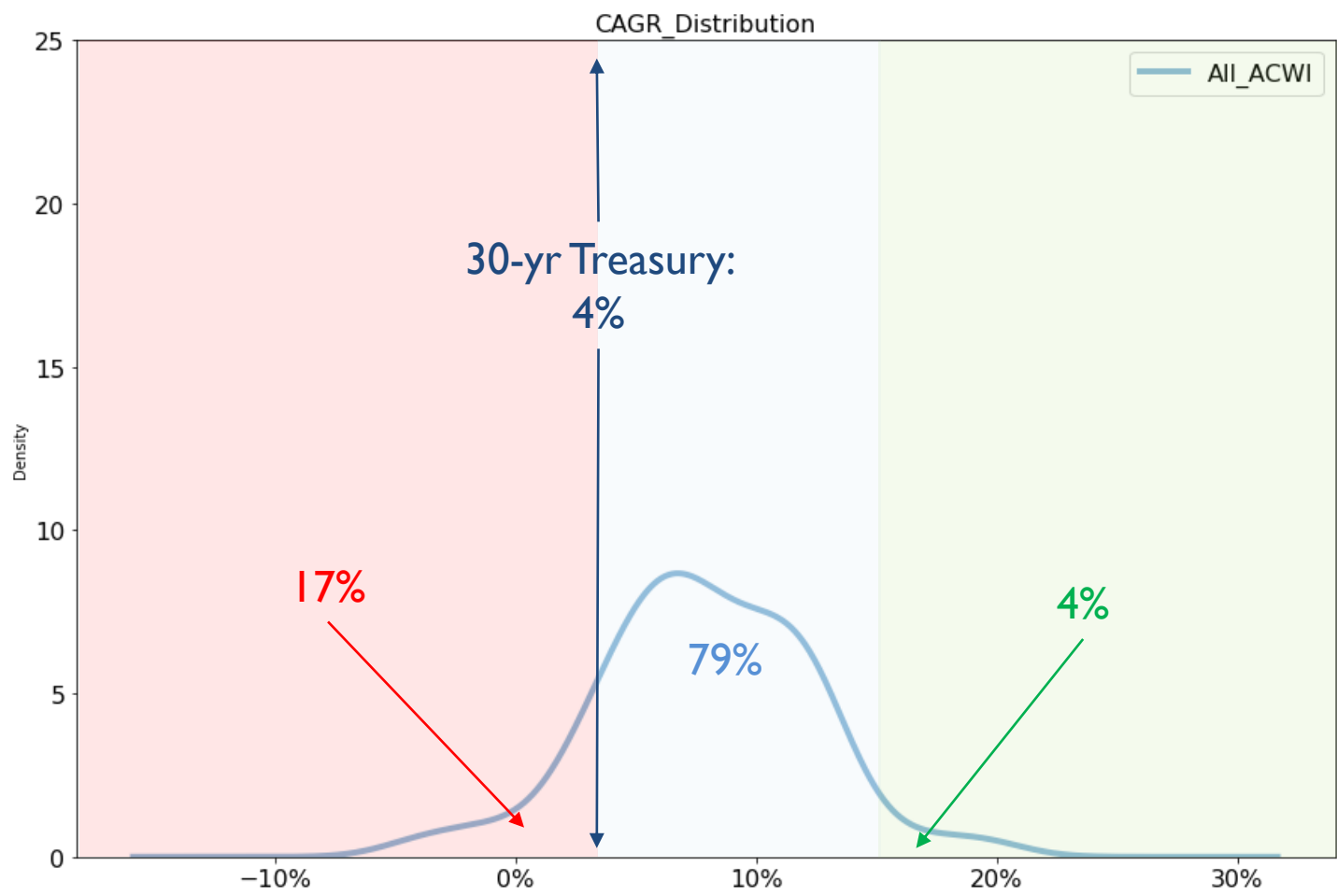
Source: RQA

DIVERSIFICATION MATH: 0% CORRELATED



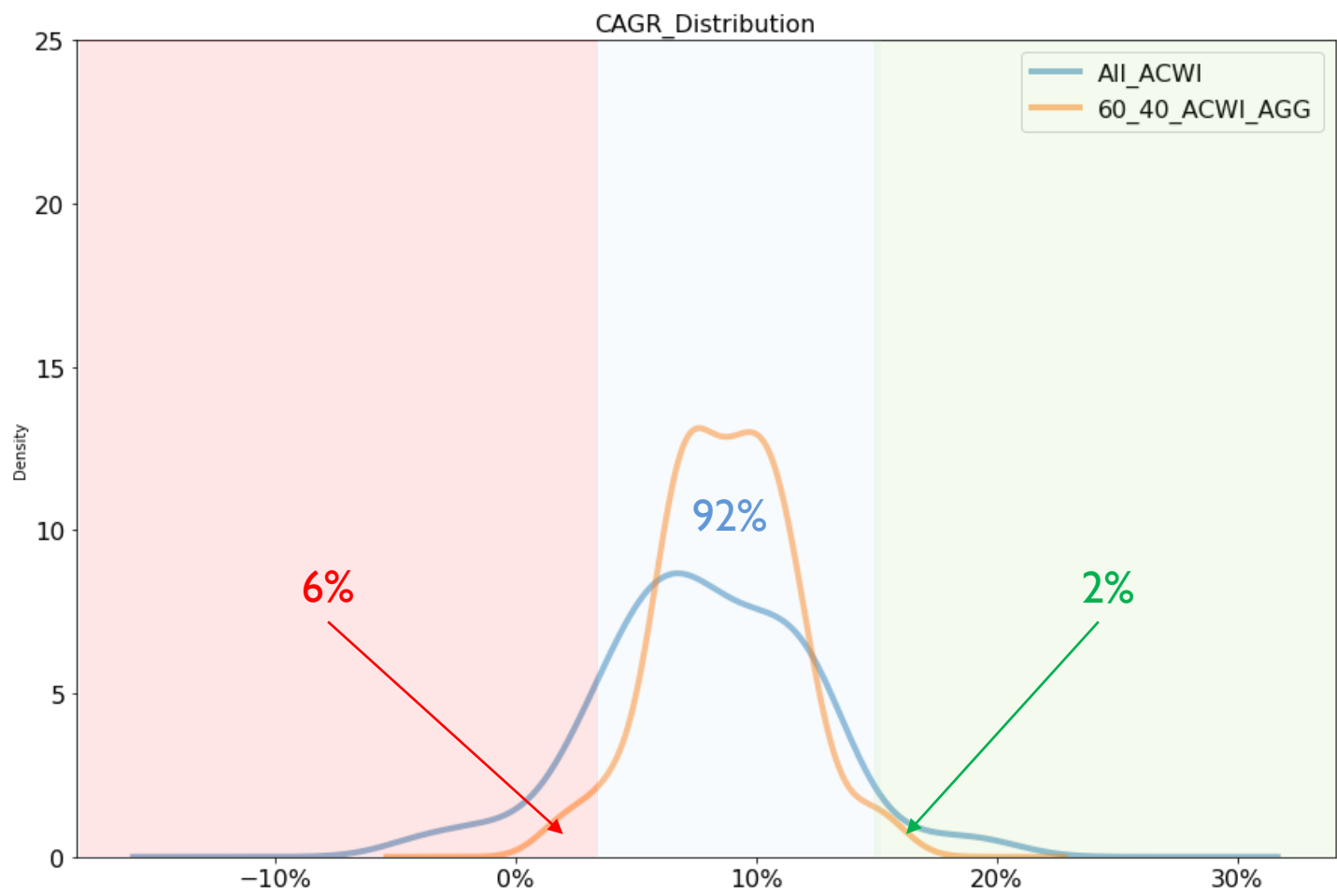
Source: RQA

30-YEAR MONTE CARLO: STOCKS ONLY



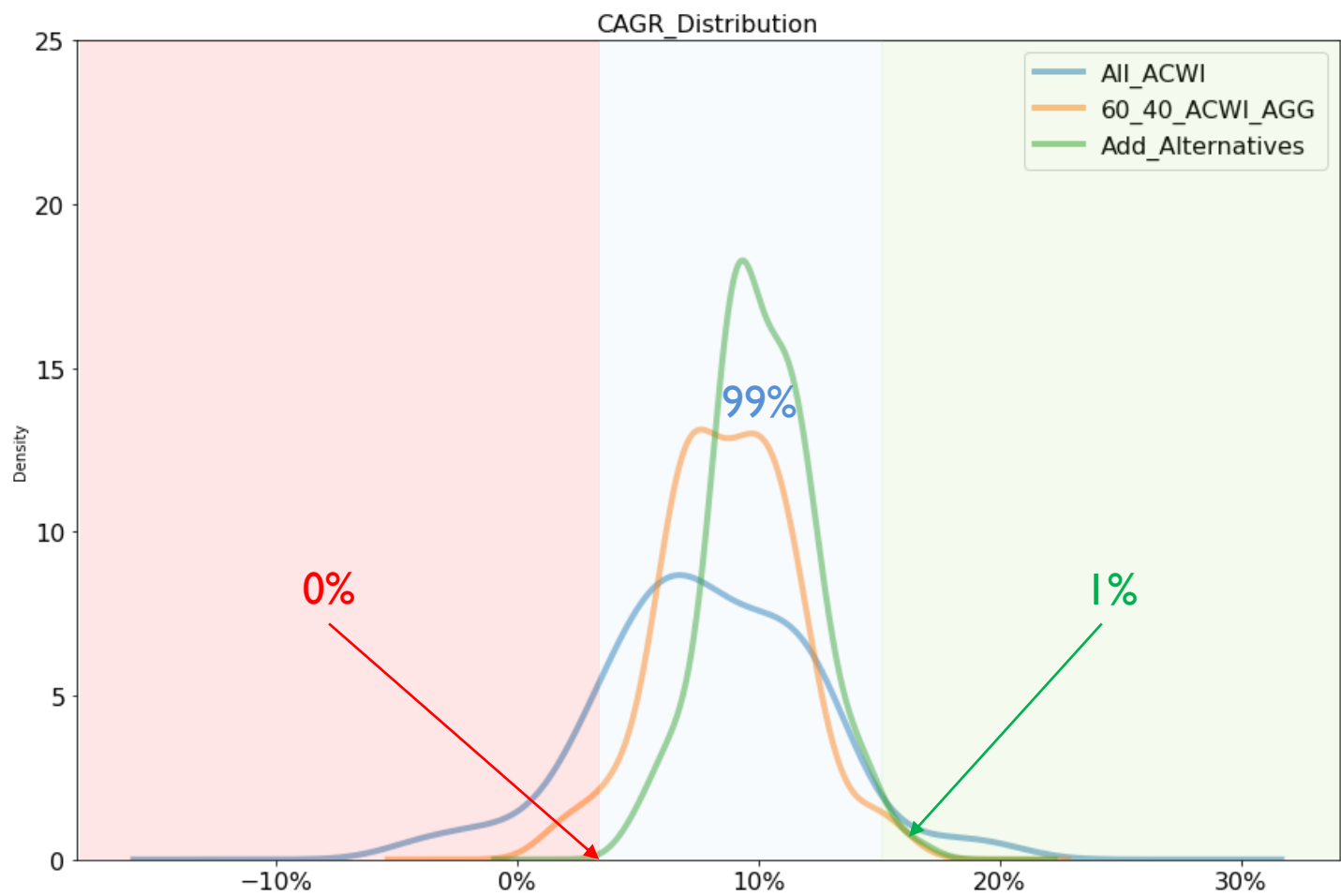
Source: Norgate Premium Data, Global Financial Data, RQA

30-YEAR MONTE CARLO: STOCKS & BONDS



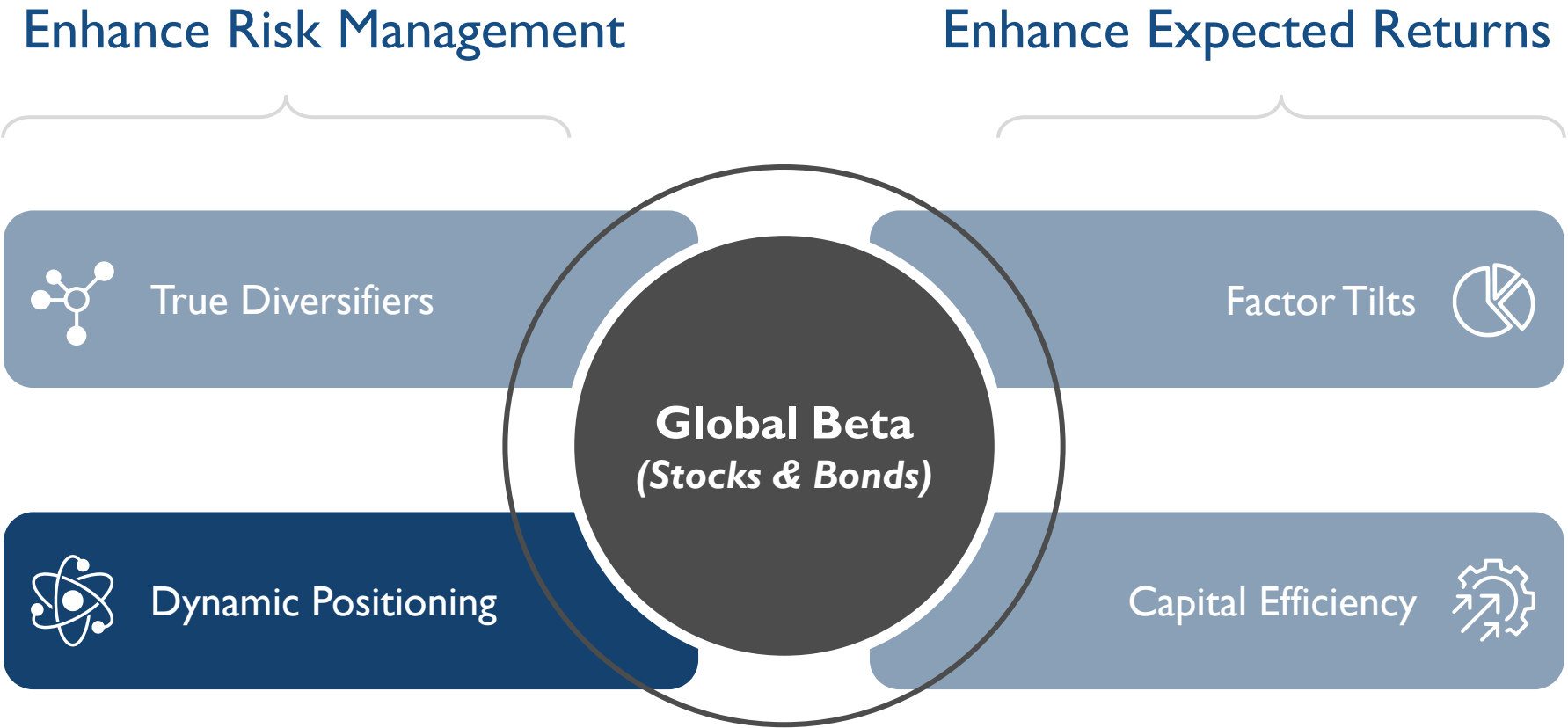
Source: Norgate Premium Data, Global Financial Data, RQA

