

The background is a blurred image of a financial newspaper page. It features various stock market data, including a table of stock prices with columns for company names (e.g., ImgnTech, K+S), share prices, and changes on the day. There are also line charts showing stock price trends over time, with labels like 'Change on day' and '2013/2013'. A prominent red rectangular overlay covers the center of the image, serving as a background for the title and authors.

# *Adjusted Rule of 40*

*Sharpe Alphas: Chloe Shewell, Jack McCormick, Jack Pollock, Noelle Kieffer*

*January 13, 2025*

# Summary

**Idea:** Modified "Rule of 40:" seeking established, profitable tech companies

**Strategy:** Select companies with high margins, continued revenue growth

**Historical Performance:** 1,217.6% cumulative 10-year return

**Recommendation:** Buy \$75k, In School Fund, Sell SPY

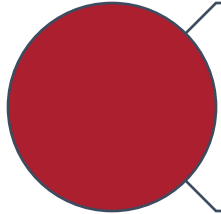
What to Sell: Sell SPY to offset increase in beta

Effect on Portfolio: Increases beta, Sharpe, Alpha, Expected Return & Exposure to Tech

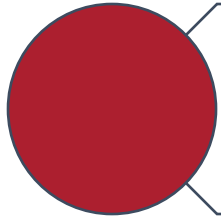




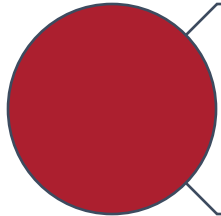
# What is the Rule of 40?



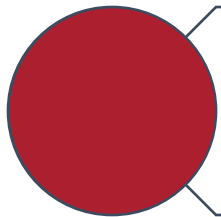
Valuation measure and health metric for Software as a Service (SaaS) companies



Companies with YoY revenue growth and a subjective profitability metric that, when combined, meets or exceeds 40%



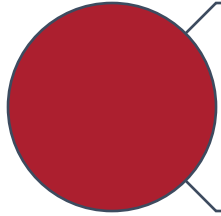
McKinsey states a SaaS company's growth rate when added to its free cash flow rate should equal 40 percent or higher, it neatly distills a company's operating performance into one number



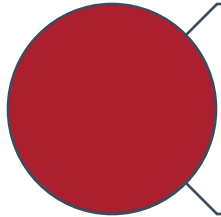
However, the use of Free Cash Flow margin introduces significant room for manipulation, since FCF includes adding back non-cash expenses



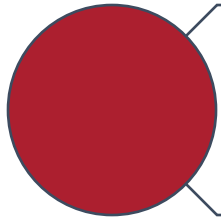
# Rule of 40 Cont.



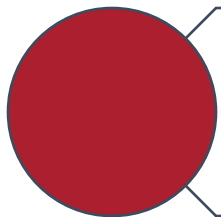
All but 6 out of 302 US based tech companies engage in SBC



Tech industry consistently takes large SBC charges, artificially inflating FCF



Operating margin provides a more accurate depiction of profitability  
- Operating margin is on average 8.96% lower than FCF margin, factors in profitability including SBC



Expanding beyond SaaS to include entire tech industry we saw positive revenue growth and healthy operating margin



# Strategy Details

**THESIS:** If we select tech companies with a positive revenue growth and operating margin of at least 40%, we will earn high returns

- Ran multiple scenarios of:

- Different profitability metrics
- Effect of revenue growth
- Strategy excluding NVIDIA, excluding Microsoft, excluding Microsoft and NVIDIA
- Weighting
- Optimized revenue growth



# Tech Industry History + Predictions

Research shows we are not in a tech bubble. High growth in tech is expected to continue.

## Goldman Sachs

- Doesn't resemble past bubbles strategists say
- EV/Sales is down in the tech industry since 2021 and much lower since the 2001 tech bubble

## Fidelity

- Tech valuations aren't at extremes
- Earnings are supported by margins
- Earnings momentum is bullish

## UBS

- Argues most gains from AI stocks have come from high earnings performance instead of an increase in P/E ratios.
- Many Tech and AI stocks multiples such as P/E ratios have decreased while their stock price increased.



# Multiples

Ticker	P/E Ratio Current	Average P/E Ratio 2021	EV/Sales Current	Average EV/Sales 2021	EV/EBIT Current	Average EV/EBIT 2021	P/Sales Ratio Current	Average P/Sales Ratio 2021
ADBE	28.23	50.92	8.22	20.35	26.06	61.33	8.43	20.6
ANET	54.86	45.72	20.66	11	49.06	36.19	21.67	12.13
AVGO	85.07	60.19	21.54	9.48	82.23	55.97	20.14	7.77
DOCS	59.15		17.48			45.27	18.77	
FTNT	54.11	88.71	12.22	15.03	43.21	73.12	12.65	15.81
KLAC	26.88	25.33	9.12	7.24	26.23	27.93	8.97	7.08
LRCX	23.41	30.77	6.09	6.1	21.08	25.47	6.26	6.92
MSFT	34.34	39.21	12.33	11.63	27.56	31.27	12.25	12.11
NVDA	53.49	360.58	29.14	22.63	46.42	86.13	29.5	92.35
OLED	29.73	73.2	10.1	20.85	25.8	56.6	10.94	22.56
PTC	58.1	83.28	10.27	10.66	39.48	69.72	9.5	9.95
RMBS	40.53	123.25	10.8	8.81	34.43	112.81	9.5	9.95
UI	55.63	42.94	11	12.78	40.92	34.26	10.78	12.84
Positivity Outlook	67%		50%		75%		67%	



# Backtesting

**Back testing method:** Bloomberg

**Data pulled from:** Bloomberg, various market research and analyst opinions

**Rebalance frequency:** Quarterly

**Number of positions:** 13

**Number of years back-tested:** 10, 5, 3, 1

**Minimum stock market cap:** \$1 billion

**Weighted:** By market cap

**Currency:** USD



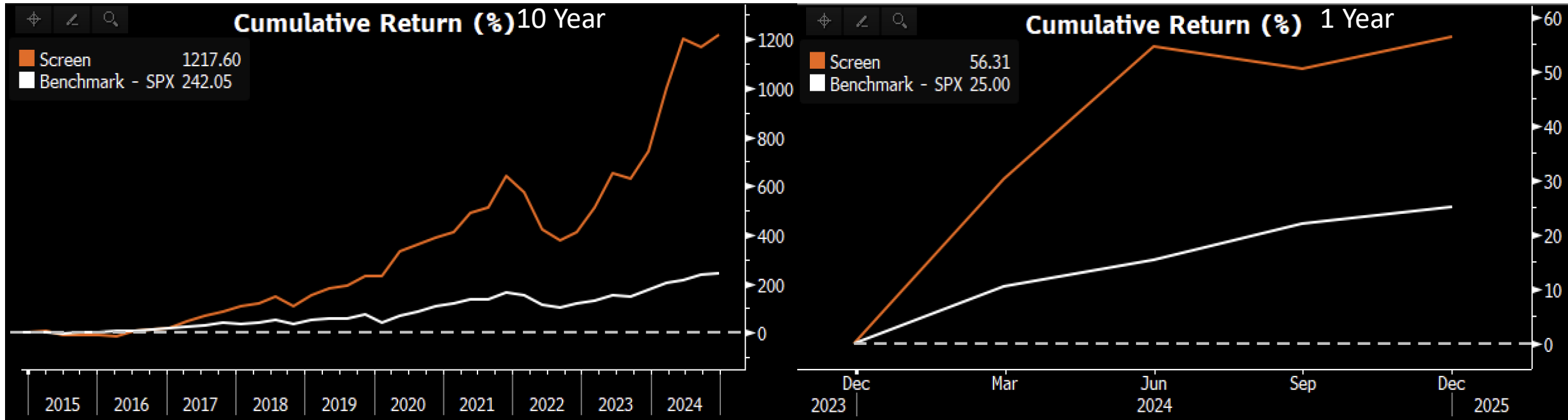


# Filtering Criteria

Selected Screening Criteria		Matches
Security Universe		1694918
51) ::	Trading Status: Active	548900
52) ::	Security Attributes: Show Primary Security of company only	82485
53) ::	Exchanges: United States	14166
54) ::	Sectors (BICS): Technology	1213
55) ::	Current Market Cap > 1000 Million	302
56) ::	Latest Quarterly Revenue Growth Year over Year > 10	146
57) ::	LF Operating Margin > 30	13



