

The background of the slide is a blurred image of a financial market data page. It features various tables and line charts. One prominent chart is titled 'ImgnTech Share Price' and shows a line graph with a shaded area underneath, representing a price range or volatility. The y-axis of this chart is labeled with values 200, 300, and 350. Another chart to the right shows a line graph with a y-axis labeled 18, 19, 20, 21, 22. Text elements include 'Change on day 1.95', 'Change on day 32.30', and 'Based on the constituents of the FTSE 100 index'. The overall color scheme is a mix of greys, blues, and reds, with a large red semi-transparent rectangle overlaid on the center.

Dressed to the Nines

Michael Molenaar, Ved Munot, Judy Ojewia, Madeline Stover

April 6, 2026

Summary

Idea: Strict, fundamental health check applied to cheap stocks to avoid value traps and generate abnormal returns

Origin: "*Value Investing: The Use of Historical Financial Statement Information to Separate Winners from Losers*" Joseph D. Piotroski, Journal of Accounting Research

Strategy: Buy value stocks that score a 9 on a 9-point score built from profitability, leverage, liquidity, and operating efficiency signals

Historical Performance: 336.27% cumulative 10 yr return (vs SPX: 275.40%),
28.42% 1yr return (vs SPX: 17.70%)

Recommendation: Buy \$30K in Milner fund

Effect on Portfolio: Increases Alpha (+.12%) & Sharpe (+.08),
Decreases portfolio Beta (-.05)



What is Piotroski F-Score?

Key Insight

- Financial strength helps identify the winners for value stocks
- By aggregating nine discrete signals of financial health, Piotroski's model identifies firms with improving fundamental trajectories before their recovery is fully recognized and priced by the broader market.

What the Paper Finds

- High F-score value stocks outperform low F-score value stocks
- Improving fundamentals signal future outperformance

Takeaway

- Fewer than 44% of high B/M firms earn positive market-adjusted returns in the two years after portfolio formation. Cheap stocks are not automatically good investments—The financial strength score avoids value traps.



Piotroski's Published Results

Panel A: One-Year Market-Adjusted Returns^b

	Mean	10%	25%	Median	75%	90%	%Positive	n
All Firms	0.059	-0.560	-0.317	-0.061	0.255	0.708	0.437	14,043
F_SCORE								
Low Score	-0.096	-0.781	-0.460	-0.200	0.107	0.548	0.318	396
High Score	0.134	-0.462	-0.236	0.000	0.316	0.757	0.500	1448
High—All	0.075	0.098	0.081	0.061	0.061	0.049	0.063	—
t-stat/(p-value)	3.140	—	—	(0.000)	—	—	(0.000)	—
Bootstrap Rslt (p-value)	2/1000 (0.002)	0/1000 (0.000)	0/1000 (0.000)	0/1000 (0.000)	2/1000 (0.002)	126/1000 (0.126)	—	—
High—Low	0.230	0.319	0.224	0.200	0.209	0.209	0.182	—

Source: *Value Investing: The Use of Historical Financial Statement Information to Separate Winners from Losers* p16

High Score = Low price to book companies with a Piotroski F Score of 8 or 9

Table 4: One-Year Market-Adjusted Buy-and-Hold Returns to a Value Investment Strategy Based on Fundamental Signals by Size Partition

	Small Firms			Medium Firms			Large Firms		
	Mean	Median	n	Mean	Median	n	Mean	Median	n
All Firms	0.091	-0.077	8302	0.008	-0.059	3906	0.003	-0.028	1835
F_SCORE									
Low Score	-0.091	-0.209	266	-0.094	-0.232	96	-0.132	-0.066	34
High Score	0.179	-0.007	895	0.079	0.024	392	0.020	-0.045	161
High—All	0.088	0.070	—	0.071	0.083	—	0.017	-0.017	—
t-statistic/(p-value)	2.456	(0.000)	—	2.870	(0.000)	—	0.872	(0.203)	—
High—Low	0.270	0.202	—	0.173	0.256	—	0.152	0.021	—
t-statistic/(p-value)	4.709	(0.000)	—	2.870	(0.000)	—	1.884	(0.224)	—

Source: *Value Investing: The Use of Historical Financial Statement Information to Separate Winners from Losers* p19



Piotroski F-Score Fundamental Signals

Criteria		Definitions
Profitability	ROA > 0	TTM Return on Assets
	CFO > 0	TTM Cash From Operations
	Δ ROA > 0	TTM Return on Assets (PoP Latest Q > -4Q)
	CFO > NI	TTM Cash From Operations > TTM Net Income
Leverage, Liquidity, & Source of Funds	Δ LEVERAGE < 0	TTM Total Debt to Total Assets (PoP Latest Q < -4Q)
	Δ LIQUIDITY > 0	TTM Current Ratio (PoP Latest Q < -4Q)
	Δ EQUITY ISSUED \leq 0	No new shares issued (PoP Latest Q \leq -4Q)
Operating Efficiency	Δ MARGIN > 0	TTM Gross Margin (PoP Latest Q > -4Q)
	Δ ASSET TURNOVER > 0	TTM Asset Turnover (PoP Latest Q > -4Q)
Bottom 20% P/B ratio		



Filtering Criteria

Security Universe	1624752
Trading Status: Active	587630
Security Attributes: Show Primary Security of company only	84238
Exchanges: United States	15169
Sectors (BICS): -Financials	13291
Current Market Cap > 500 Million	3499
Latest Quarterly Return on Assets > 0	1455
T12M Cash From Operations > 0 Million	1421
Period over Period Growth of ROA from 4 quarter(s) ago to latest quarter > 0	746
ACCRUAL: CFO > NI	637
Period over Period Growth of Debt/Assets from 4 quarter(s) ago to latest quarter < 0	404
Period over Period Growth of Curr Ratio from 4 quarter(s) ago to latest quarter > 0	205
Period over Period Growth of Shares Out from 4 quarter(s) ago to latest quarter <= 0	101
Period over Period Growth of GM T12M from 4 quarter(s) ago to latest quarter > 0	74
Period over Period Growth of Ast TO from 4 quarter(s) ago to latest quarter > 0	50
Top 20 Sequential Percentile Rank - Lower is Better(Current Price to Book Ratio)	10