30-YEAR MONTE CARLO: STOCKS, BONDS & ALTS



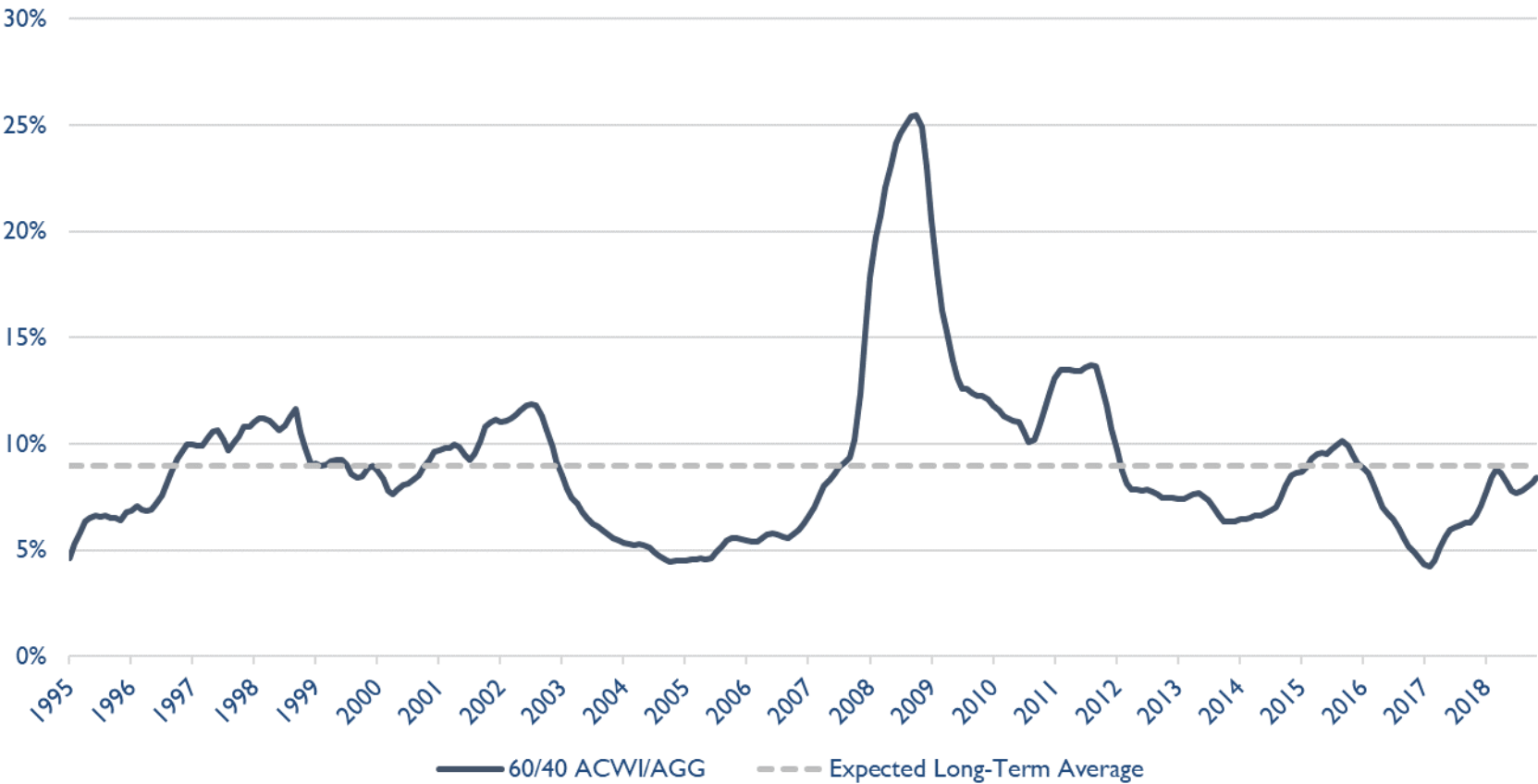
Source: Norgate Premium Data, Global Financial Data, RQA

MANAGING RISKS WITH ADAPTIVE BALANCING



MARKETS EVOLVE, SO WHY DON'T OUR PORTFOLIOS?