# Backtesting Results - Performance



<u>Annualized</u>	Return (%)	$\alpha$	$\beta$	$\sigma$ (%)	Sharpe	Treynor	Max DD	Info Ratio	Idio. Risk
10 Year	1217.6	16.05	1.32	29.31	1.14	0.214	-56.69	0.95	4.396%
1 Year	56.31	19.96	1.82	29.27	1.98	0.39	-27.91	1.42	5.644%
10 Year SPX	362.51	0.01	1.00	17.86	0.34	0.084	-52.44	0.00	0.00
1 Year SPX	16.32	-0.01	0.84	12.79	0.44	0.2	-21.43	0.00	0.00



# Backtesting Results - Characteristics

<u>10-Year Analysis</u>	Mean	Min	25%	Median	75%	Max
Market Cap (\$Millions)	224,074.93	1,028.54	6,271.81	19,543.12	116,332.70	3,321,869.1
P/E Ratio	36.01	2.60	18.61	30.39	46.50	259.66
Monthly Trading Volume* (\$Millions)	473.50	1.71	16.65	82.97	345.16	4,085.80
Share Price**	177.84	4.39	71.00	126.79	234.41	942.89

\* For current positions in strategy

\*\* As of 12/31/24



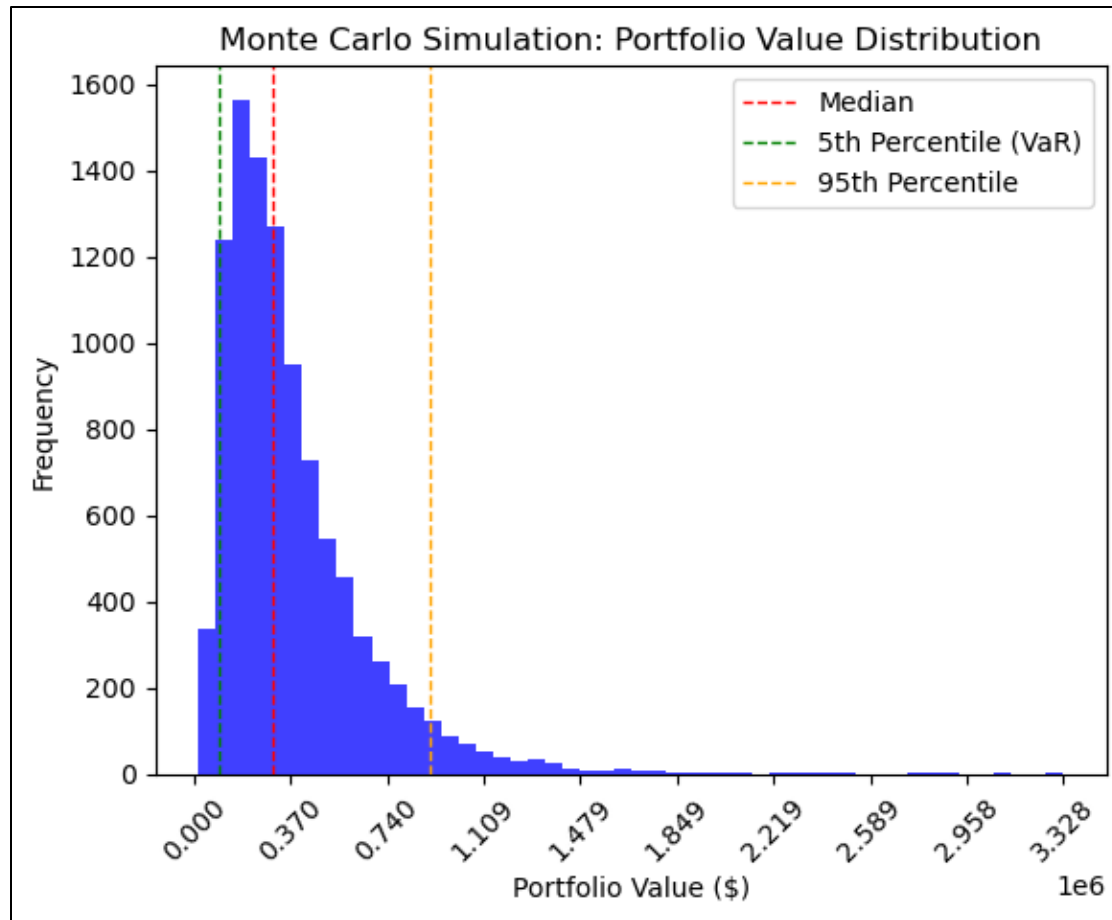
# Recommended Purchases

Name	Ticker	P/E Ratio	Monthly Trading Volume (\$M)	Market Cap (\$B)	Share Price (\$)	# of Shares	Total Value (\$)
Adobe Inc	ADBE	28.23	105.64	195.75	407.30	4.04	1,645.86
Artista Networks Inc	ANET	54.86	125.94	139.24	114.42	11.68	1,338.61
Broadcom Inc	AVGO	85.07	950.99	1,086.72	223.87	44.09	9,887.73
Doximity Inc-A	DOCS	59.15	42.66	10.07	52.39	1.71	89.58
Fortinet Inc	FTNT	54.11	82.97	72.41	94.57	7.04	667.06
KLA Corp	KLAC	26.88	22.62	84.28	683.12	1.23	837.09
Lam Research Corp	LRCX	23.41	250.41	92.94	74.88	11.82	883.94
Microsoft Corp	MSFT	34.34	439.90	3,133.80	418.19	68.28	28,555.63
NVIDIA Corp	NVDA	53.49	4,085.80	3,288.76	136.03	224.91	30,575.83
Universal Display Corp	OLED	29.73	13.56	6.94	148.14	0.44	64.65
PTC Inc	PTC	58.1	14.73	22.09	182.79	1.11	201.78
Rambus Inc	RMBS	40.53	18.56	5.63	55.70	1.01	55.96
Ubiquiti Inc	UI	55.63	1.71	20.07	351.30	0.56	196.28