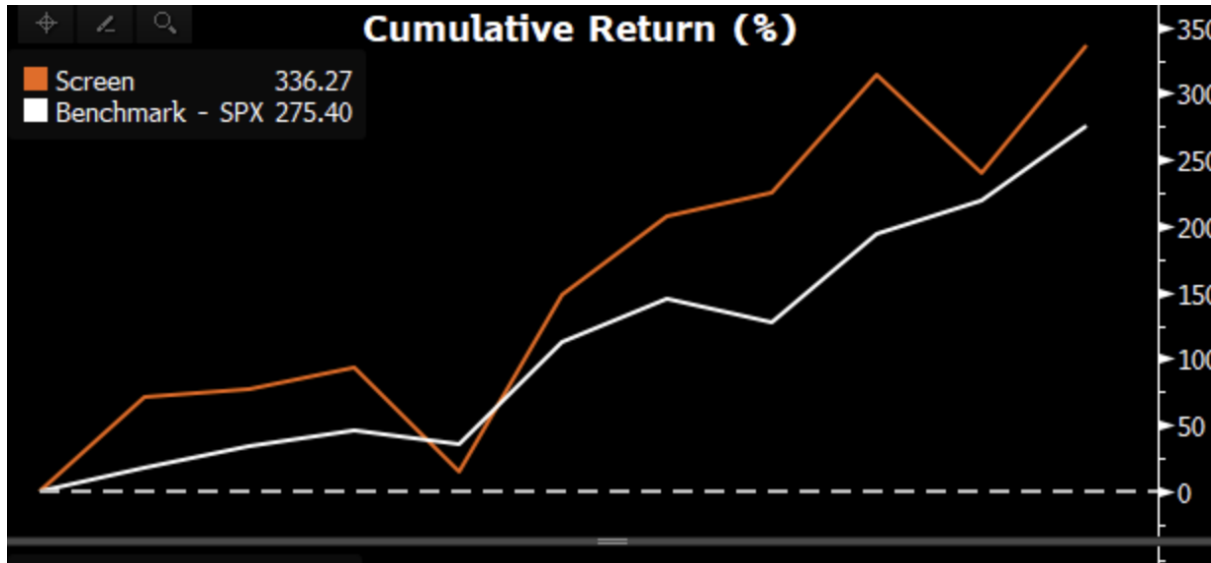
Backtesting Implementation Details

Back Testing Method	Bloomberg
# of Stocks	10
Weighting Scheme	Equal-weight
Rebalancing Frequency	Annual
Years Back-Tested	10, 5, 3, 1 yr
Currency	USD

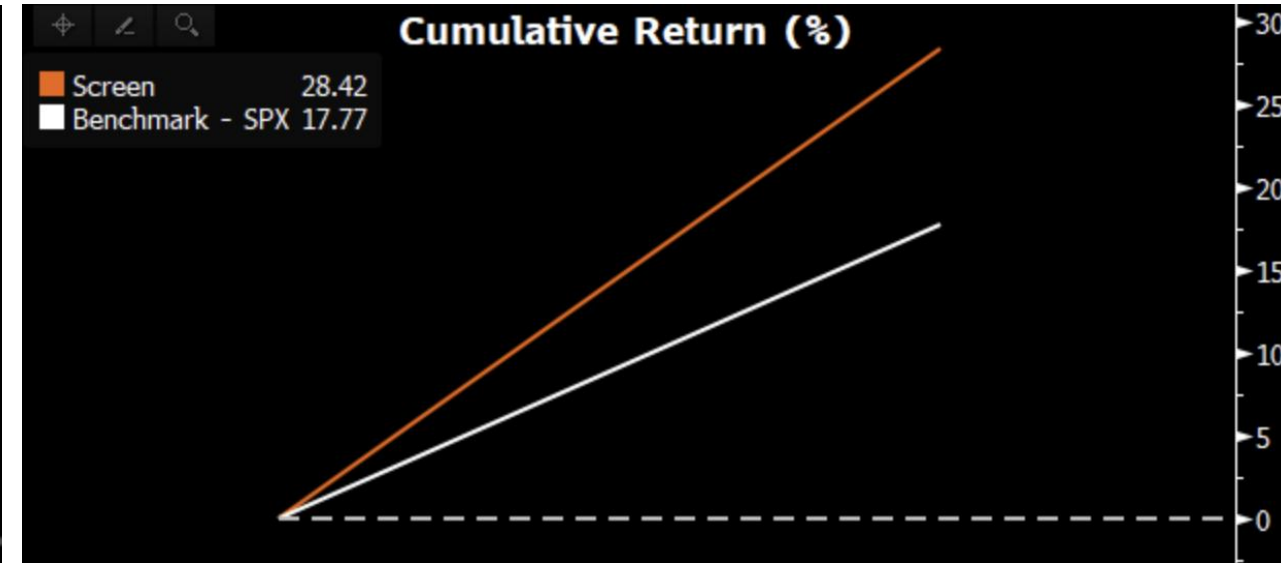


Backtesting Results - Performance

10-year



1-year



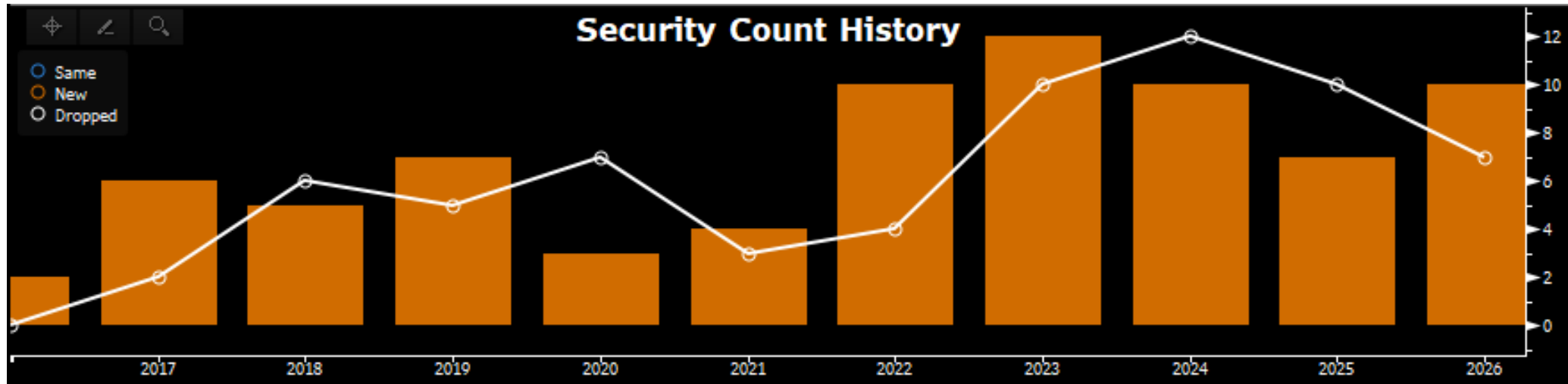
	<u>Annualized</u>	Return(%)	α^*	β^*	σ (%)	Sharpe	Treynor	Max DD(%)	Info Ratio*	Idio. Risk(%)
10 Year F-Score		15.87%	4.07	0.98	25.58	0.68	0.17	-55.2%	0.17	20.93%
1 Year F-Score		28.42%	14.11	0.90	24.02	1.18	0.27	-30%	0.59	17.73%
10 Year SPX		14.15%	--	1	15	0.69	0.06	-33.9%	--	--
1 Year SPX		17.77%	--	1	18	1.2	0.21	-18.9%	--	--