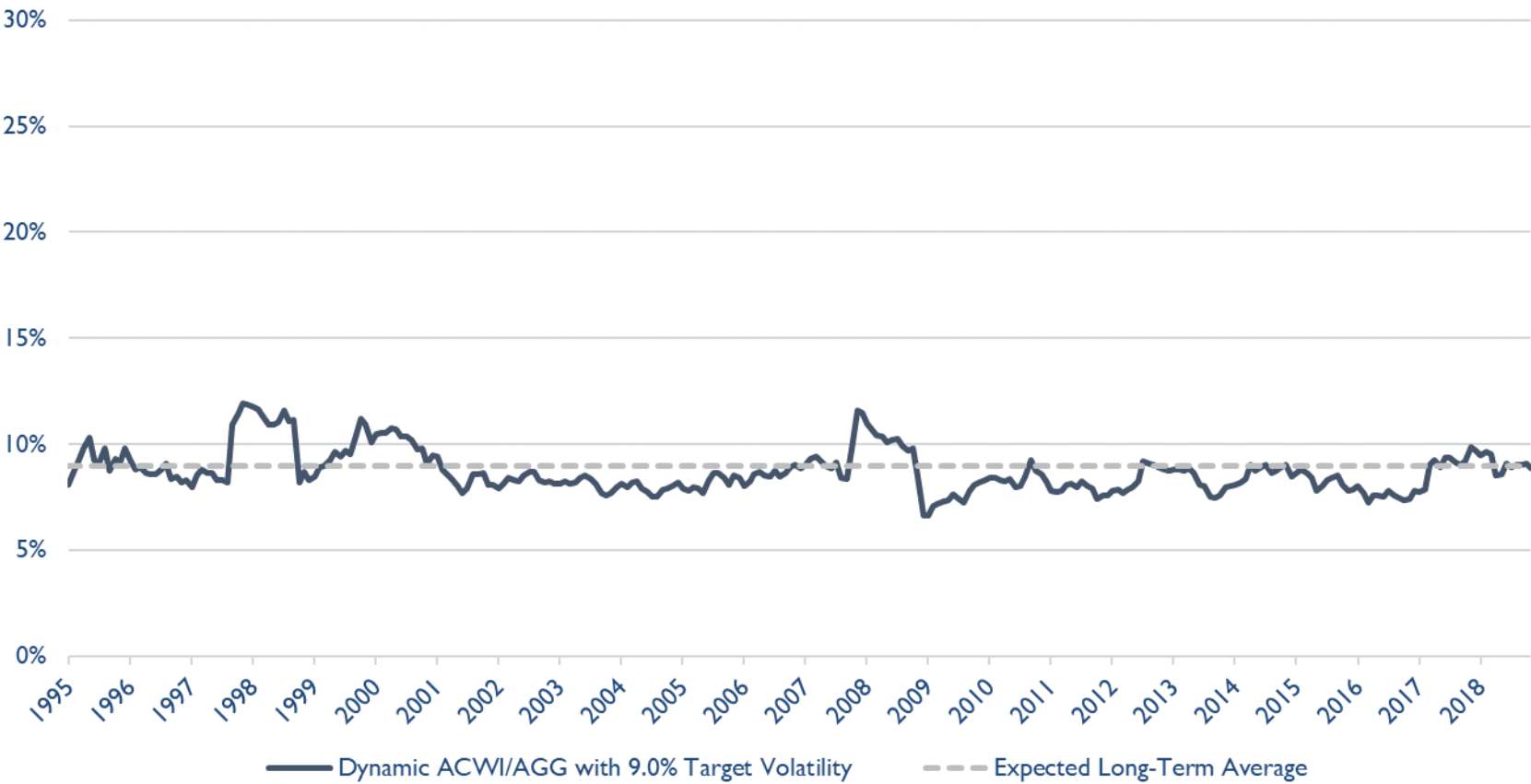
60/40 ACWI/AGG Rolling Volatility



Source: Norgate Premium Data, RQA

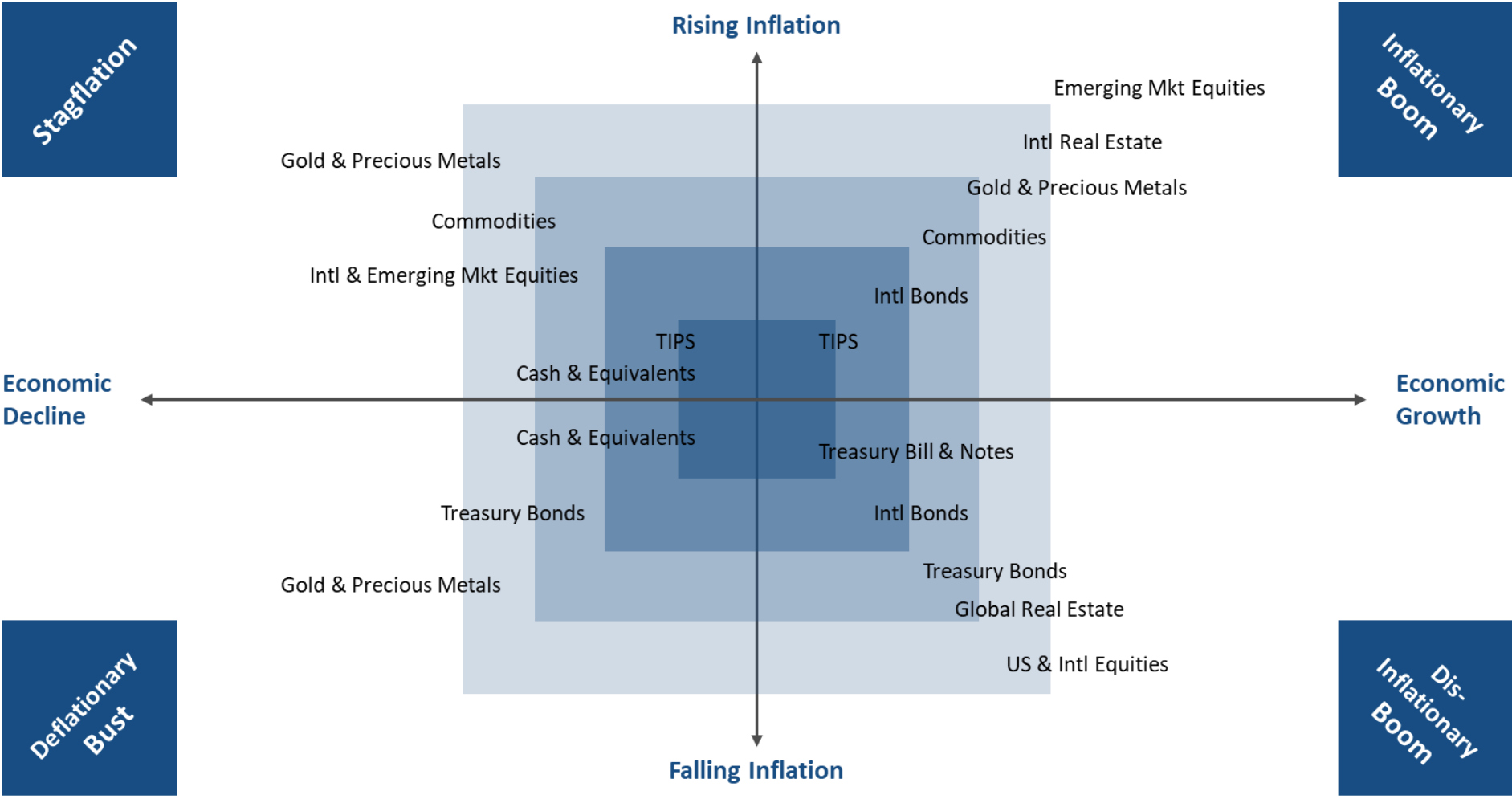
ADAPTING FOR VOLATILITY & CORRELATION

Dynamic ACWI/AGG Rolling Volatility

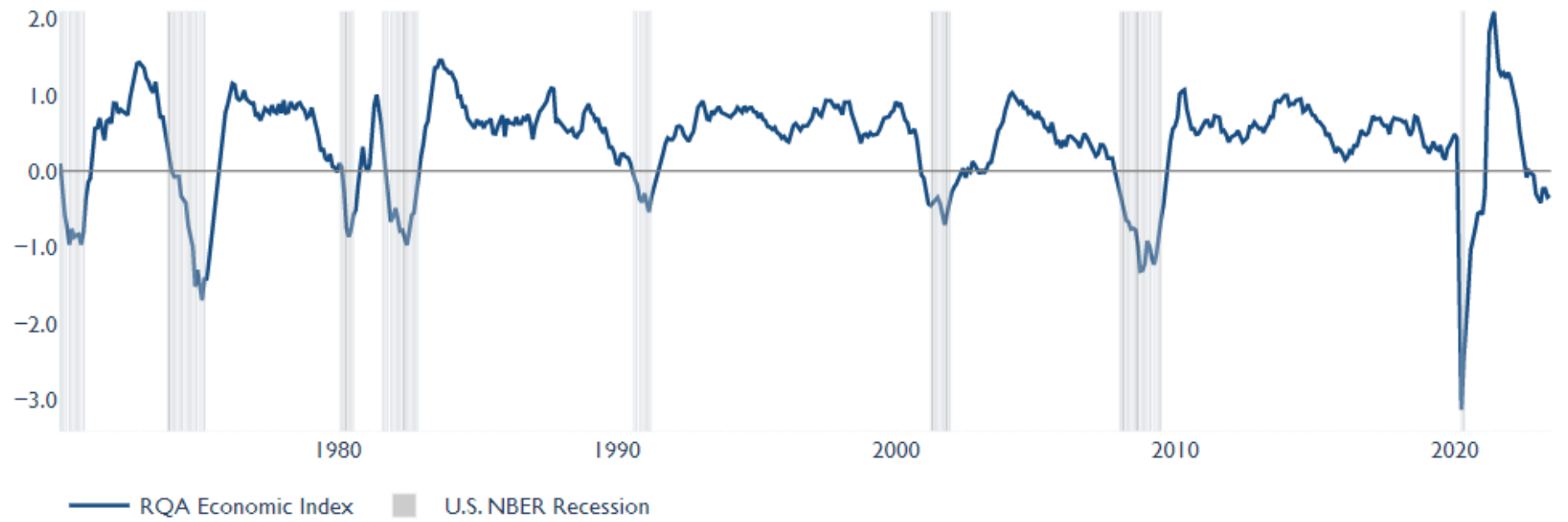


Source: Norgate Premium Data, RQA

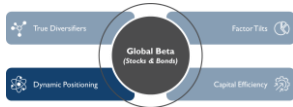
BALANCING ASSETS BY REGIME STRENGTHS



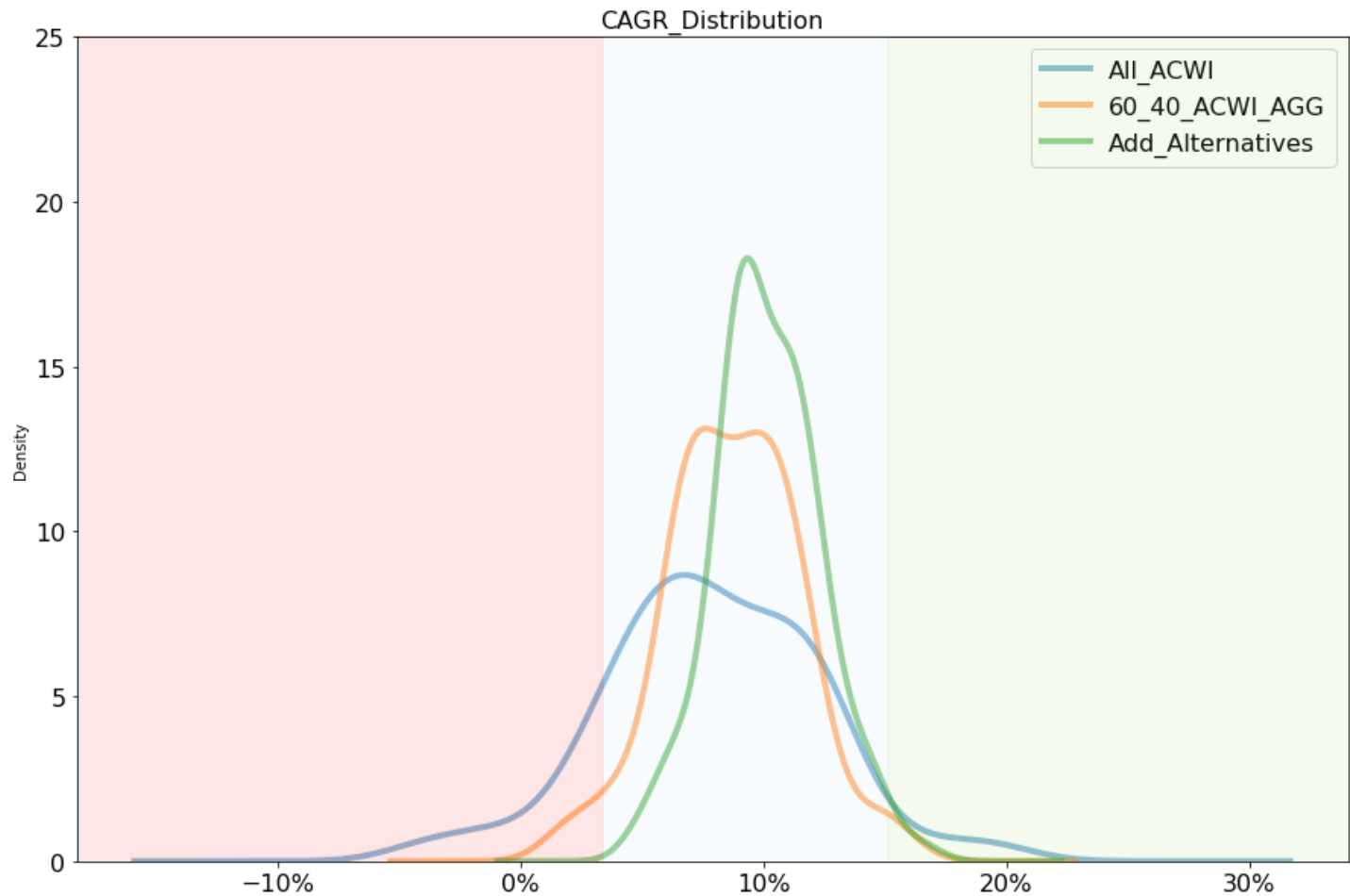
ADAPTING FOR POTENTIAL REGIME SHIFTS



Source: RQA

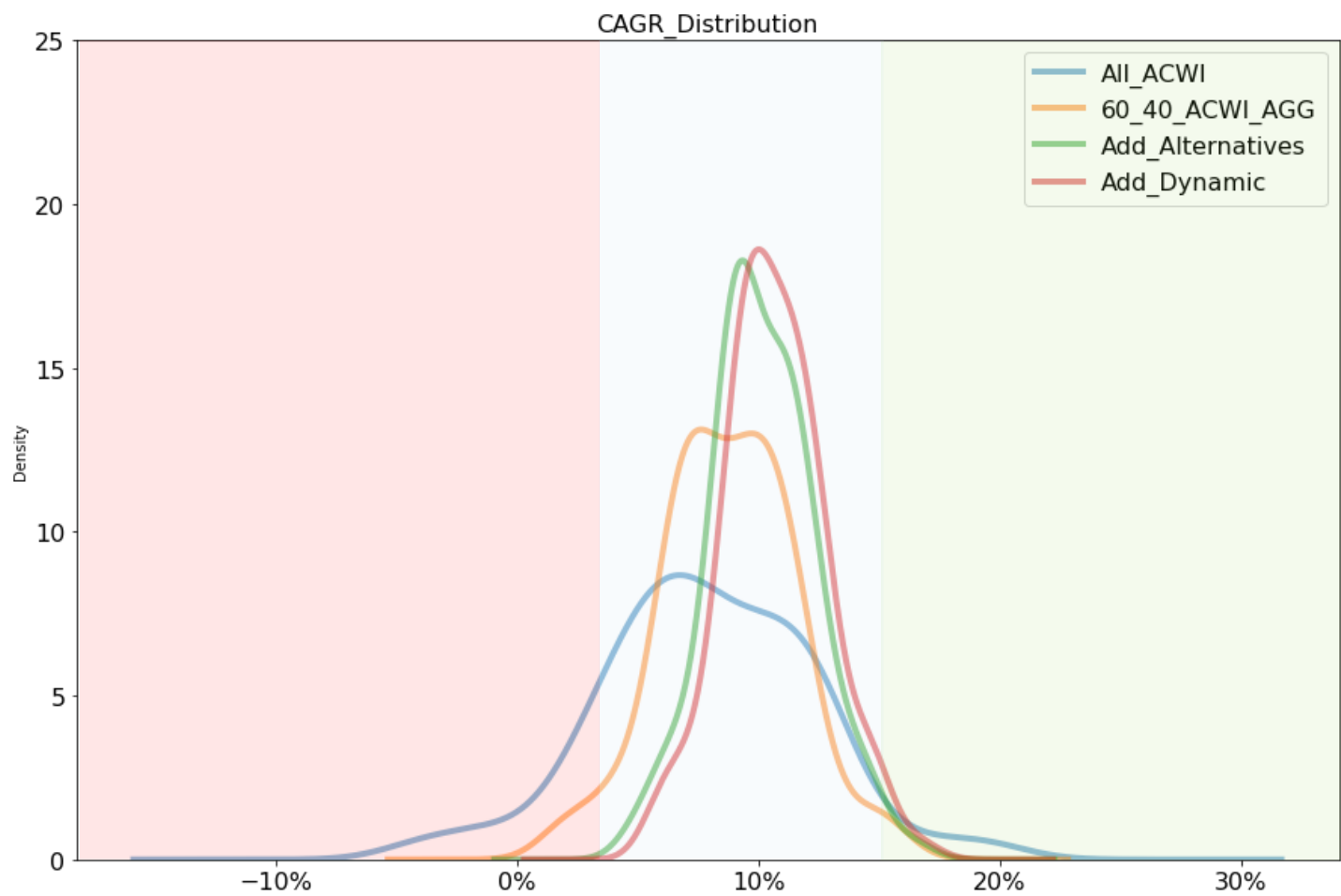


30-YEAR MONTE CARLO: STOCKS, BONDS & ALTS



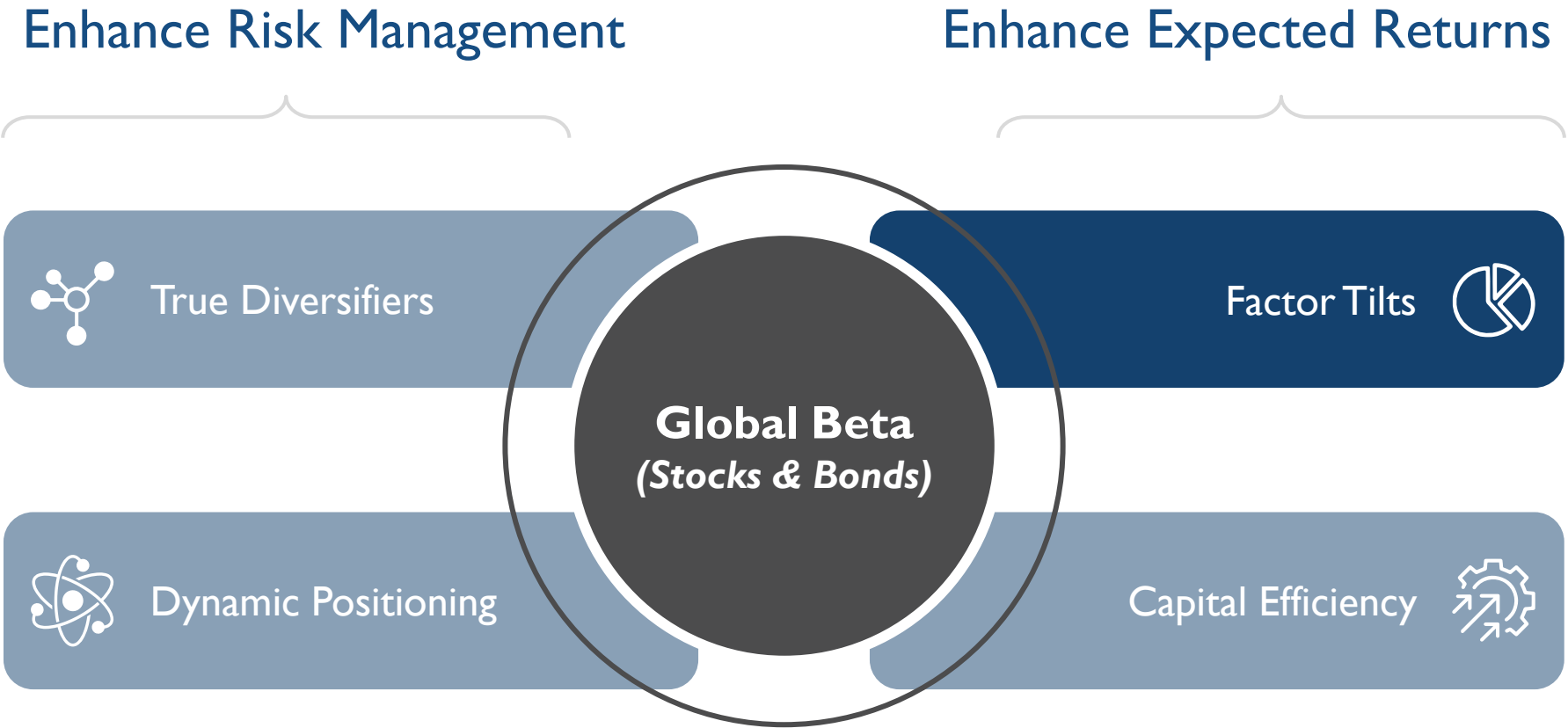
Source: Norgate Premium Data, Global Financial Data, RQA