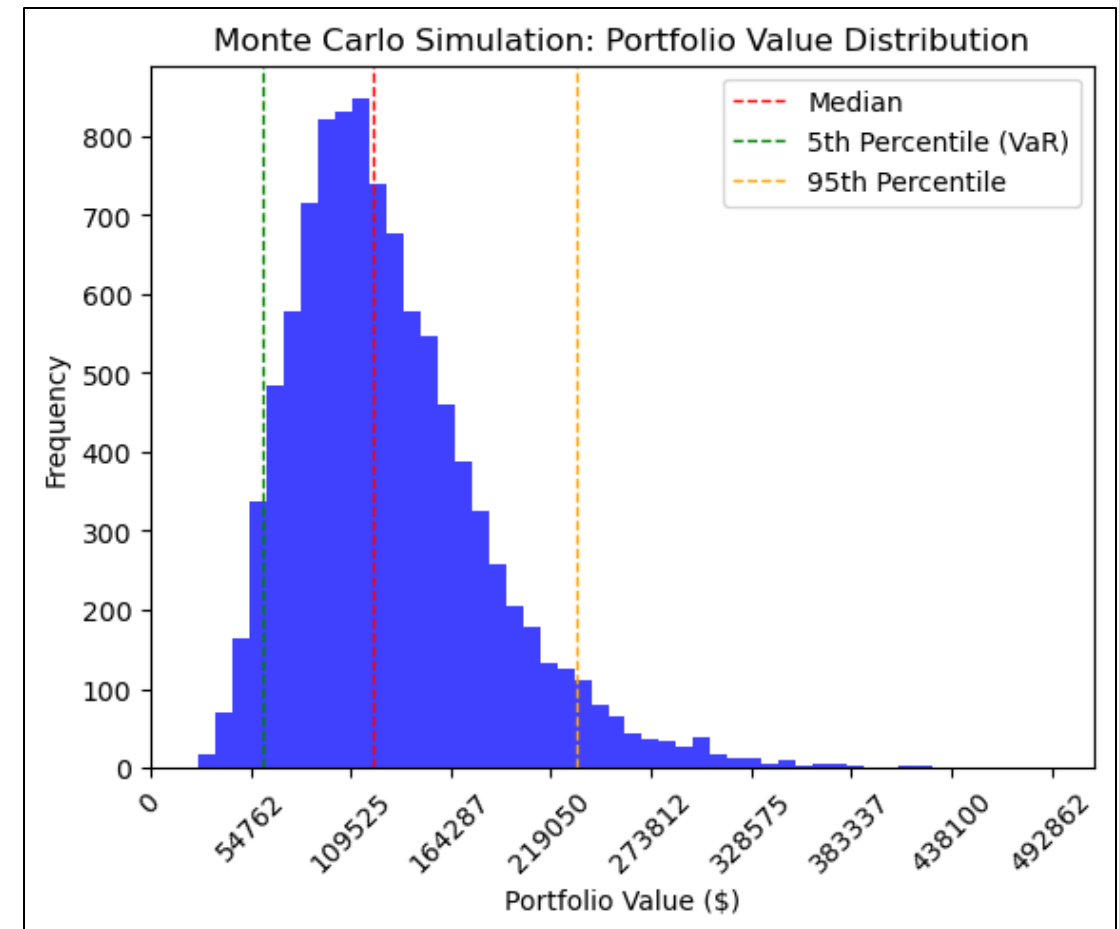


# Monte Carlo Simulation

## Our Proposal:



## SPY:





# Monte Carlo Simulation

	Adj. Rule of 40	SPY
Mean (EV)	\$ 377,467	\$ 131,325
Median	302,589	121,462
5 <sup>th</sup> Pct (VaR)	95,648	61,654
95 <sup>th</sup> Pct	904,535	233,674
Average MDD	28%	22%
Sharpe Ratio	1.03	0.40

**\$75,000 invested**

**Mean Return:** 36.16%, 13.98%    **Horizon:** 5 years

**StDev:** 32.71%, 18.33%    **Periods:** 4

**Inflation rate:** 2.7%    **Rebalance:** Quarterly

**Risk Free Rate:** 4.46%    **Simulations:** 10,000



# Sell Proposal – Sell \$75,000 of SPY

- We have a significant holding in SPY
- Lower the funds beta

	SPY	Adj. Rule of 40
Sharpe	0.76	1.14
$\sigma$	15.32%	29.31%
$\beta$	1.00	1.32
Expected Return	12.39%	28.41%



# Effect on the Portfolio

	Existing Portfolio	New Portfolio
<b>Beta</b>	1.135 (0.745)	1.139 (0.762)
<b>Sharpe</b>	1.76	1.77
<b>Alpha</b>	0.01	0.16
<b>Standard Deviation</b>	13.99%	14.97%
<b>Expected Return</b>	16.42%	17.14%



# Recap

**Idea:** Modified "Rule of 40:" seeking established, profitable tech companies

**Strategy:** Select companies with high margins, continued revenue growth

Historical Performance: 1,217.60% return over a 10 year back-test

**Recommendation:** Buy \$75k, In School Fund, Sell SPY

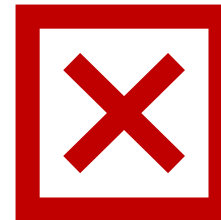
**What to Sell:** Sell SPY due to excess exposure

Effect on Portfolio: Increases beta, Sharpe, Alpha, Expected Return & exposure to tech