10 YR Monthly Returns



Backtesting Results – Stock Turnover



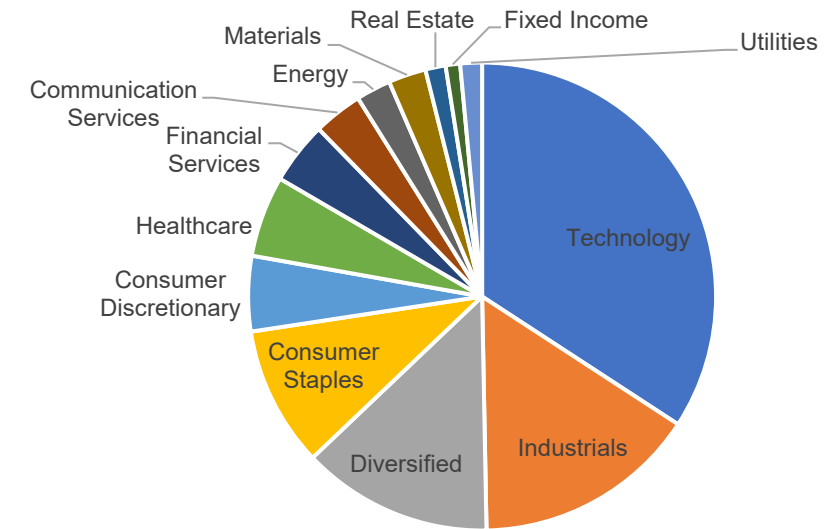
- 100% Turnover in each rebalancing due to annual rebalancing and non-permanent accounting improvement metrics



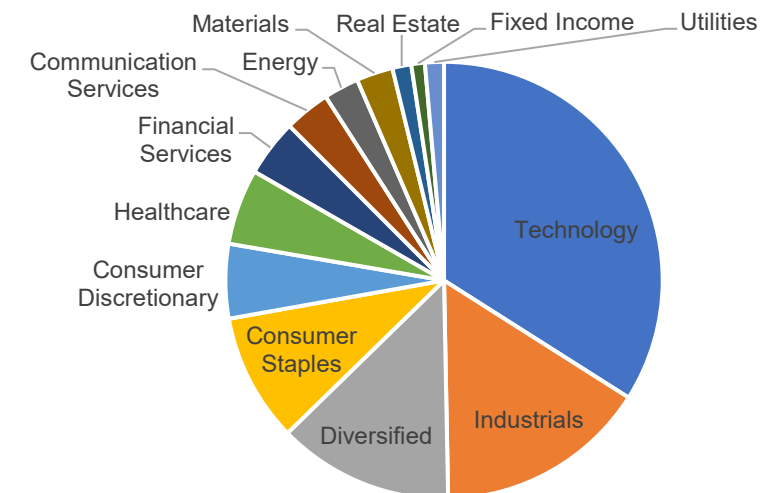
Effect on the Portfolio

	Existing Portfolio	New Portfolio
Beta	1.01	0.96
Sharpe	1.02	1.10
Standard Deviation	0.88%	1.20%
Alpha	5.59%	5.71%

Old Portfolio Sector Allocation



New Portfolio Sector Allocation



Backtesting Results - Characteristics

<u>10-Year Analysis</u>	Mean	Min	25%	Median	75%	Max
Market Cap (\$Millions)	14,305	513	1650	3323	8929	346110
P/E Ratio	14.43	0.82	6.54	12.44	18.54	51.07
Monthly Trading Volume (\$Millions)	6.66	.001*	0.32	1.01	3.84	28.32
Share Price (\$)	60.93	5**	24.13	39.92	77.78	596.94

*Only 4 out of 74 stocks in strategy's history had a MTV lower than \$100,000

**Only 4 out of 74 stocks in strategy's history had a Share Price at repurchase date <\$10



Recommended Purchases

Name	Ticker	P/E Ratio	Monthly Trading Volume (\$M)	Average Bid-Ask Spread (%)	Market Cap (\$B)	Share Price (\$)	# of Shares	Total Value (\$) (Equally Weighted)
ANTERO RESOURCES CORP	AR	24.67	6.42	0.06	12.48	40.45	74.17	3000
QORVO INC	QRVO	17.34	1.34	0.18	7.30	78.70	38.12	3000
SIGNET JEWELERS	SIG	8.97	1.13	0.43	3.40	84.85	35.36	3000
V2X INC	WX	24.56	0.63	0.45	2.18	69.75	43.01	3000
HILLMAN SOLUTION	HLMN	34.41	2.59	0.13	1.58	8.04	373.13	3000
DXC TECHNOLOGIES	DXC	8.03	1.80	0.17	2.15	12.66	236.97	3000
LSB INDUS INC	LXU	29.88	2.08	0.20	1.07	14.91	201.21	3000
PACIRA BIOSCIENCES	PCRX	51.30	0.88	0.31	0.92	22.71	132.1	3000
NWPX INFASTRUCTURE	NWPX	21.13	0.12	1.05	0.76	79.68	37.65	3000
MOVADO GROUP	MOV	19.82	0.16	0.56	0.52	23.77	126.21	3000



Counter Arguments

- Alpha may be arbitrated away
- The criteria are binary and oversimplified
 - More recent metrics could replace current replace, but the original metrics still hold in our backtest
- 10-Qs are unaudited compared to 10-Ks
 - To counter this, all metrics are T12M, aggregating the previous 4 reports



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Recommendation: Buy \$30k in Milner Fund