30-YEAR MONTE CARLO: ADDING DYNAMIC BALANCING



Source: Norgate Premium Data, Global Financial Data, RQA

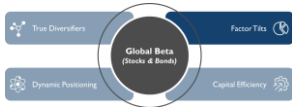
EVIDENCE BASED RETURN ENHANCERS



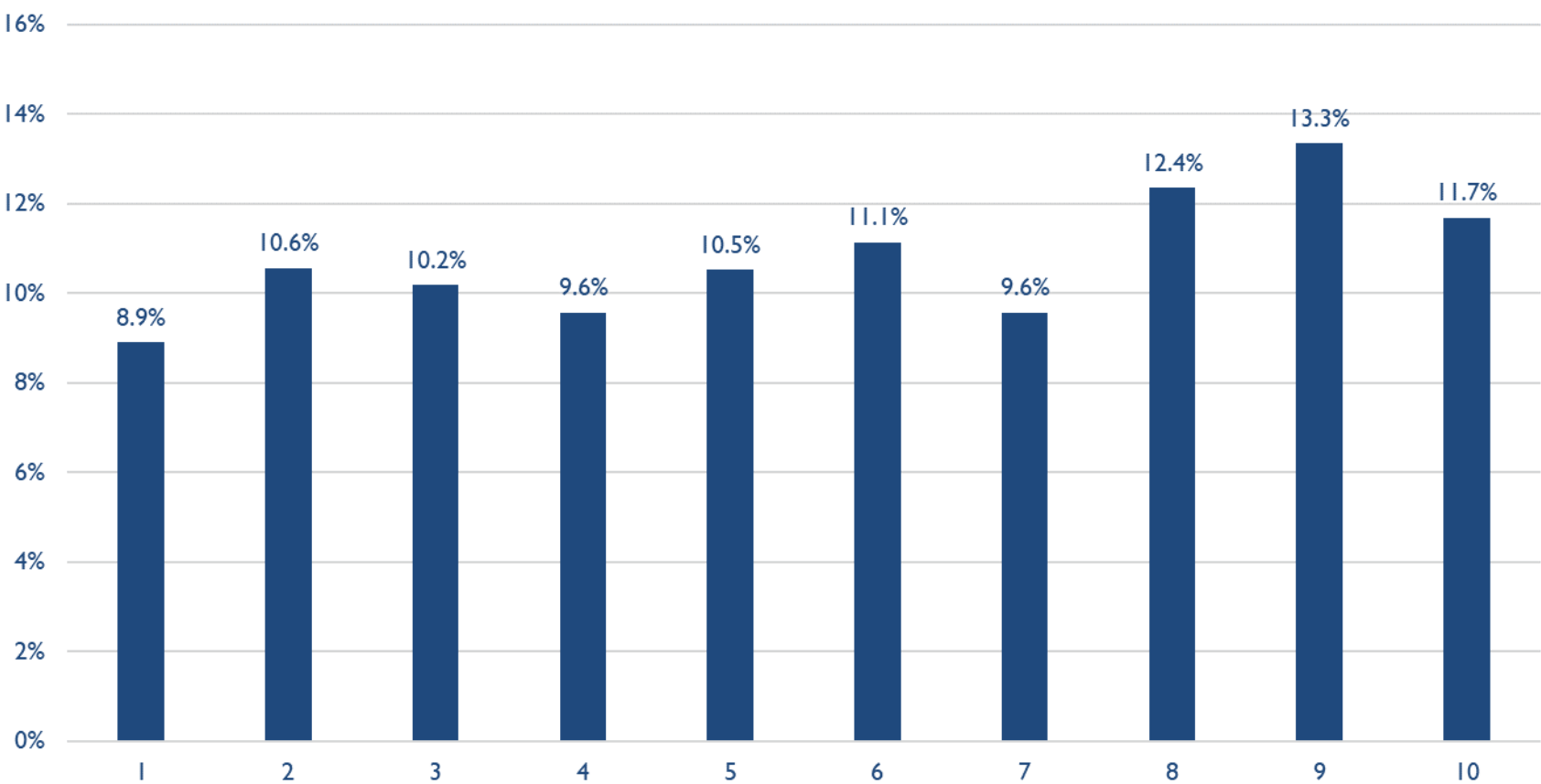
EVIDENCE BEHIND FACTOR INVESTING

Factor Outperformance (Jun 1963 to Dec 2021)					
	Value (HML)	Size (SMB)	Quality (RMW)	Momentum (MOM)	Low Volatility (Low Vol)
Factor Premia	High 30% – 12.3%	Smallest 30% – 12.3%	Highest 30% – 12.0%	Highest 30% – 13.5%	Least Volatile 20% – 10.3%
	Low 30% – 10.9%	Largest 30% – 10.6%	Lowest 30% – 8.3%	Lowest 30% – 7.4%	Most Volatile 20% – 8.9%
	Excess Return ⁶ – 1.5%	Excess Return ⁶ – 1.6%	Excess Return ⁶ – 3.7%	Excess Return ⁶ – 6.1%	Excess Return ⁶ – 1.4%

Source: WisdomTree, RQA

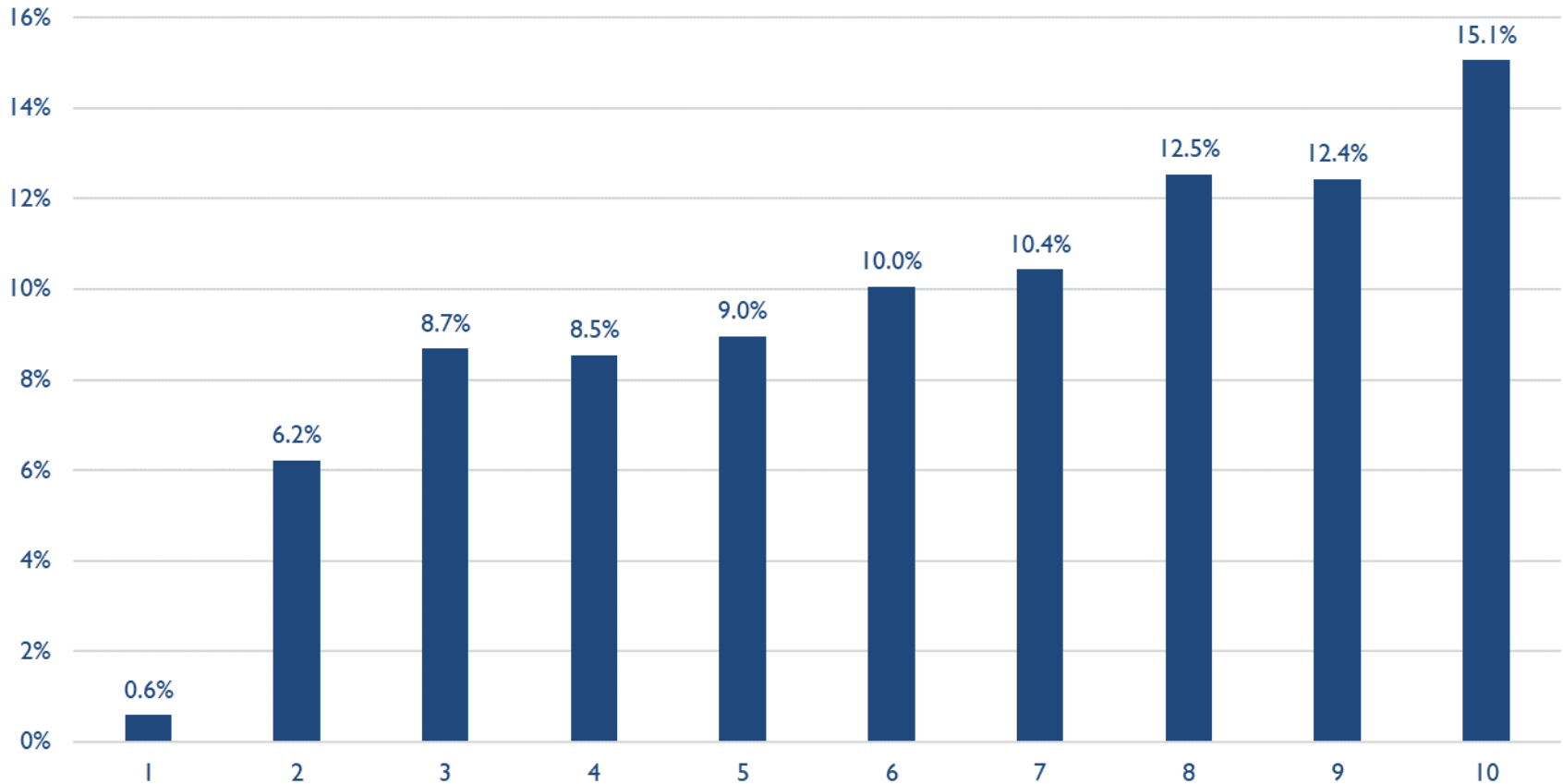


Annual Returns by Book-to-Market Decile (1926-2022)

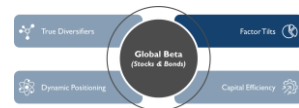


Source: Fama French Data Library, RQA

Annual Returns by 12-Month Momentum Decile (1926-2022)