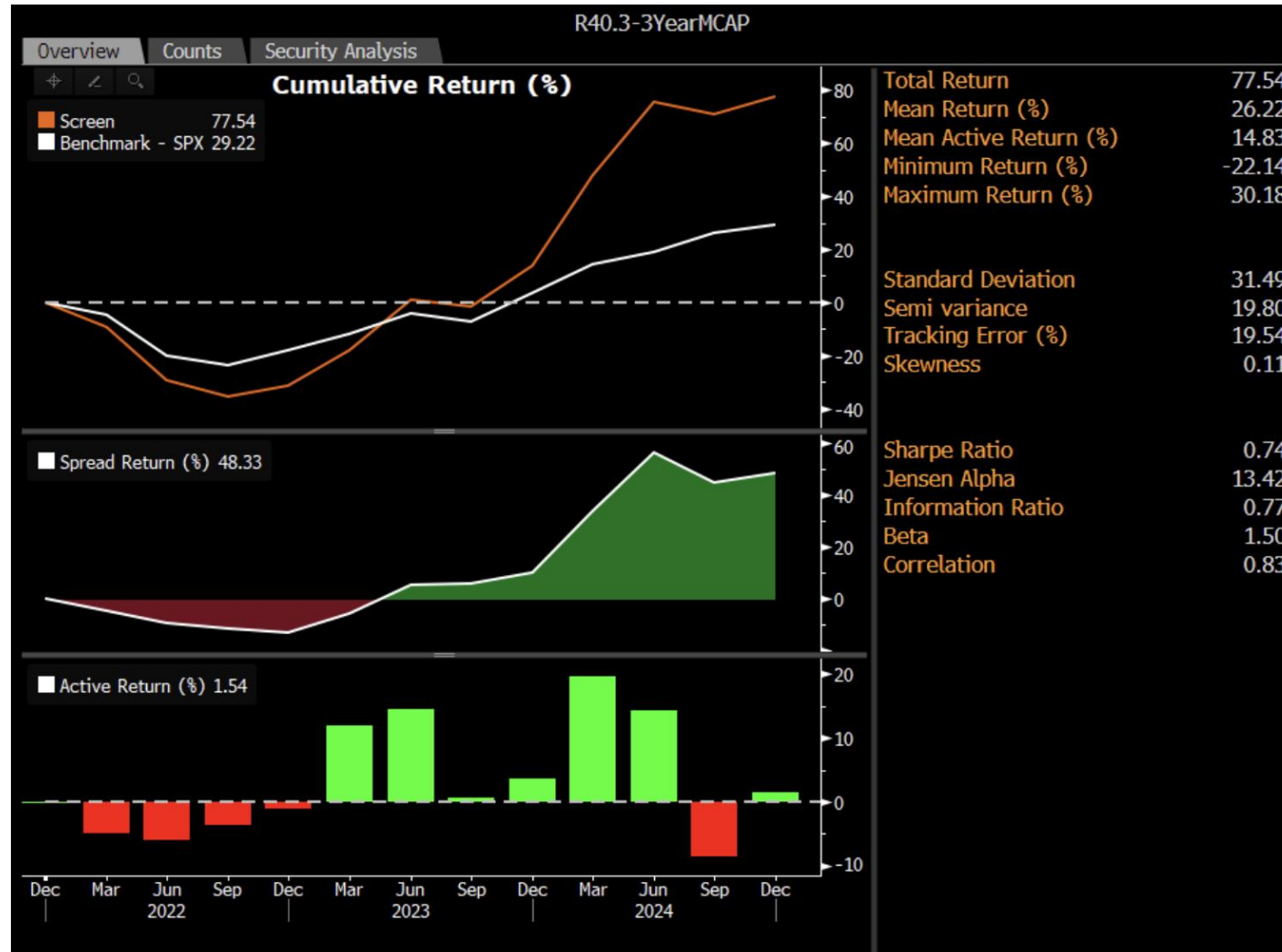
# VOTE

**Purchase \$75,000 of the 13 companies from the proposed Adjusted Rule of 40 by selling off \$75,000 of SPY**

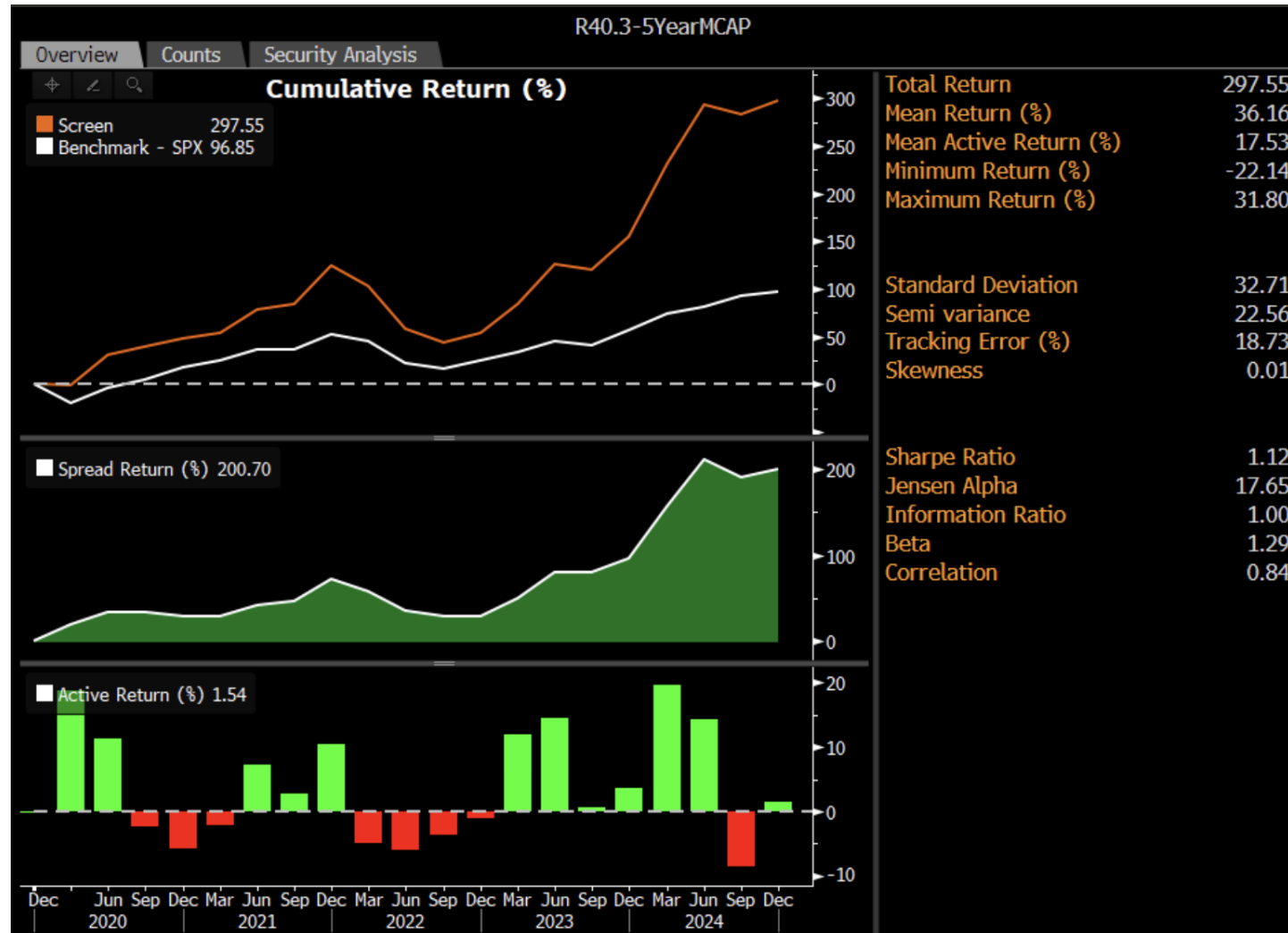




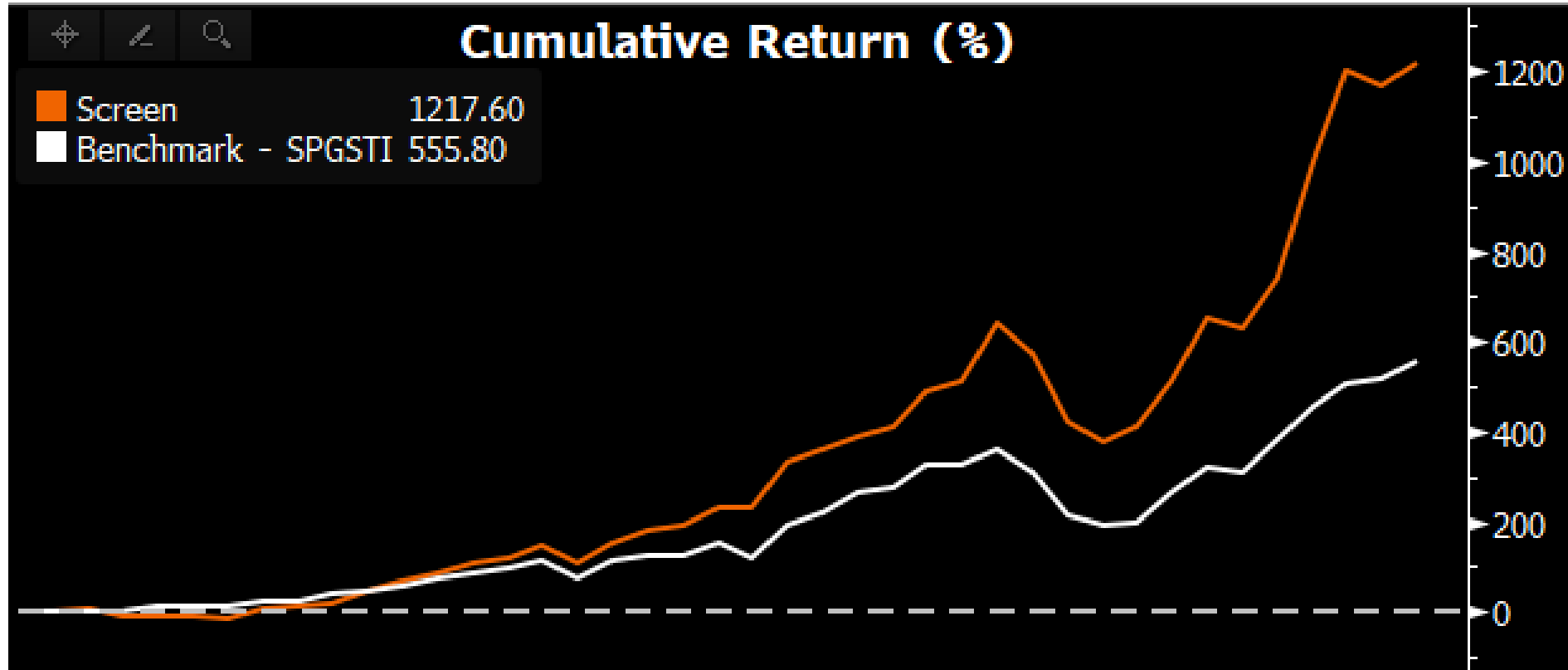