Effect on Portfolio – Increases Alpha, Sharpe, decreases Beta by 0.05

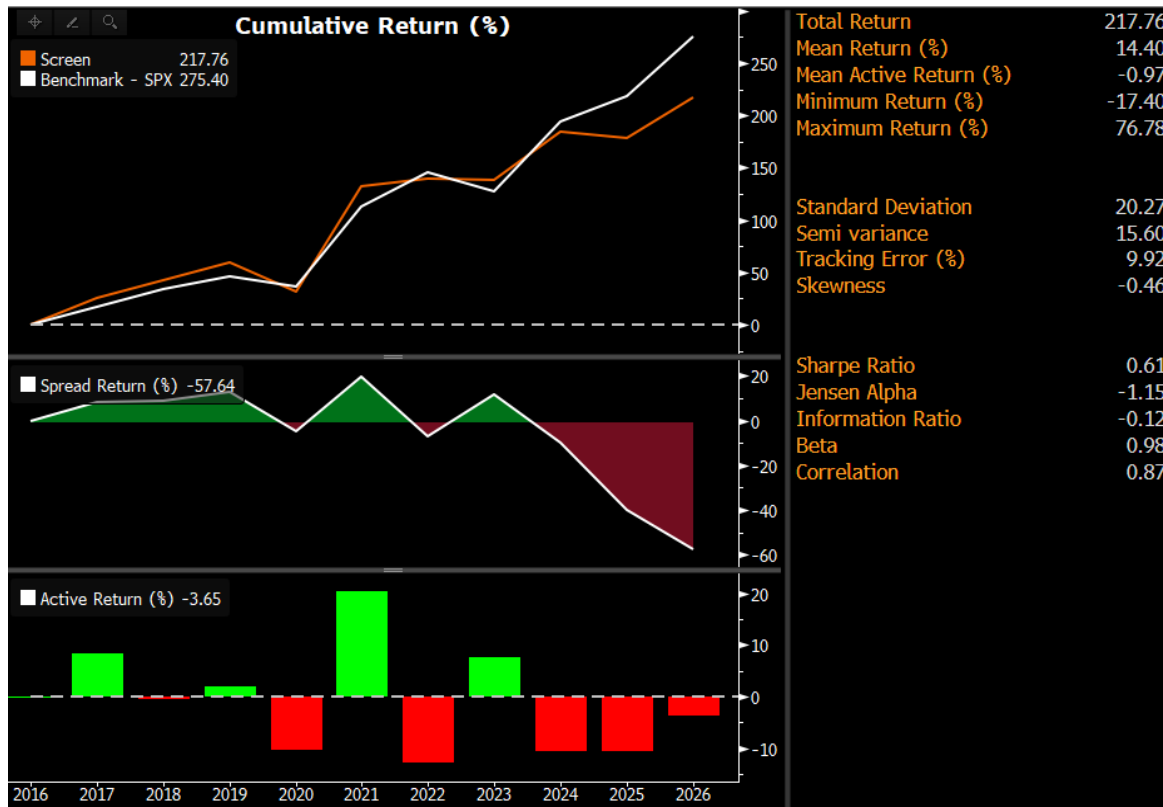


Appendix



Exhibit 1: 10yr No P/B, Equally Weighted, Annual Rebalancing

10-year: Sharpe: 0.61, Alpha: -1.15



1-year: Sharpe: 0.67, Alpha: -1.03

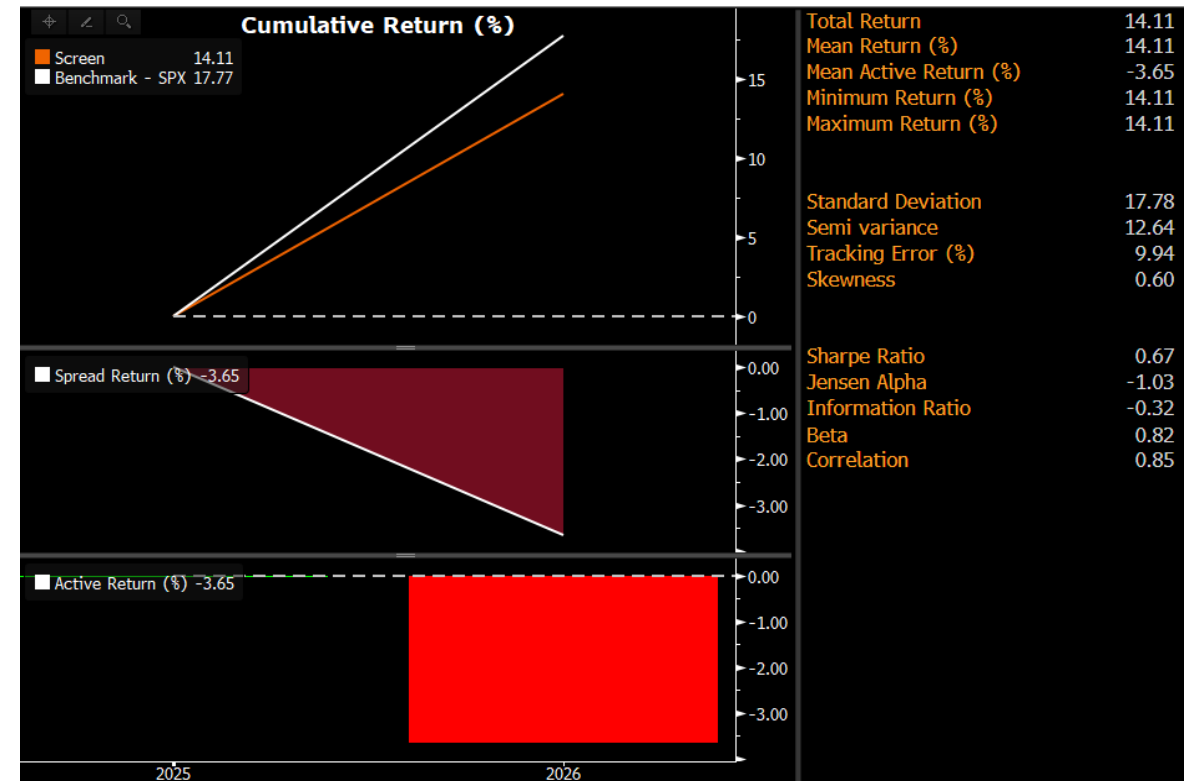
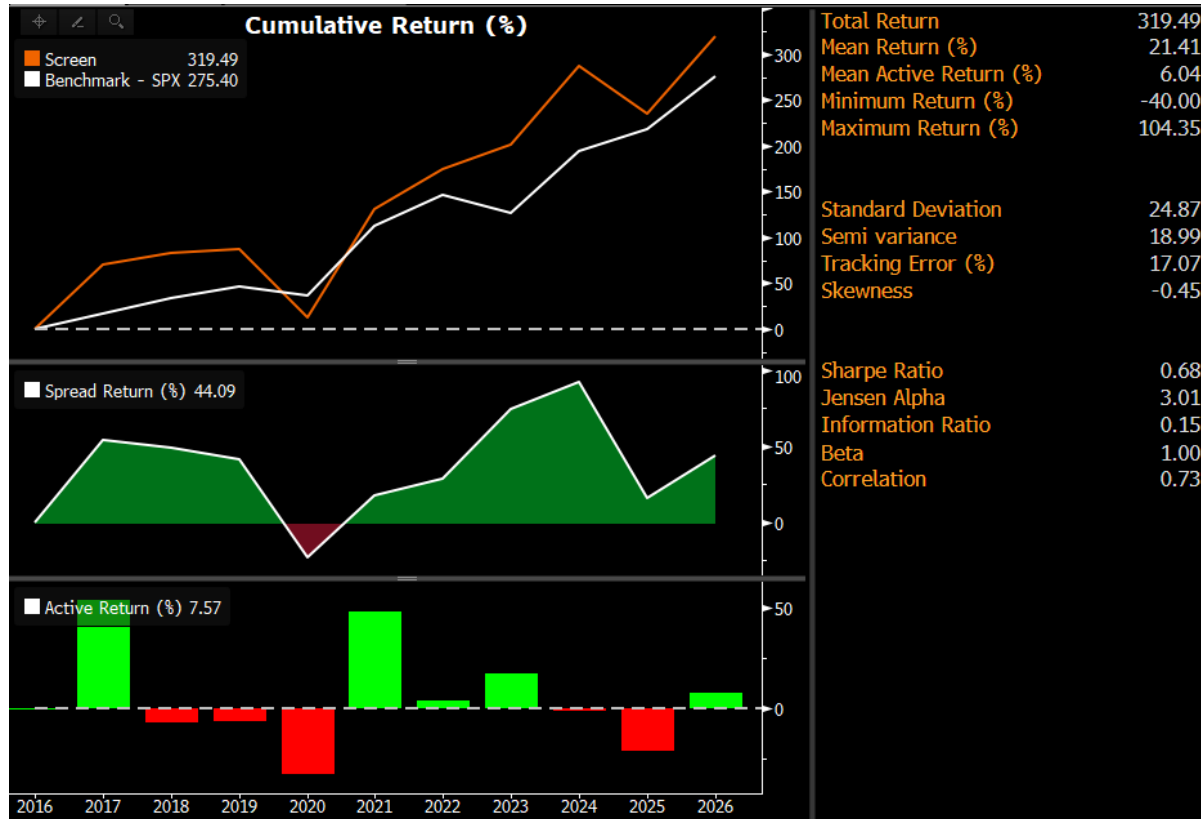