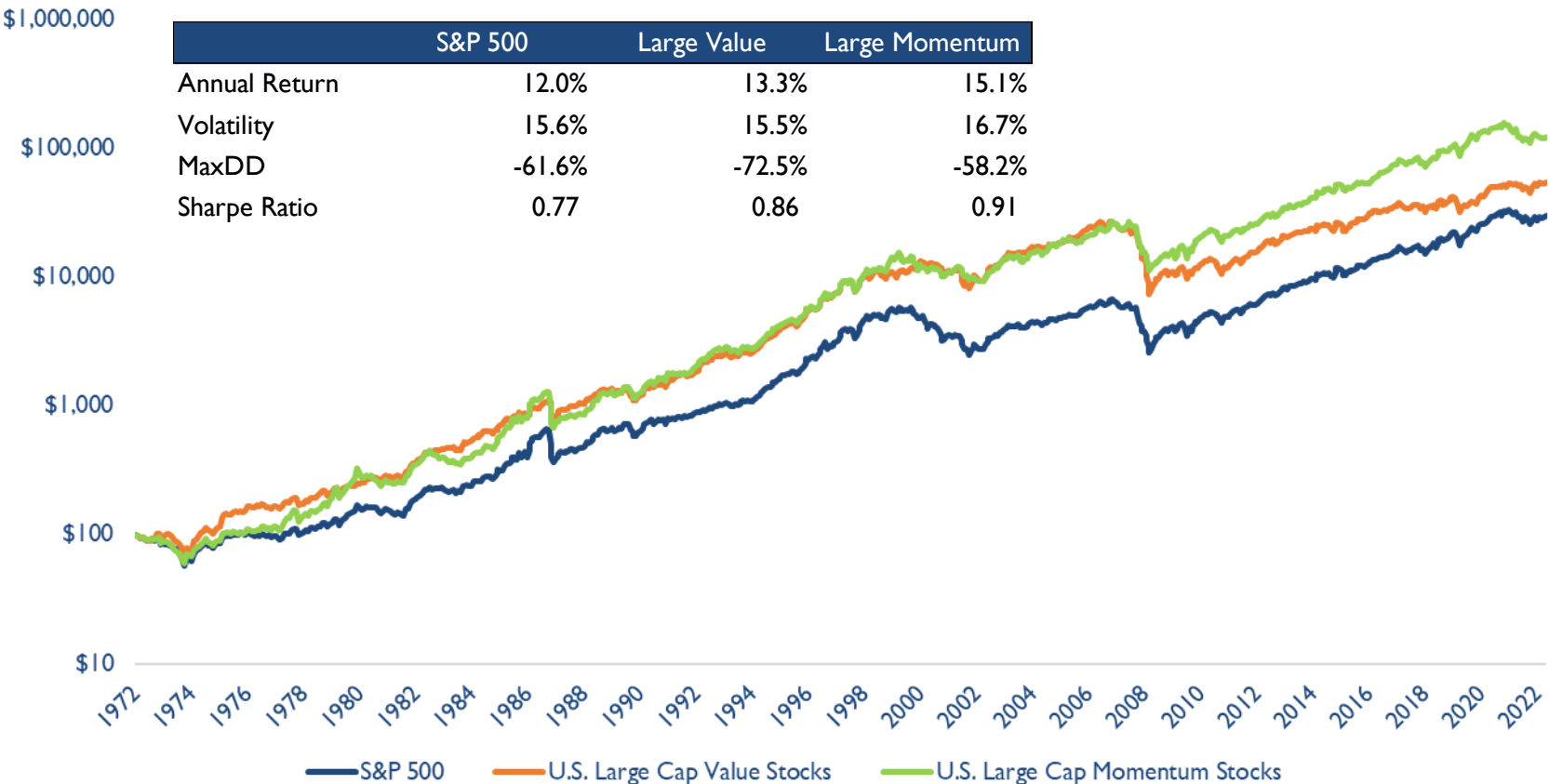


Source: Fama French Data Library, RQA



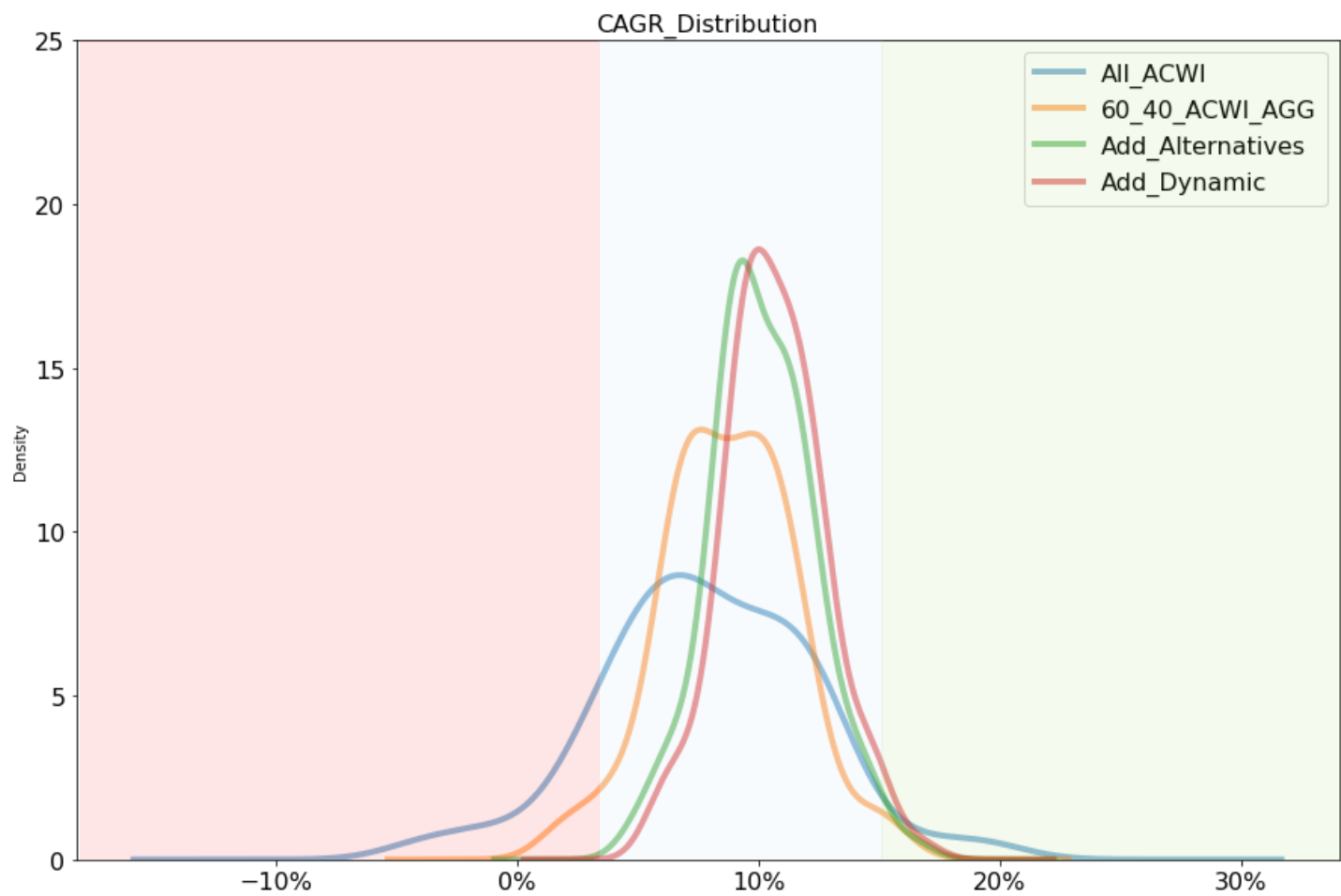
EVIDENCE BEHIND FACTOR INVESTING

Large Caps: Passive v. Value v. Momentum

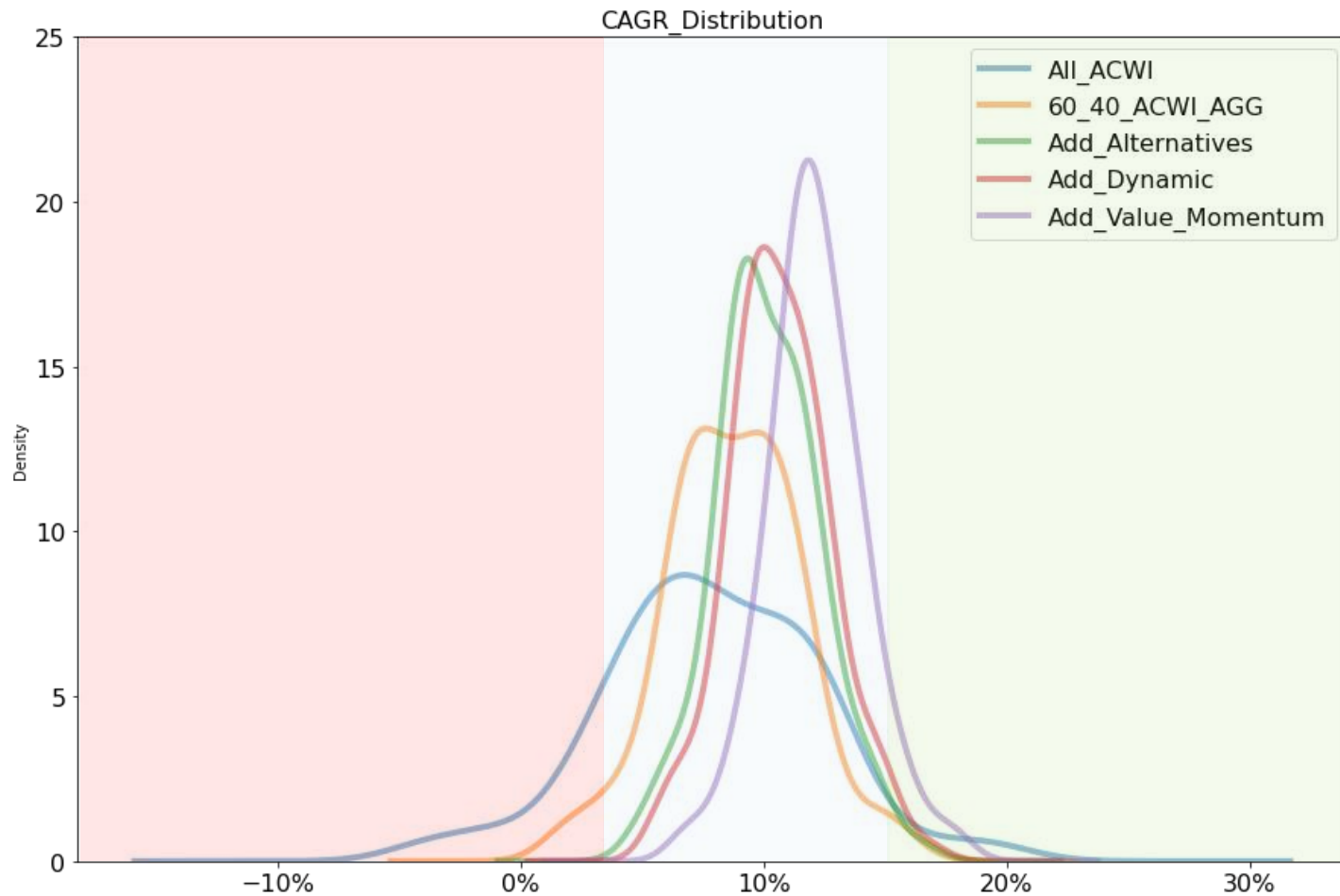


Source: Norgate Premium Data, Global Financial Data, RQA

30-YEAR MONTE CARLO: ADDING DYNAMIC BALANCING

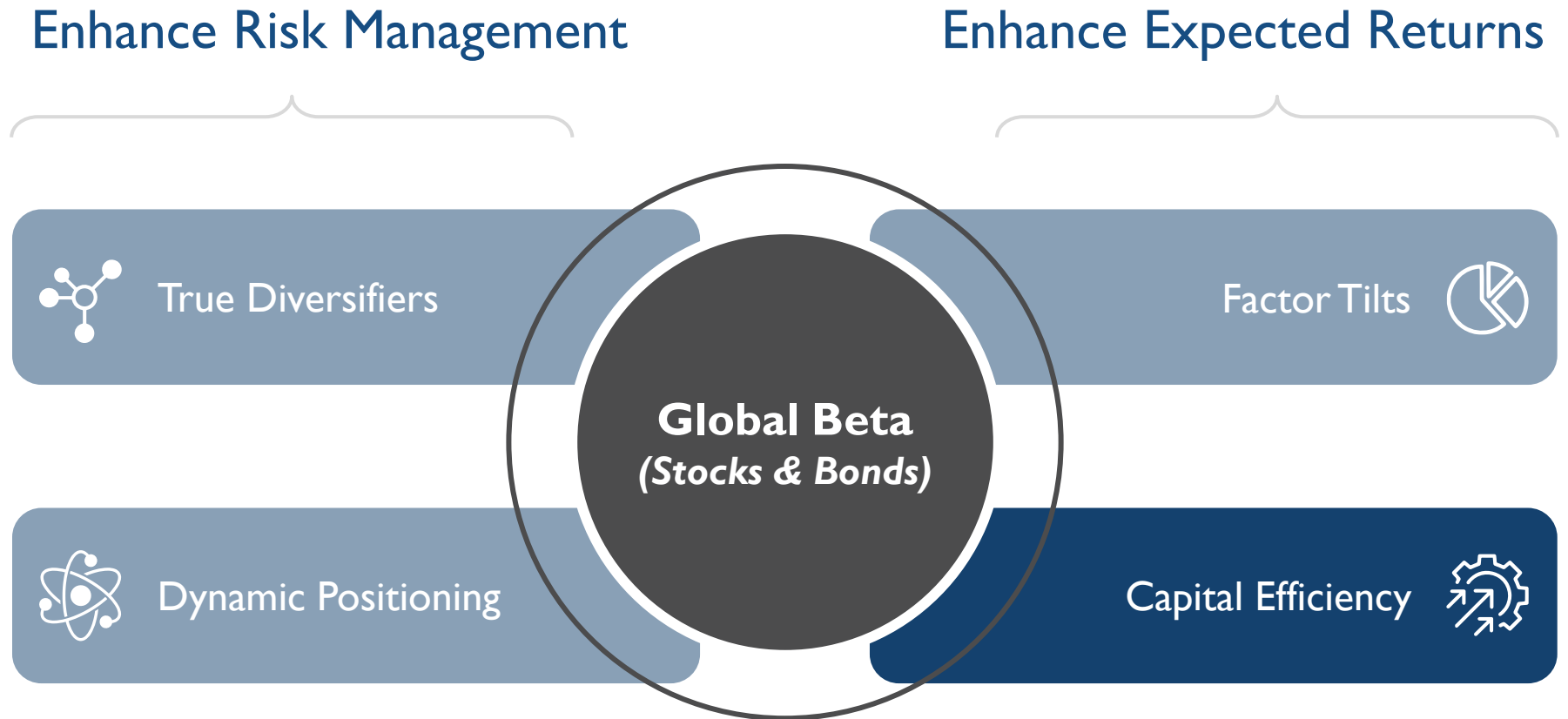


Source: Norgate Premium Data, Global Financial Data, RQA

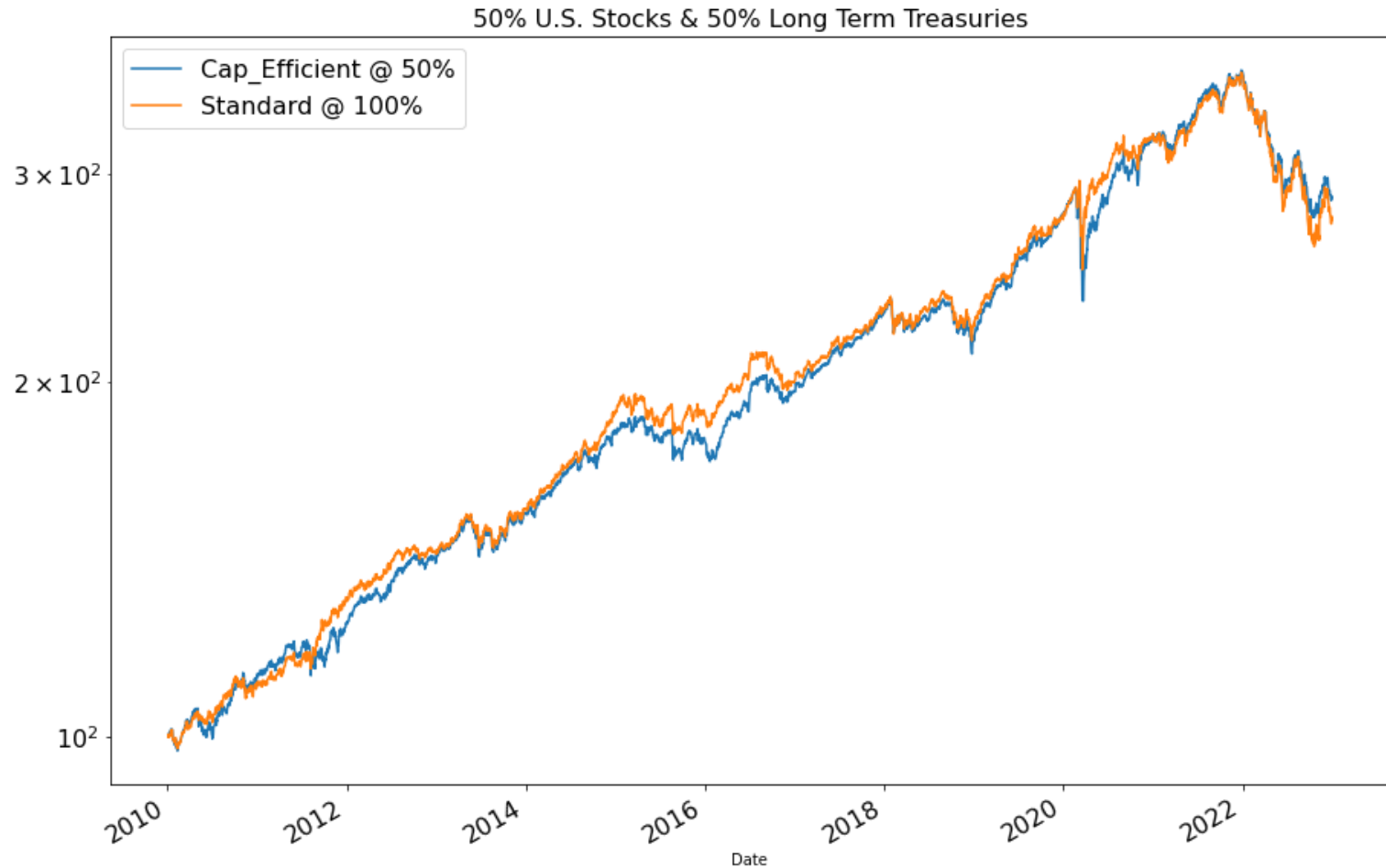


Source: Norgate Premium Data, Global Financial Data, RQA

ENHANCING RETURNS WITH CAPITAL EFFICIENCY



GETTING MORE BANG FOR YOUR BUCK



Source: Norgate Premium Data, Yahoo Finance, RQA

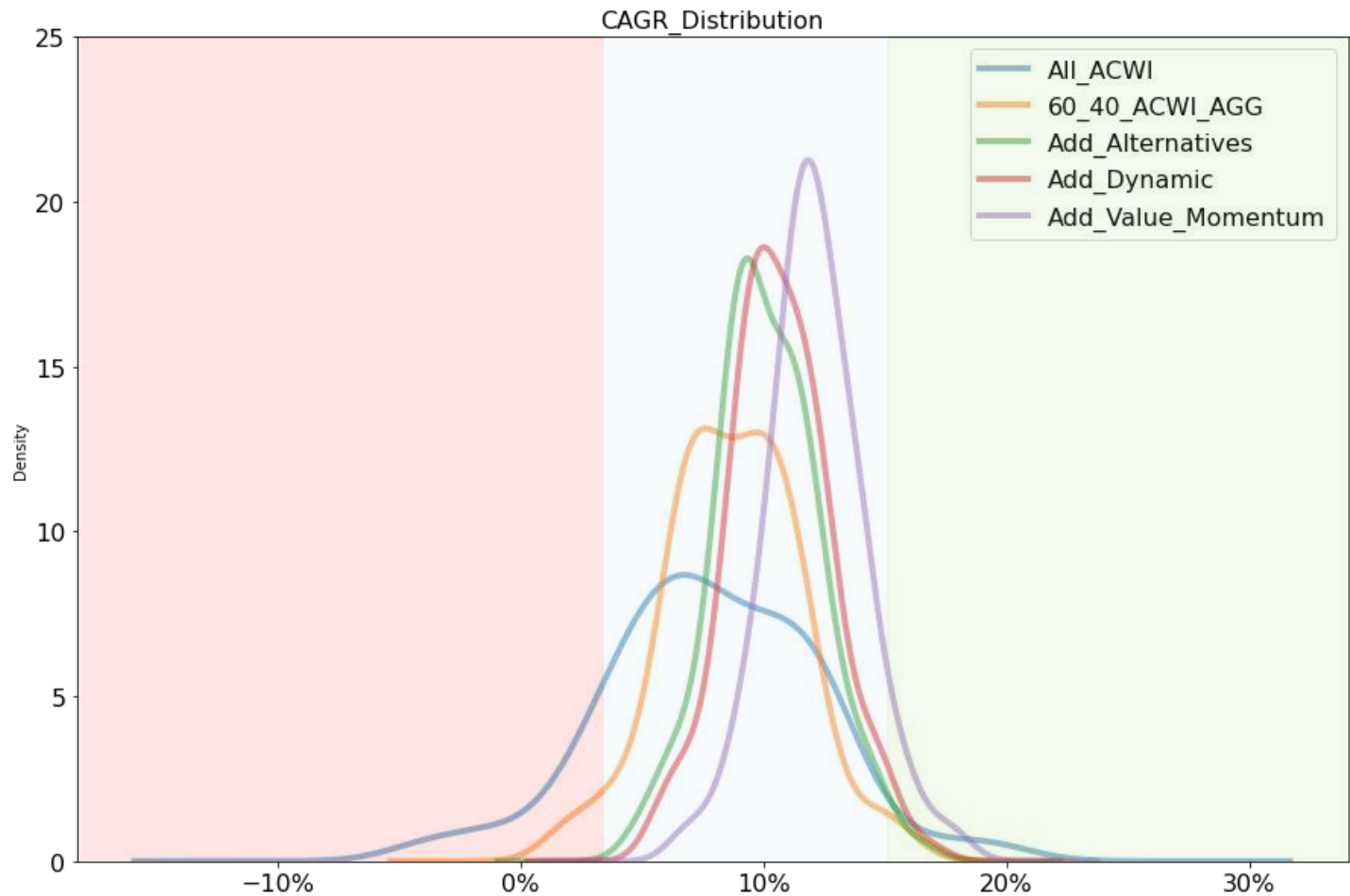
INSTITUTIONS DEPLOYING CAPITAL EFFICIENCY

Institution	Size (\$)	Role of Capital Efficiency
The State of Wisconsin Investment Board (SWIB)	\$143B	Increase Fixed Income
Teacher Retirement System Of Texas (TRS)	\$184B	Increase Fixed Income & Diversifiers