# Exhibit 1: 3 Year Backtest Results



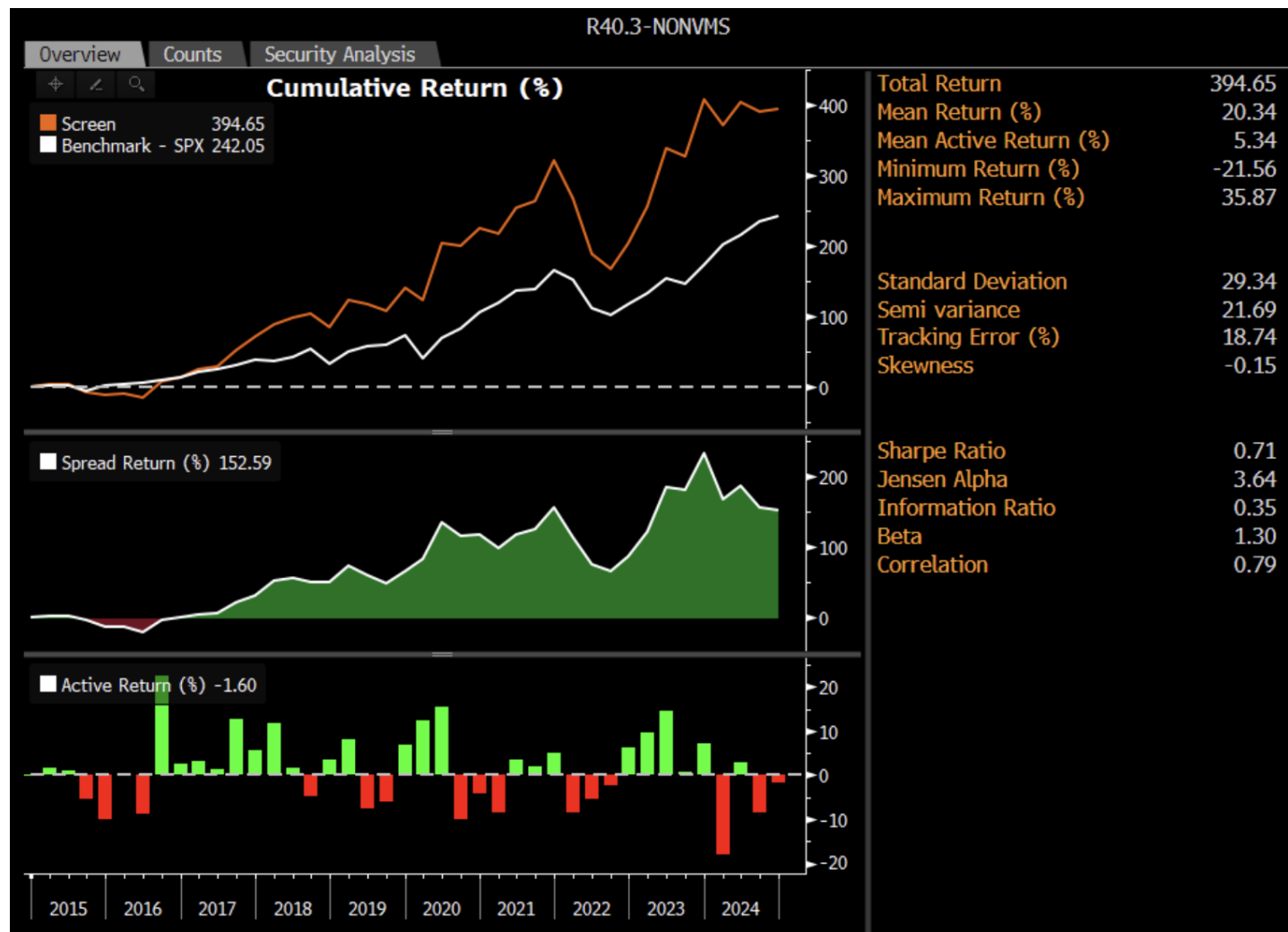
# Exhibit 2: 5 Year Backtest Results



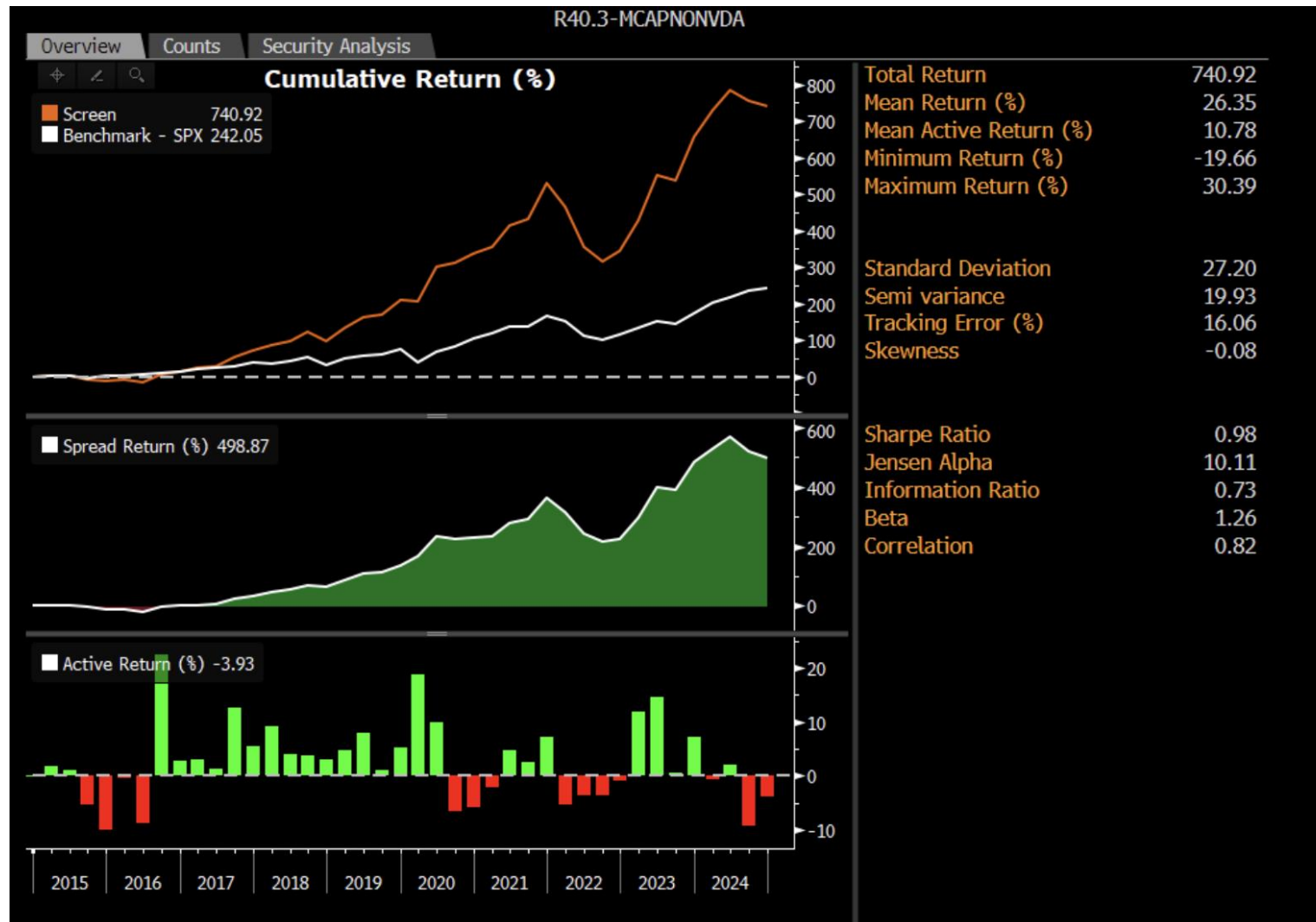
# Exhibit 4: 10 Year Backtest Against Tech Index