Exhibit 2: 10yr Different P/B Percentiles, Equally Weighted, Annual Rebalancing

10-year Bot 30 pctl. P/B: Sharpe: 0.68, Alpha: 3.01



10-year: Bot 50 pctl. P/B: Sharpe 0.58, Alpha: -0.60

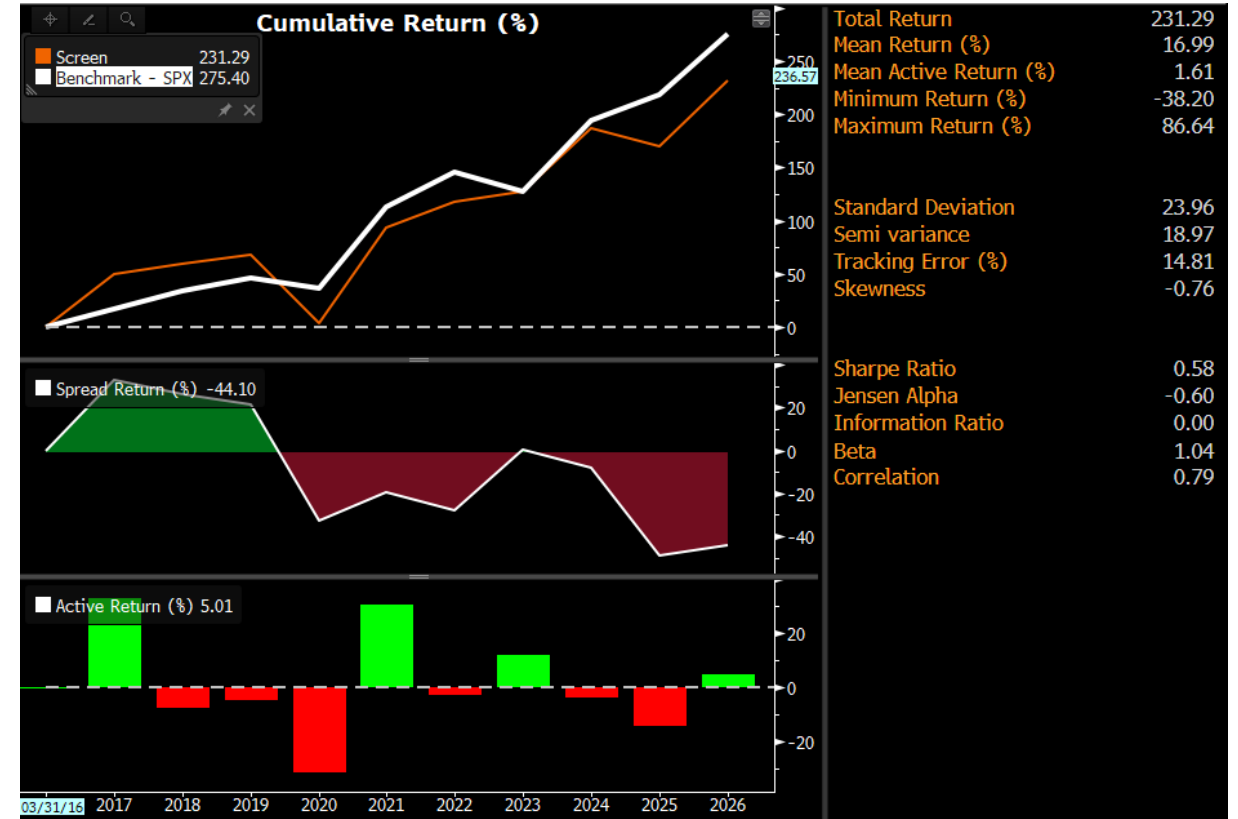
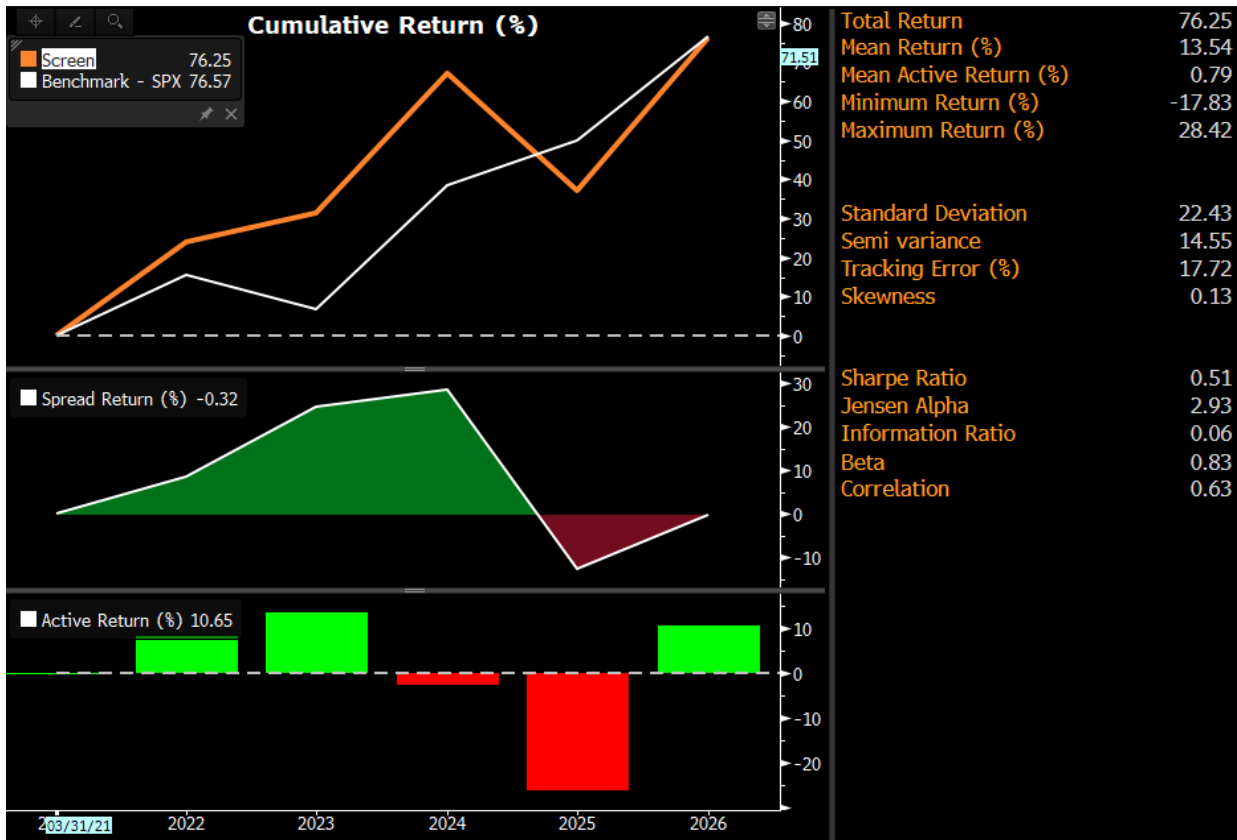