California Public Employees' Retirement System (CalPERS)	\$466B	Increase Diversifiers
Pennsylvania Public School Employees' Retirement System (PSERS)	\$73B	Increase Fixed Income & Real Estate
Missouri State Employees' Retirement System (MOSERS)	\$10B	Increase Fixed Income & Diversifiers
Ohio Police and Fire Pension Fund (OP&F)	\$17B	Increase Fixed Income & Diversifiers

Source: The State of Wisconsin Investment Board (SWIB), Teacher Retirement System Of Texas (TRS), California Public Employees' Retirement System (CalPERS), Pennsylvania Public School Employees' Retirement System (PSERS), Missouri State Employees' Retirement System (MOSERS), Ohio Police and Fire Pension Fund (OP&F), Newfound Research, and RQA.

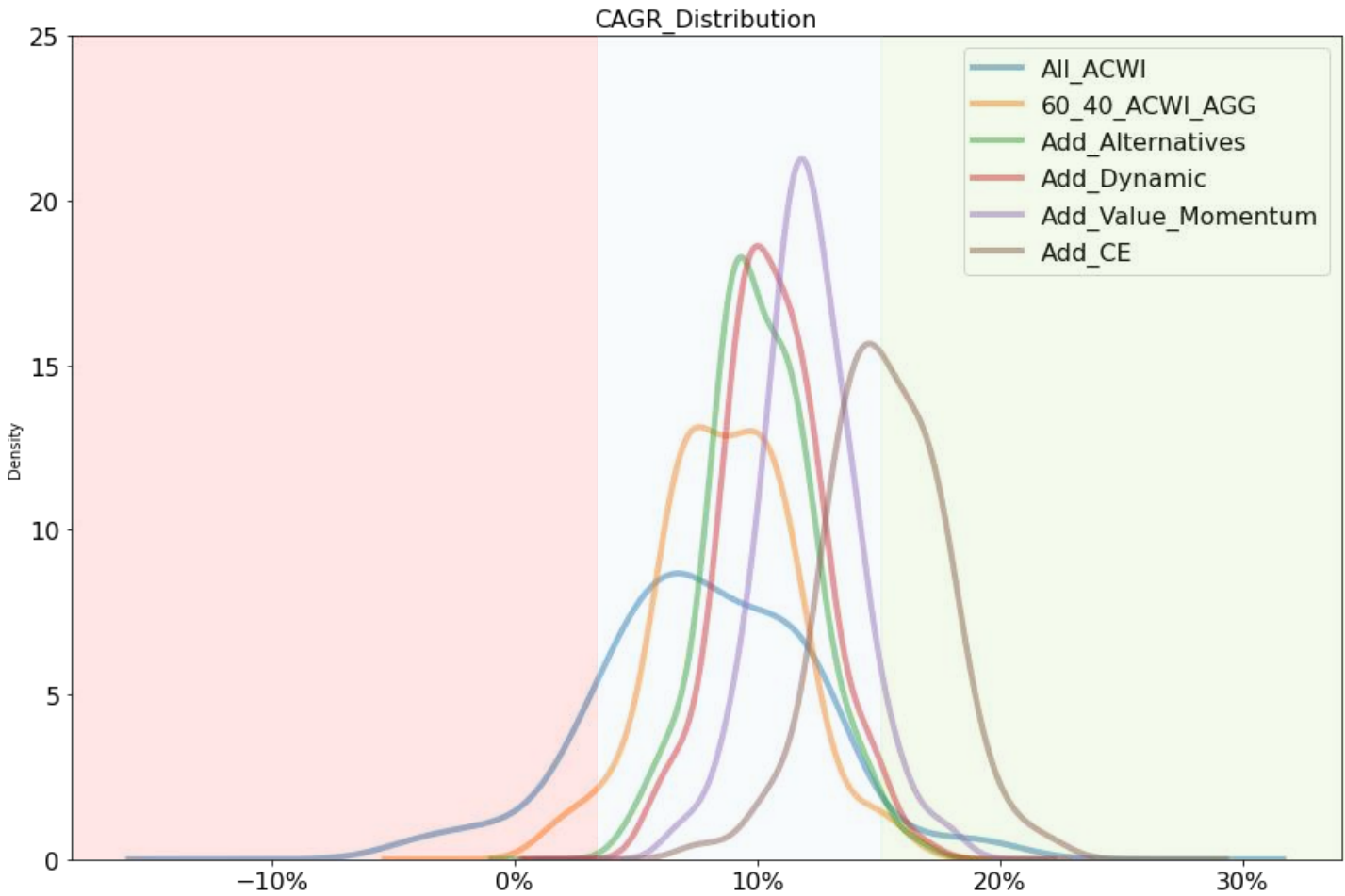


30-YEAR MONTE CARLO: ADDING FACTOR TILTS



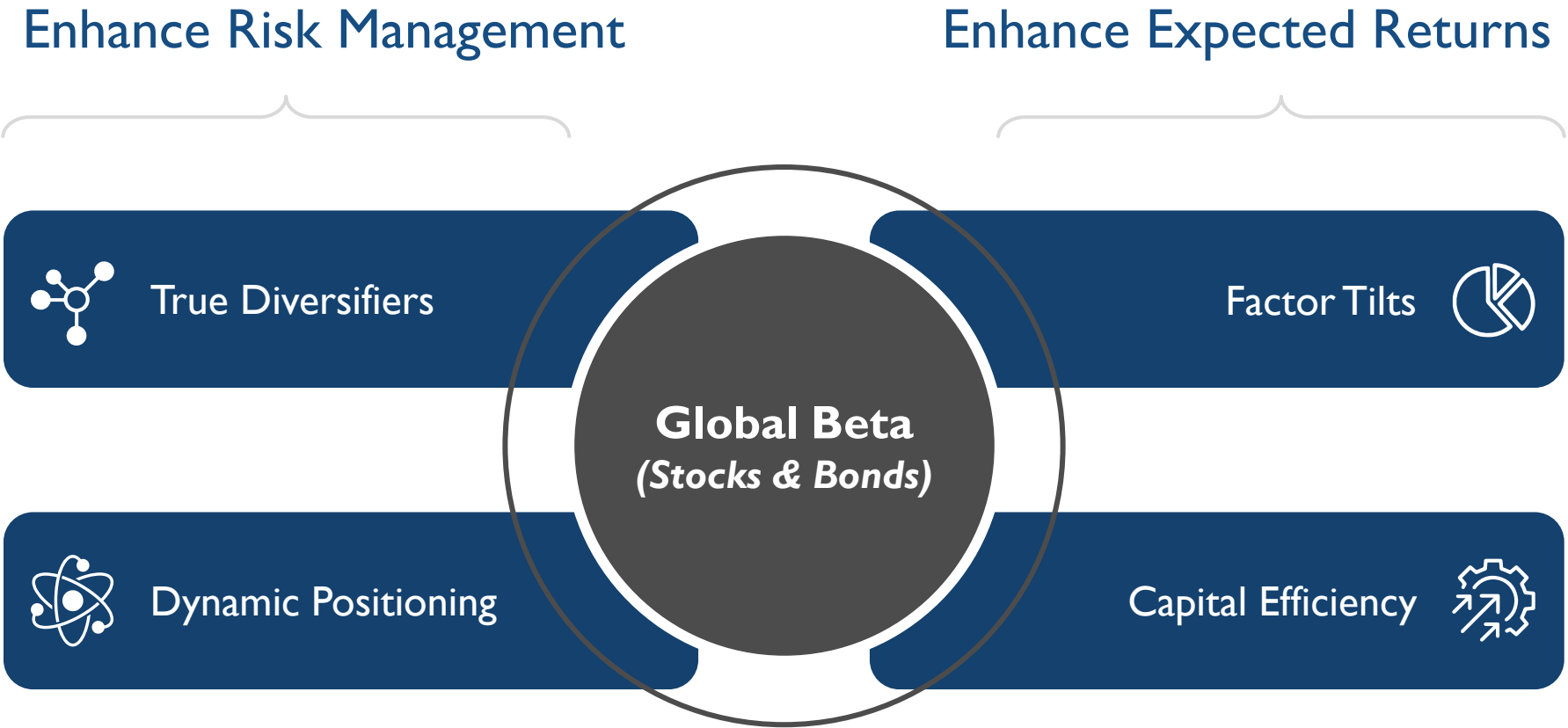
Source: Norgate Premium Data, Global Financial Data, RQA