# Exhibit 5: 10 Year Backtest No NVIDIA Or Microsoft

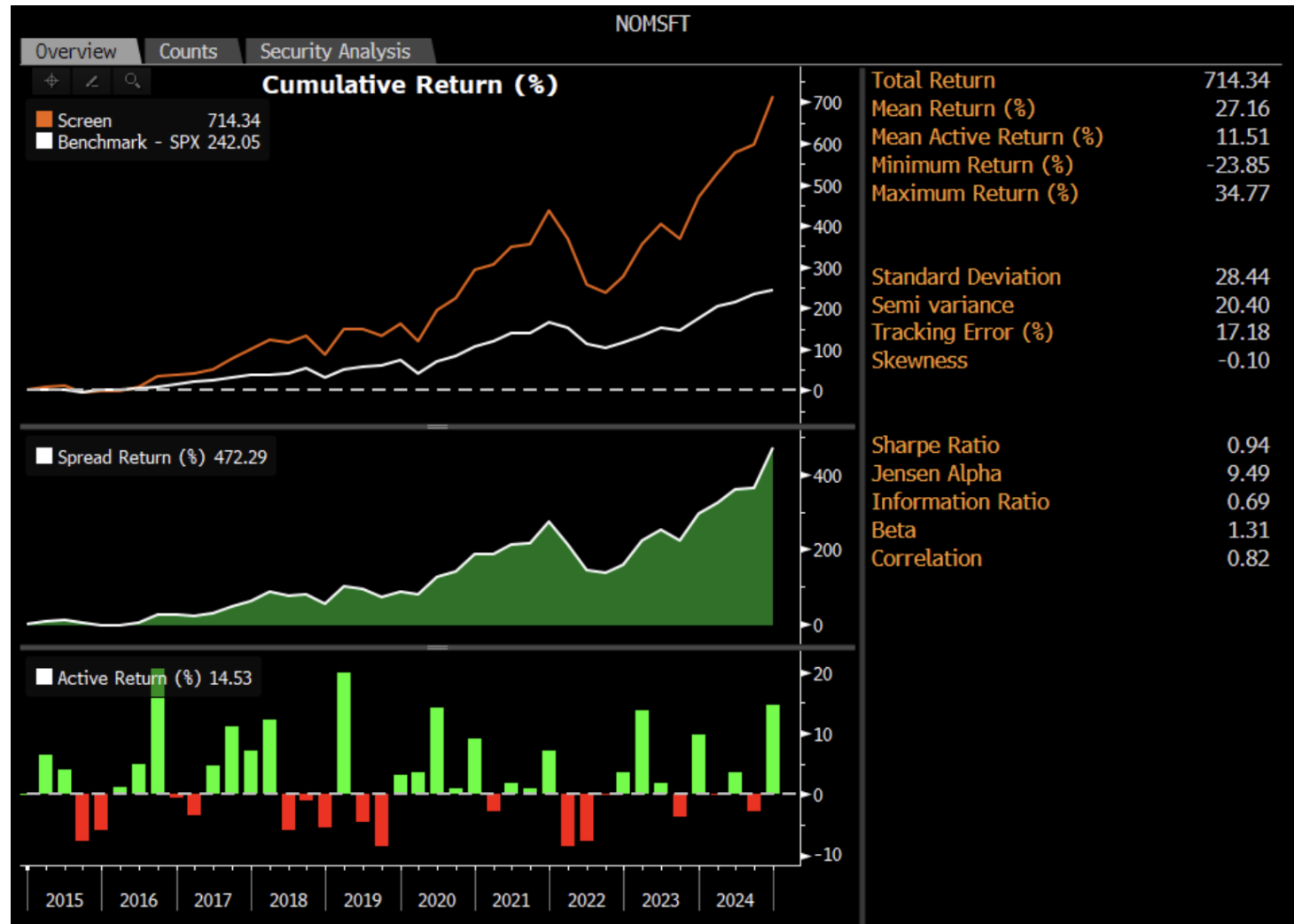


# Exhibit 3: 10 Year Backtest No NVIDIA