Exhibit 3: 5yr & 3yr Bottom 20pctl. P/B, Equally Weighted, Annual Rebalancing

5-year: Sharpe: 0.51, Alpha: 2.93



3-year: Sharpe: 0.37, Alpha: -4.39

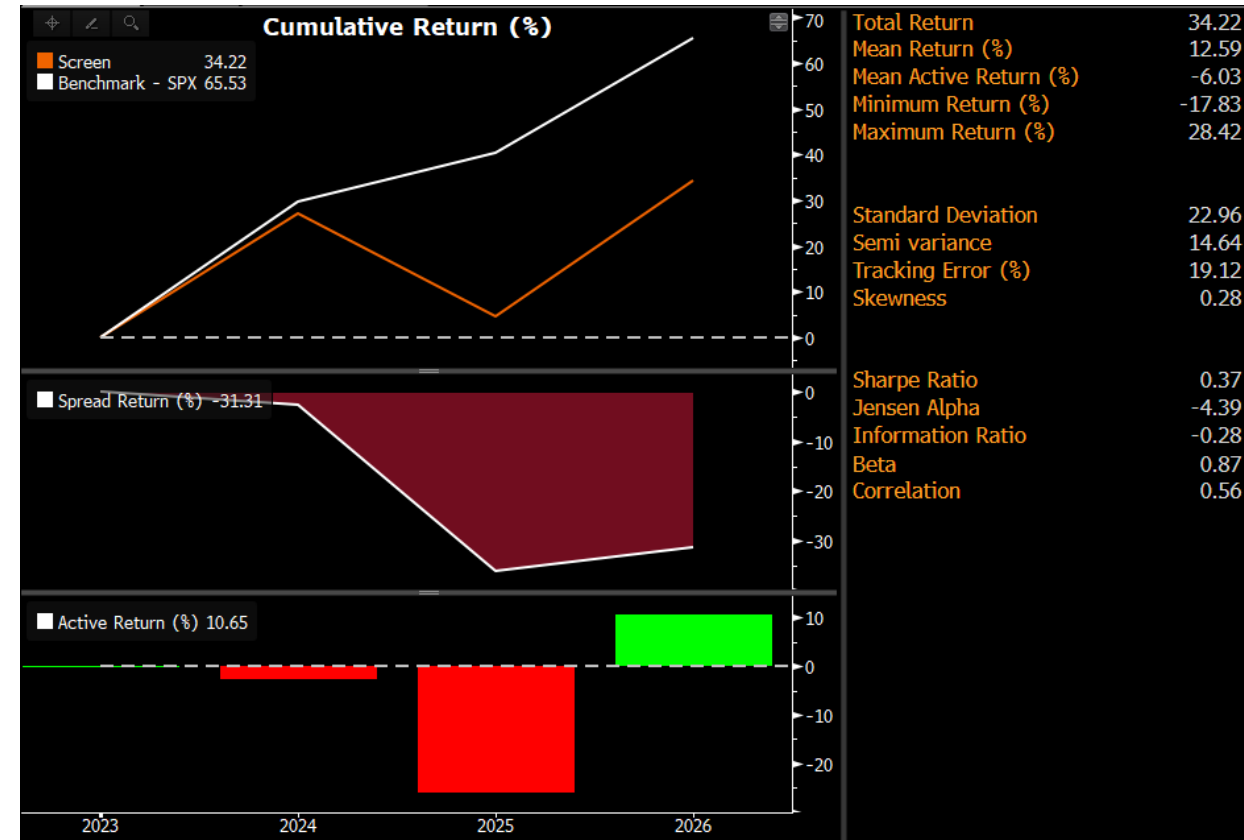
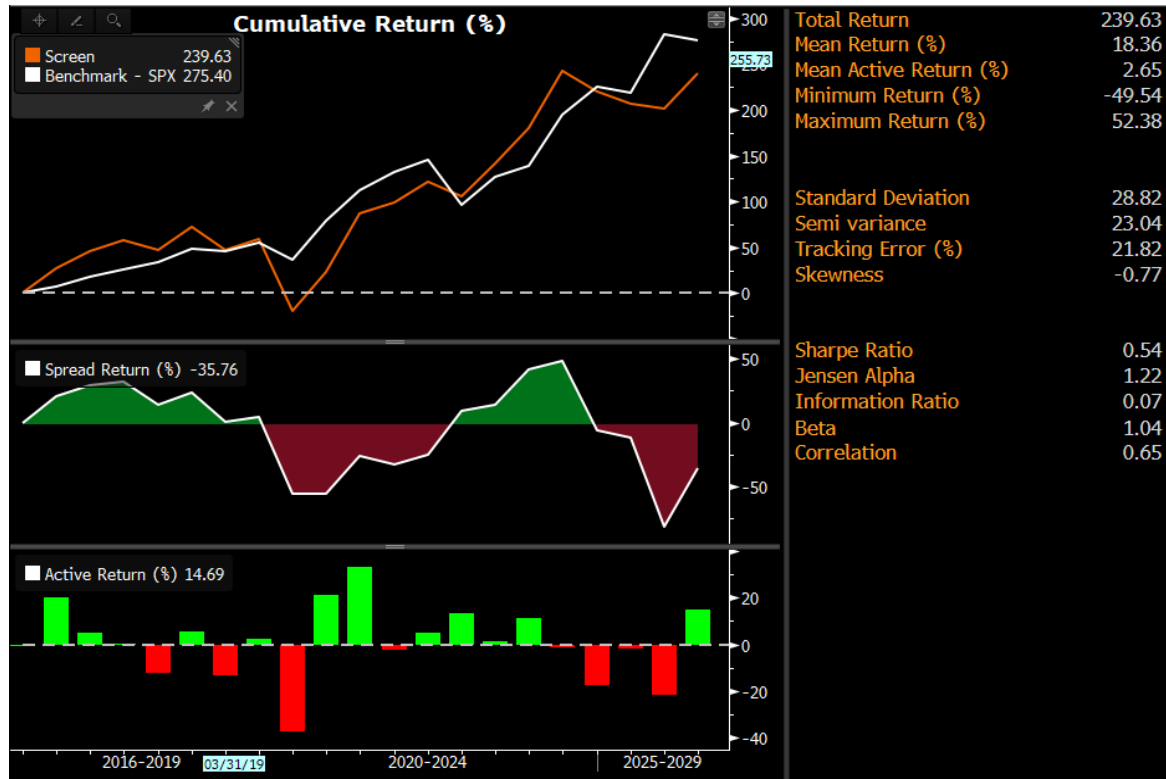