30-YEAR MONTE CARLO: ADDING CAPITAL EFFICIENCY

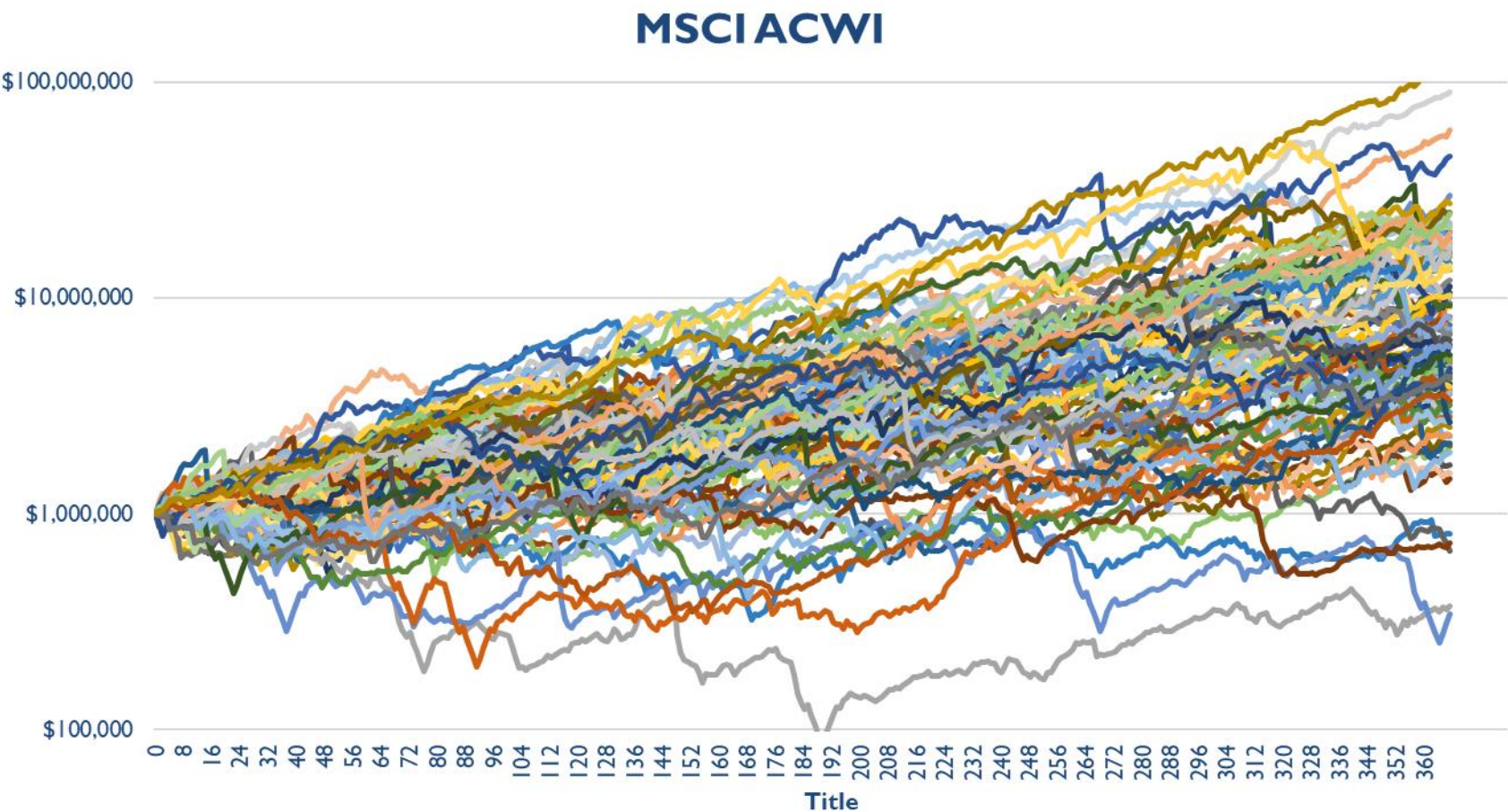


Source: Norgate Premium Data, Global Financial Data, RQA

RECAP

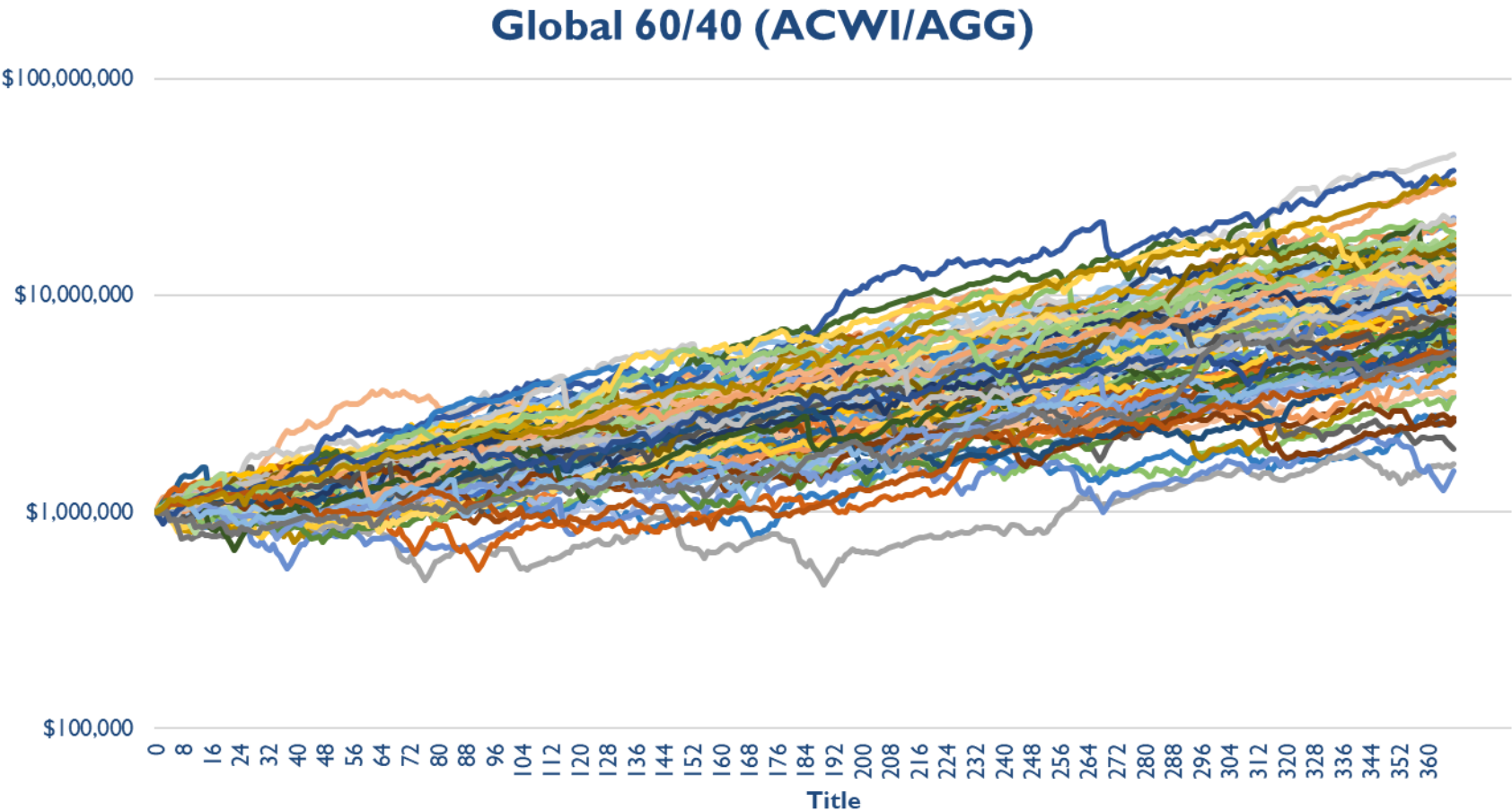


30-YEAR MONTE CARLO: STOCKS ONLY



Source: Norgate Premium Data, Global Financial Data, RQA

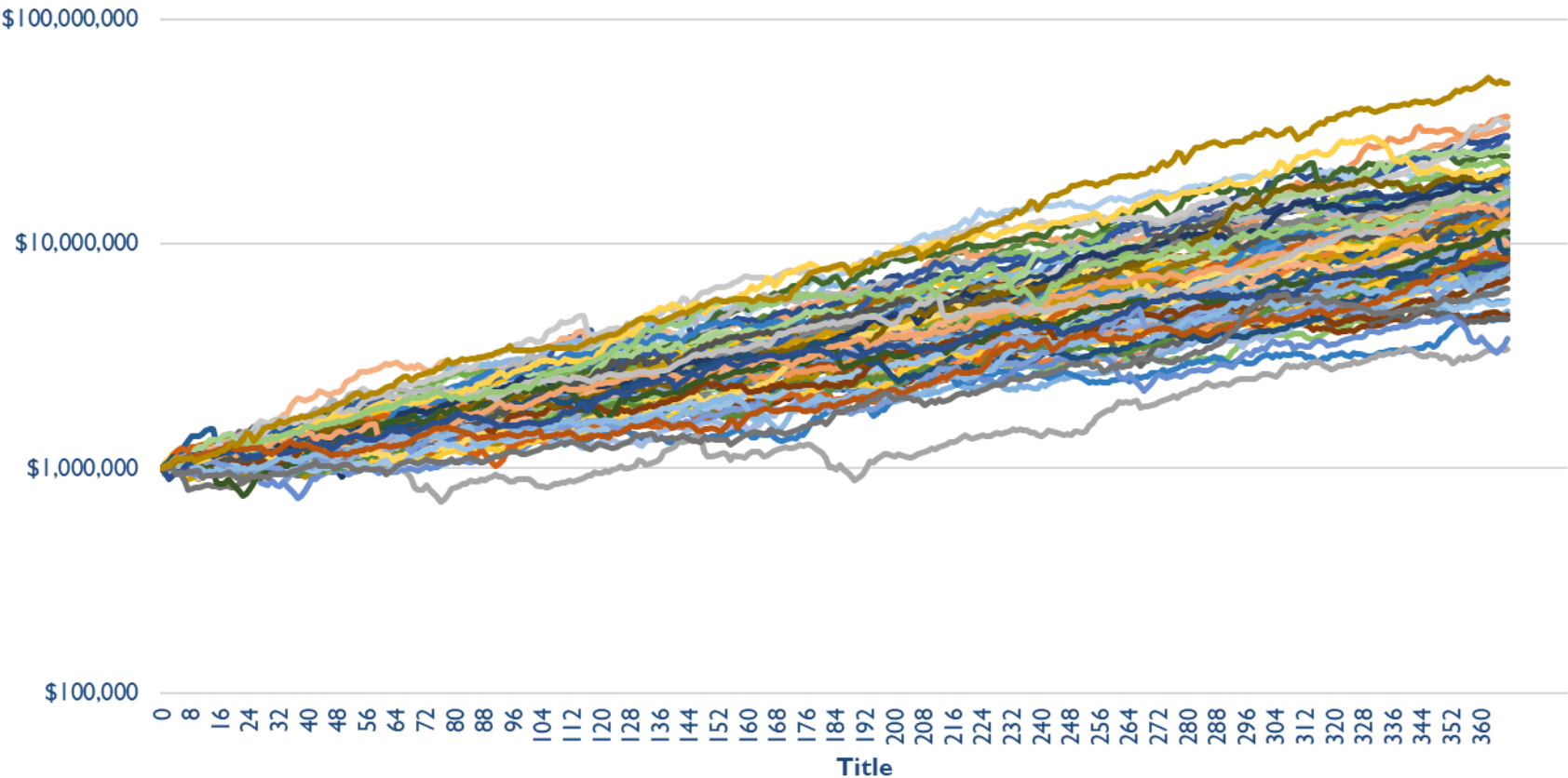
30-YEAR MONTE CARLO: STOCKS & BONDS



Source: Norgate Premium Data, Global Financial Data, RQA

30-YEAR MONTE CARLO: STOCKS, BONDS & ALTS

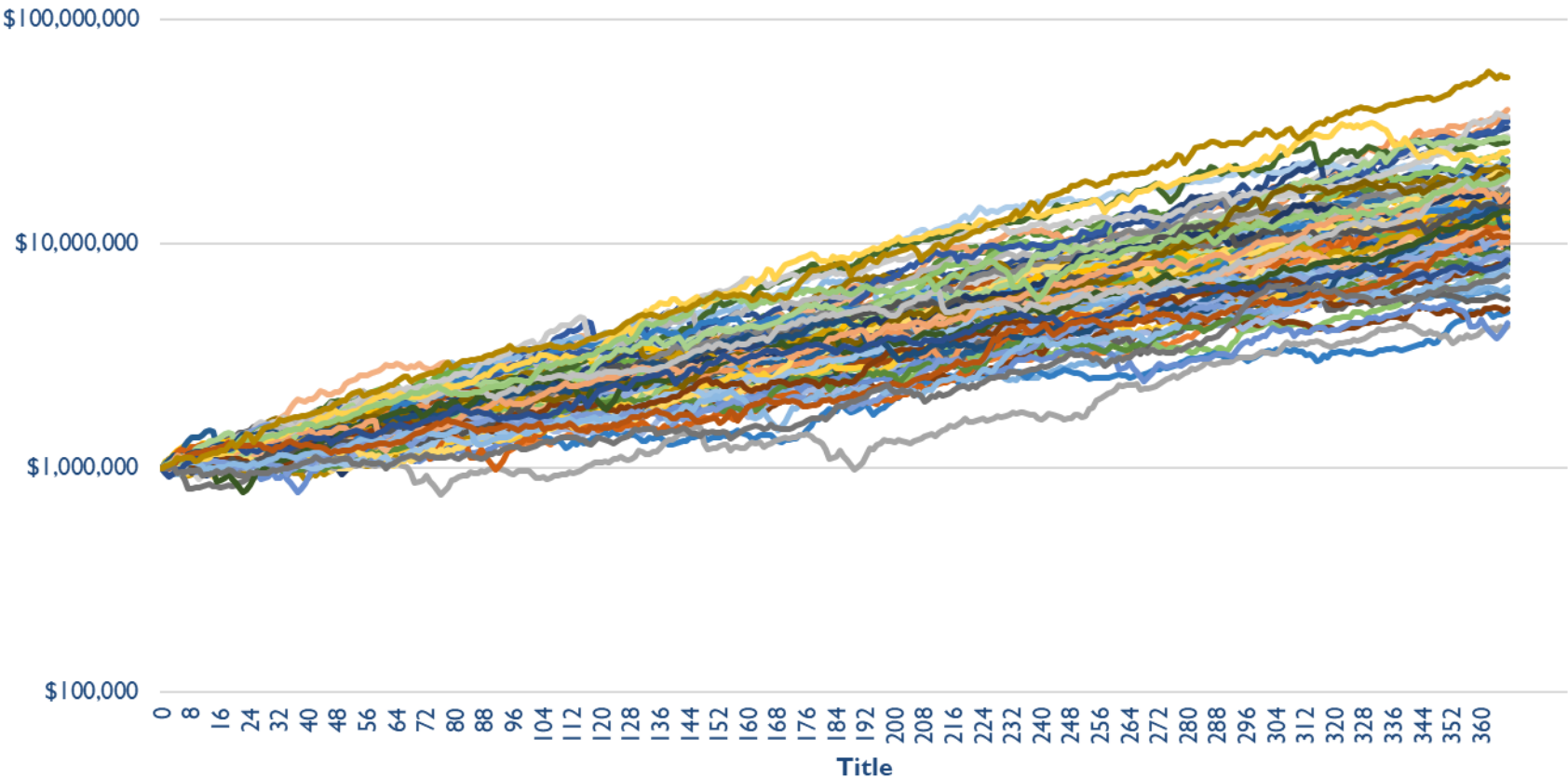
Add 30% Basic Alternatives



Source: Norgate Premium Data, Global Financial Data, RQA

30-YEAR MONTE CARLO: ADDING DYNAMIC BALANCING

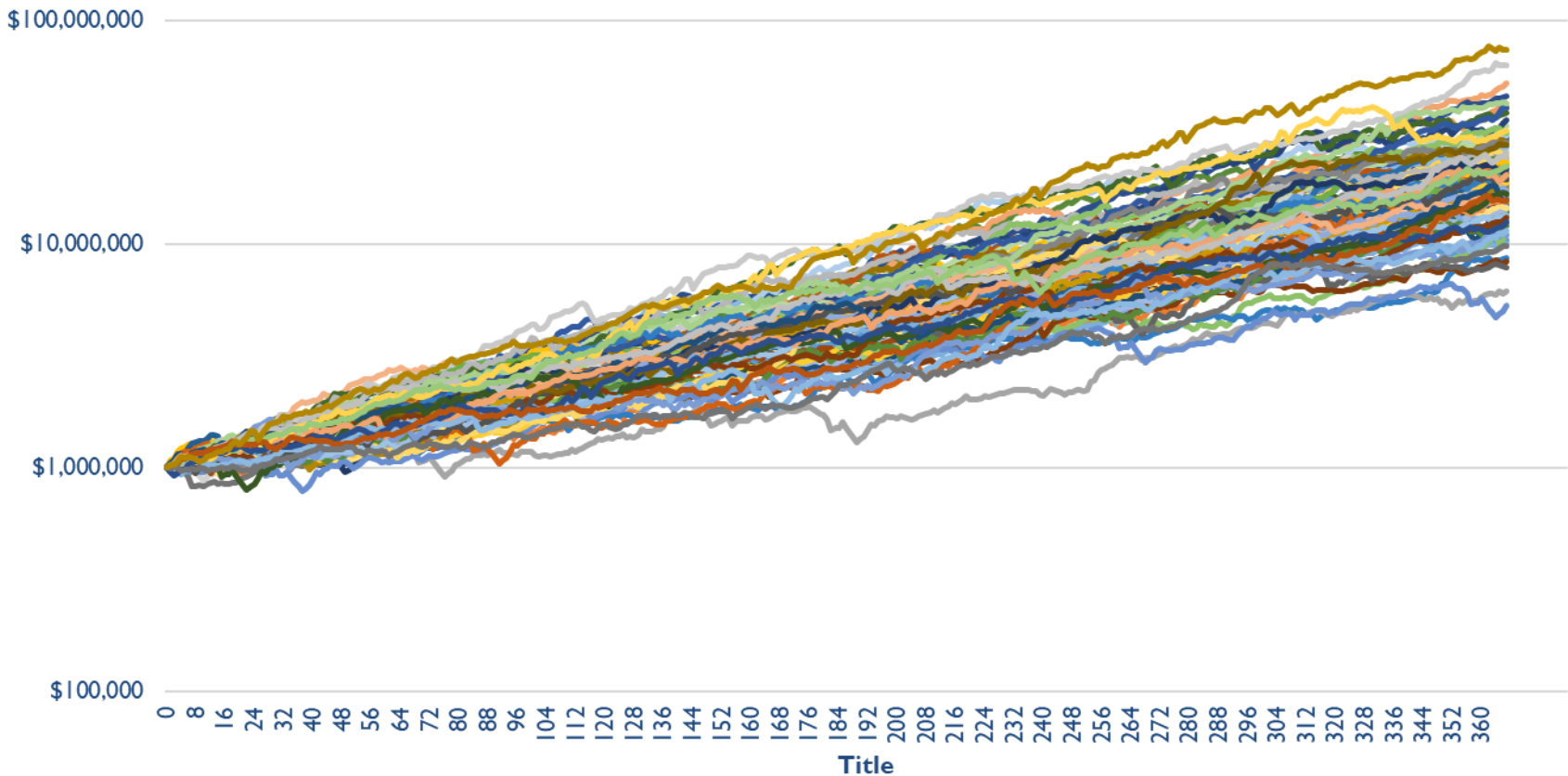
Add 20% Dynamic Portfolio



Source: Norgate Premium Data, Global Financial Data, RQA

30-YEAR MONTE CARLO: ADDING FACTOR TILTS

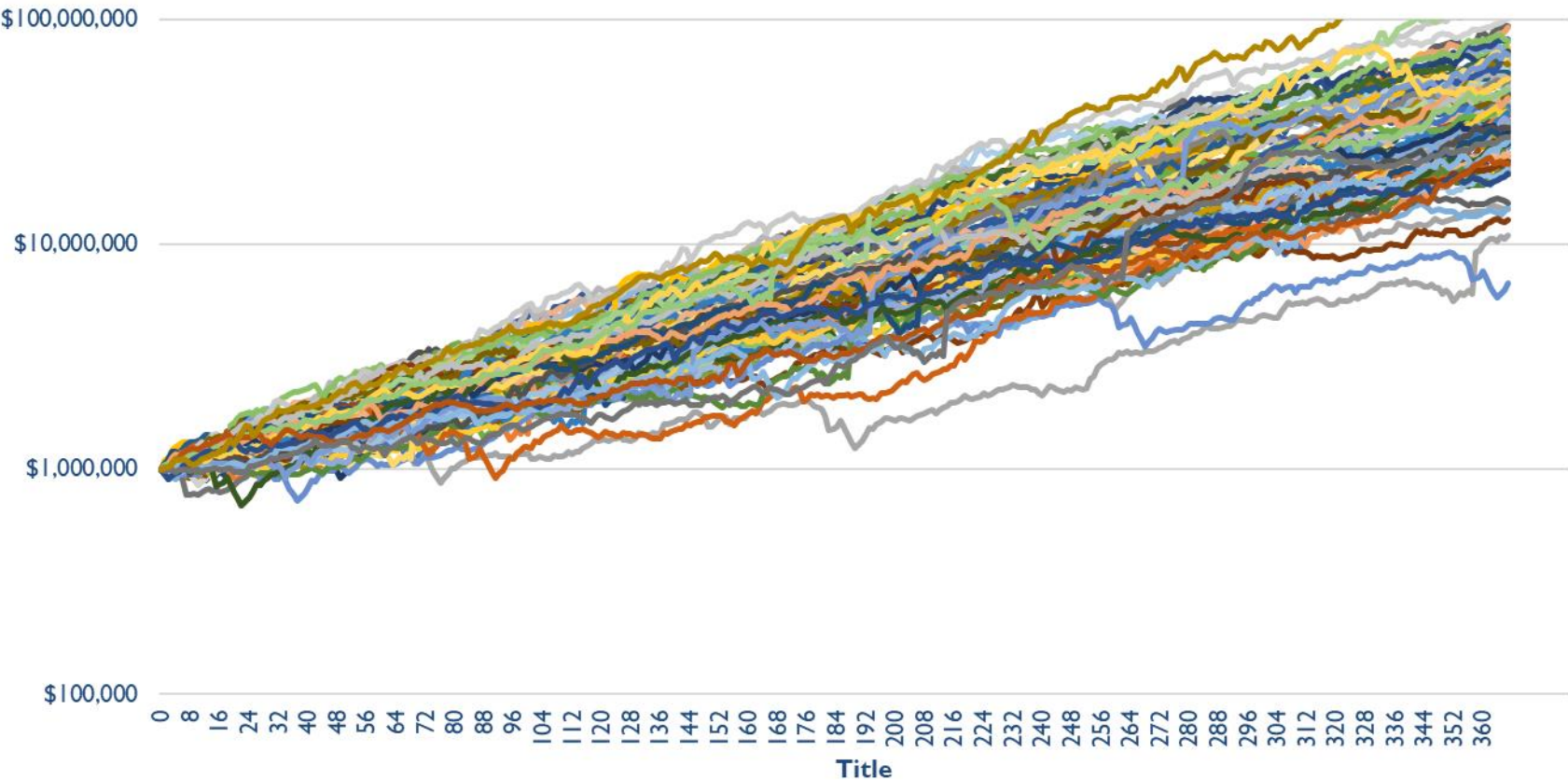
Substitute 10% Value and 10% Momentum



Source: Norgate Premium Data, Global Financial Data, RQA

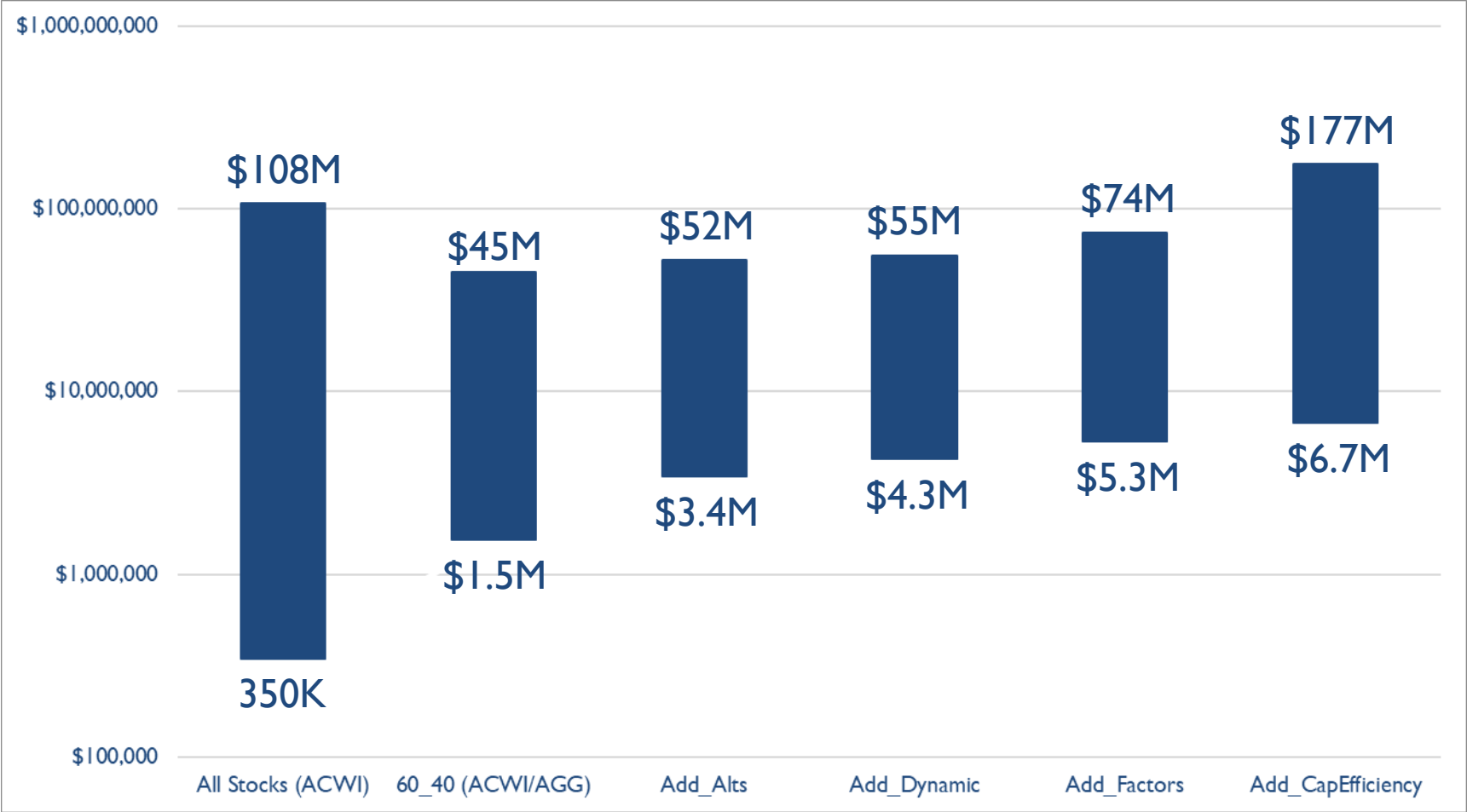


Use Capital Efficient Funds for Passive Stocks/Bonds



Source: Norgate Premium Data, Global Financial Data, RQA

30-YEAR MONTE CARLO: TERMINAL VALUE RANGES



% Fail:	20%	7%	1%	0%	0%	0%
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Source: Norgate Premium Data, Global Financial Data, RQA

FINAL TAKEAWAYS

- *We need to provide better experiences and outcomes*
- *Consistency and confidence is key*
- *First build robustness and reliability – diversification & balance*
- *Seek higher returns with factor tilts and capital efficiency*
- *Applies to any risk appetite*
- *We can “have our cake, and eat it too”*

THESE ARE EXCITING TIMES

- *Endowment toolkit is now accessible*
- *New age of ETFs & mutual funds (5,000+)*
- *High-quality alternative funds*
- *Enhanced capital efficiency funds*
- *Low expense ratios and investment minimums*
- *Better tax efficiency through ETF structures*

Questions?

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