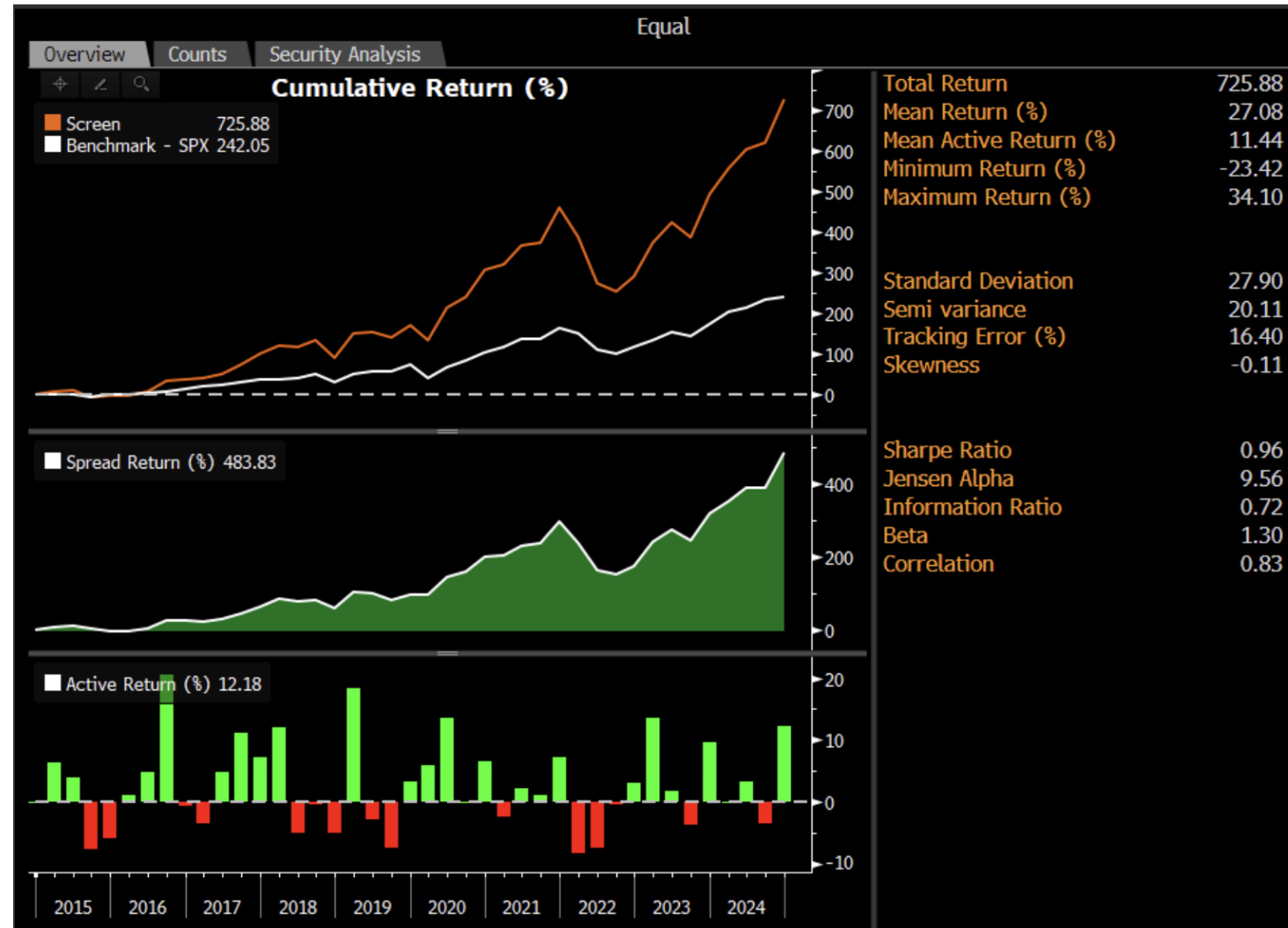




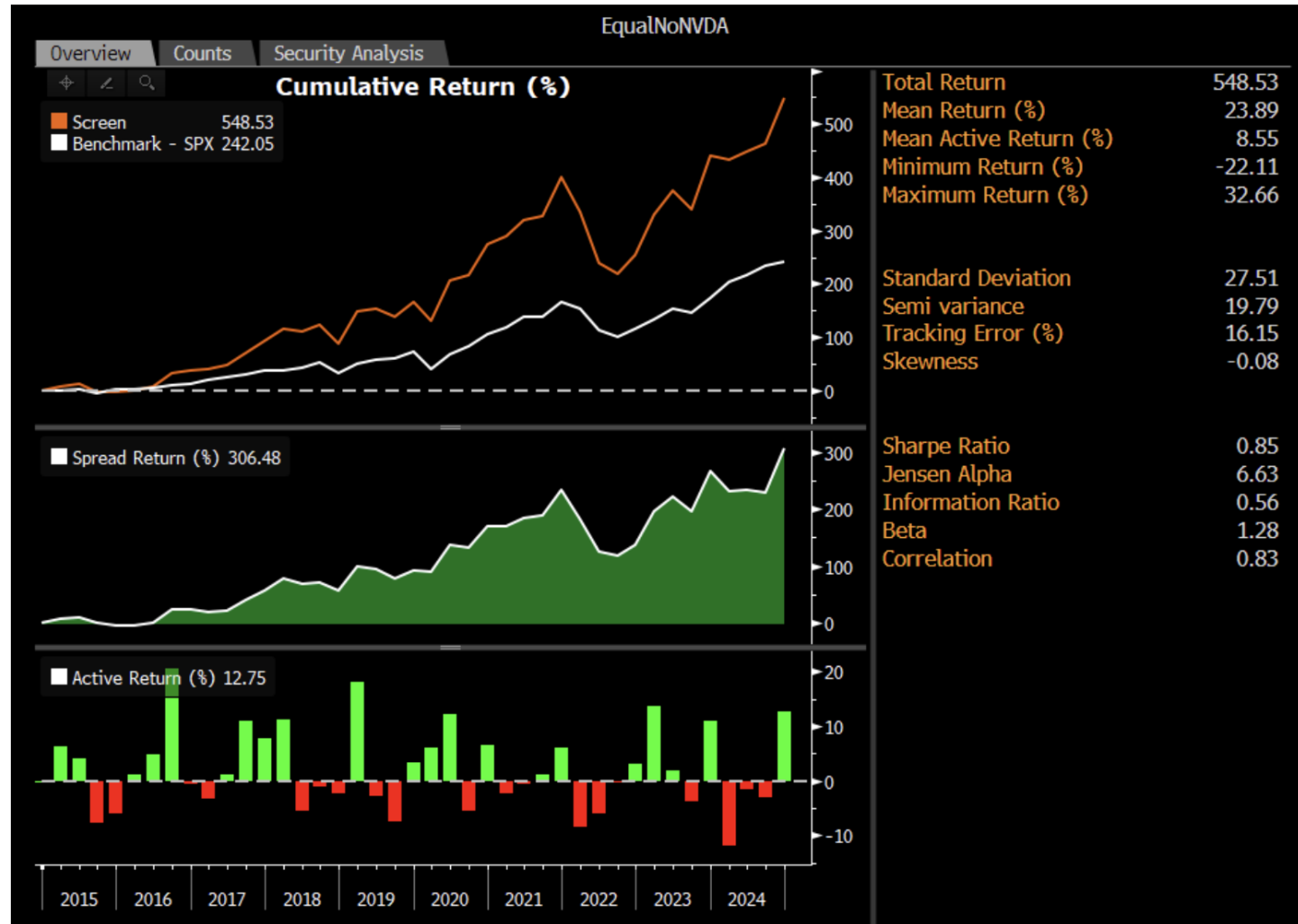
# Exhibit 6: 10 Year Backtest No Microsoft



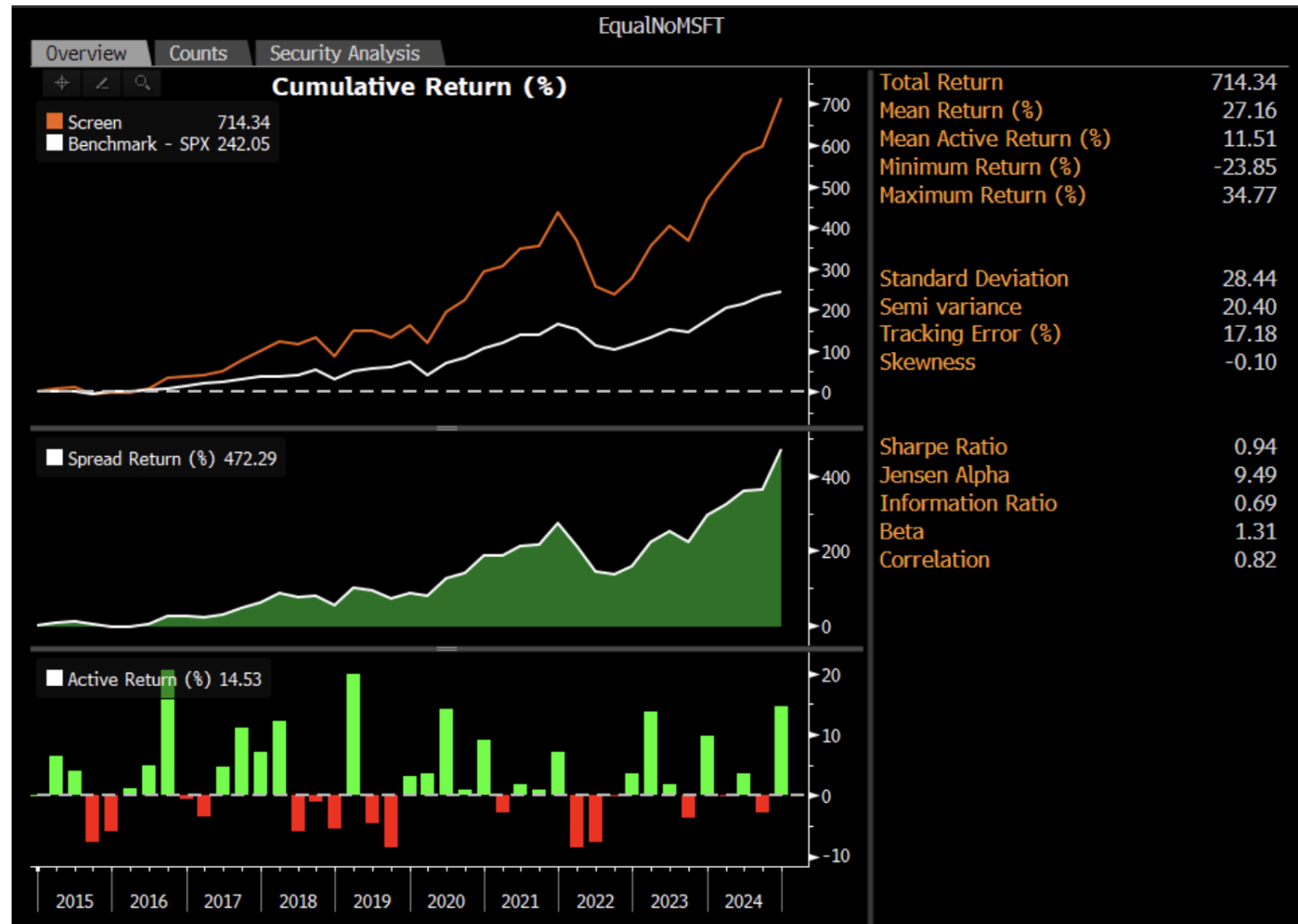
# Exhibit 7: 10 Year Backtest Equally Weighted



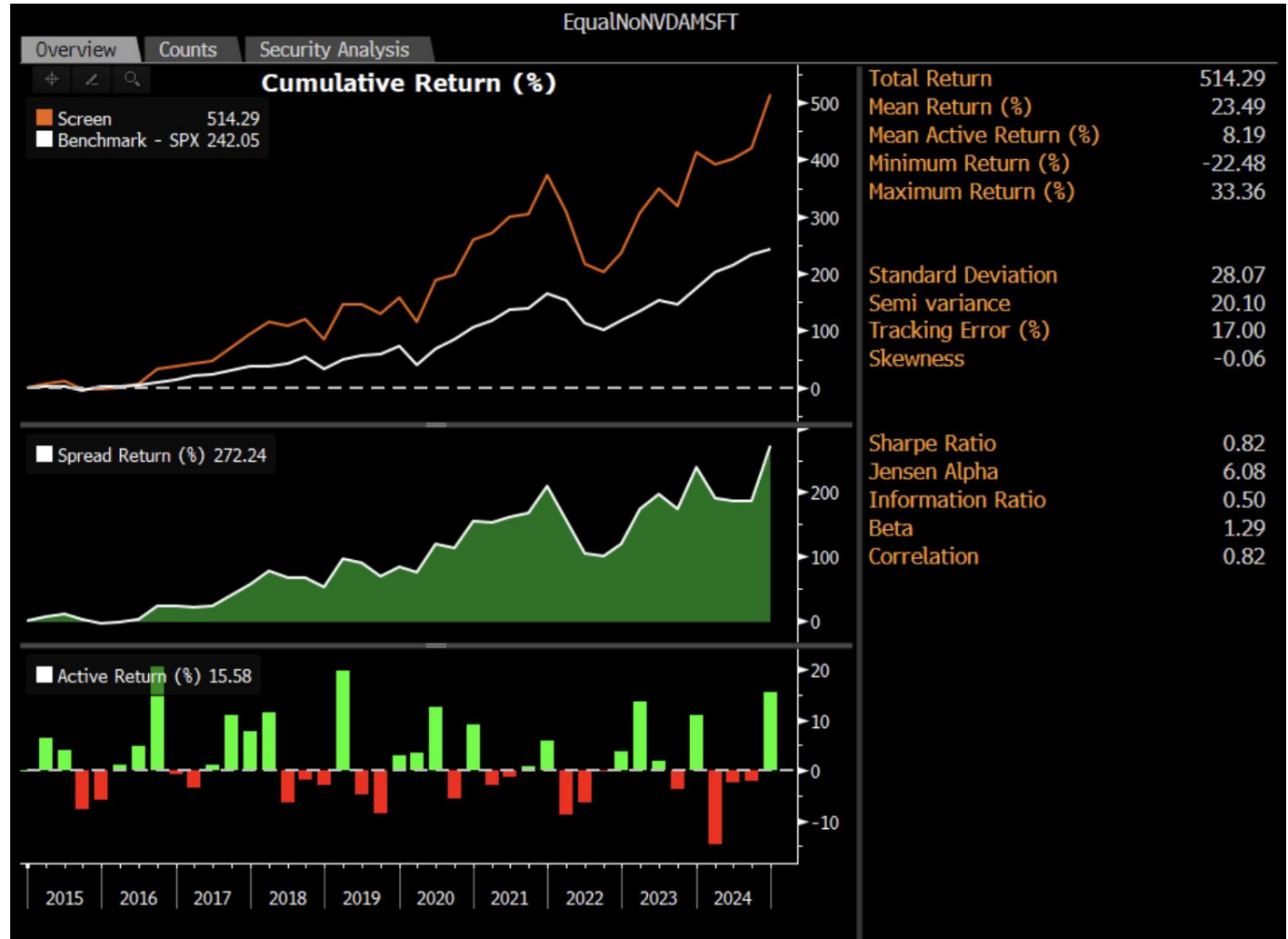
# Exhibit 8: Equally Weighted No NVIDIA



# Exhibit 9: Equally Weighted No Microsoft



# Exhibit 10: Equally Weighted No NVIDIA Or Microsoft





# Exhibit 11: SIF Expected Return MC

Monte Carlo Simulation Results:  
Mean Final Value: \$3,642,081.01  
Median Final Value: \$3,233,033.99  
5th Percentile (VaR): \$1,353,144.73  
95th Percentile: \$7,330,434.82  
Average Max Drawdown: \$0.29  
Sharpe Ratio: \$0.35