Exhibit 4: Bottom 20pctl. P/B, Equally Weighted, Semi-Annual Rebalancing

10-year: Sharpe: 0.54, Alpha: 1.22



1-year: Sharpe: 0.42, Alpha: -4.51

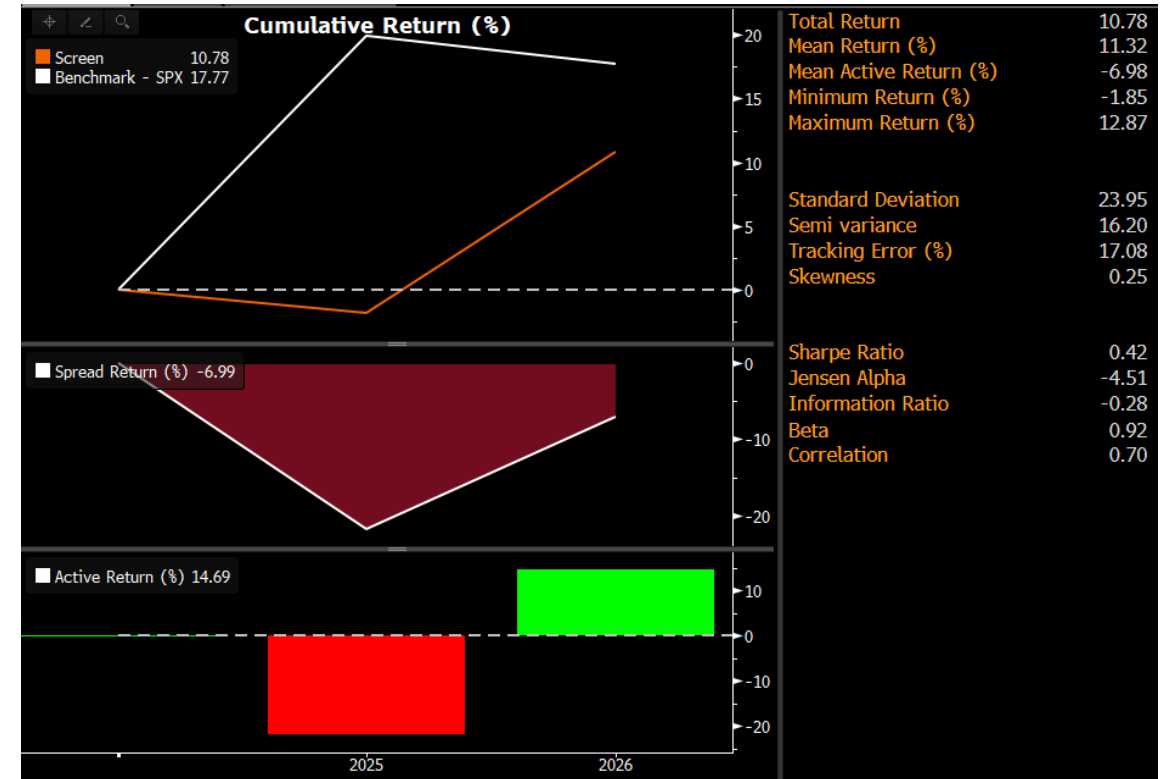
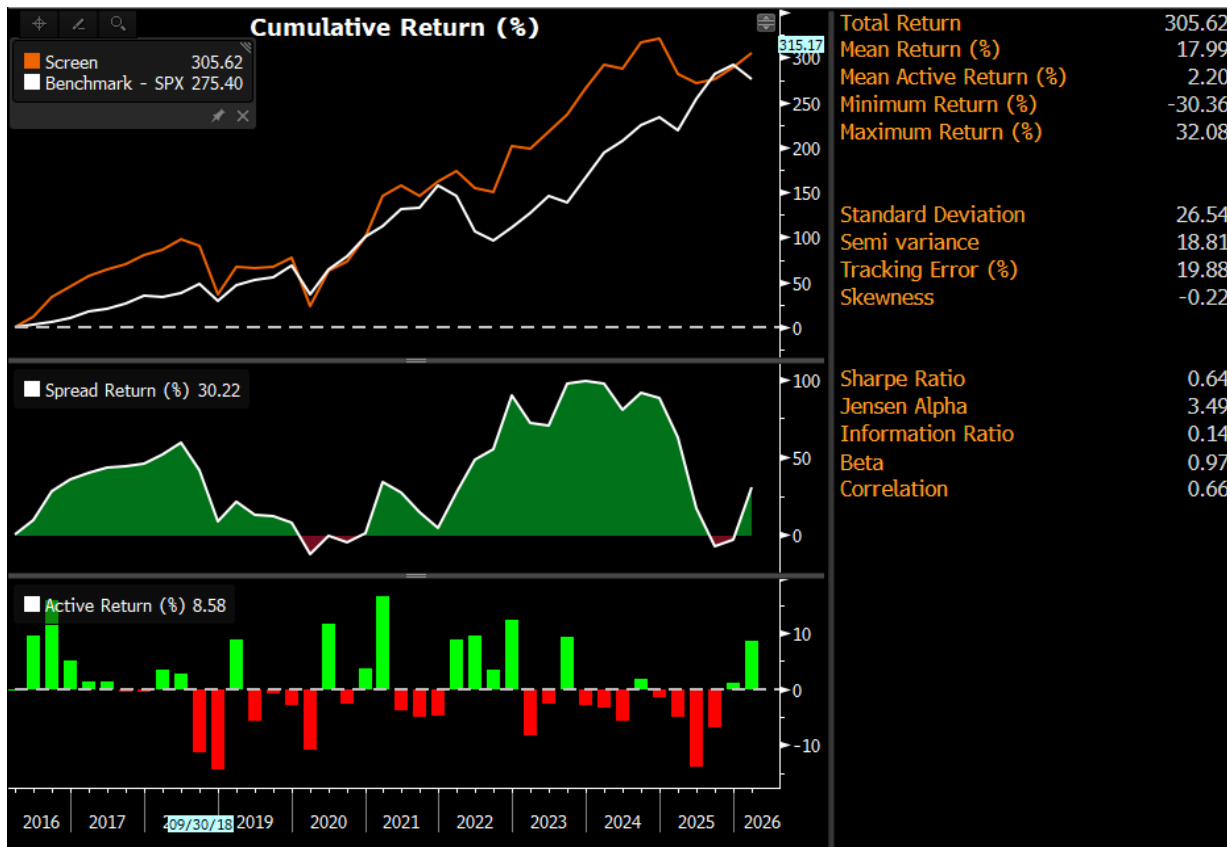
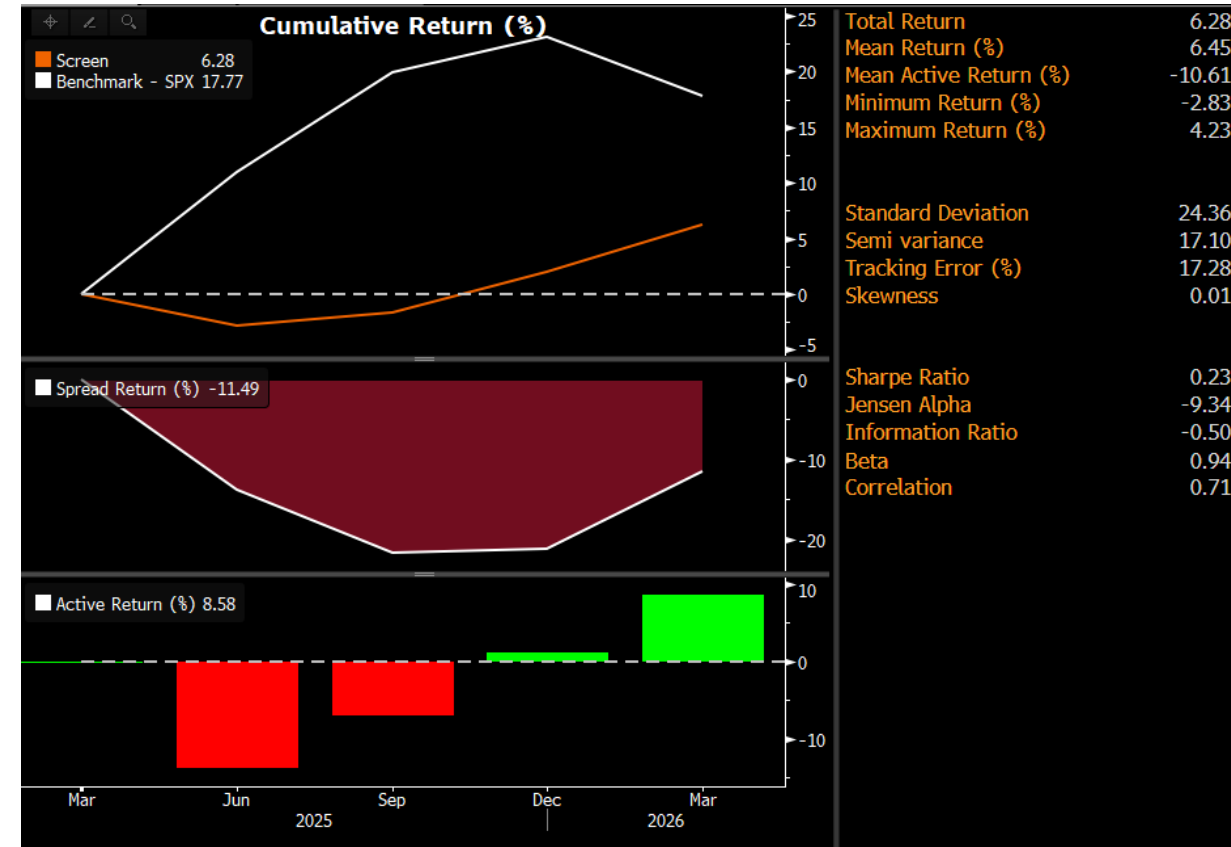


Exhibit 5: Bottom 20pctl. P/B, Equally Weighted, Quarterly Rebalancing

10-year: Sharpe: 0.64, Alpha: 3.49



1-year: Sharpe: 0.23, Alpha: -9.34



Annual Rebalancing > Shorter Frequencies

Allowing for Value Convergence:

- The F-Score is a **Value filter**, not a Momentum trigger.
- Research suggests it takes 6–18 months for the market to recognize and re-price "distressed" stocks with improving fundamentals

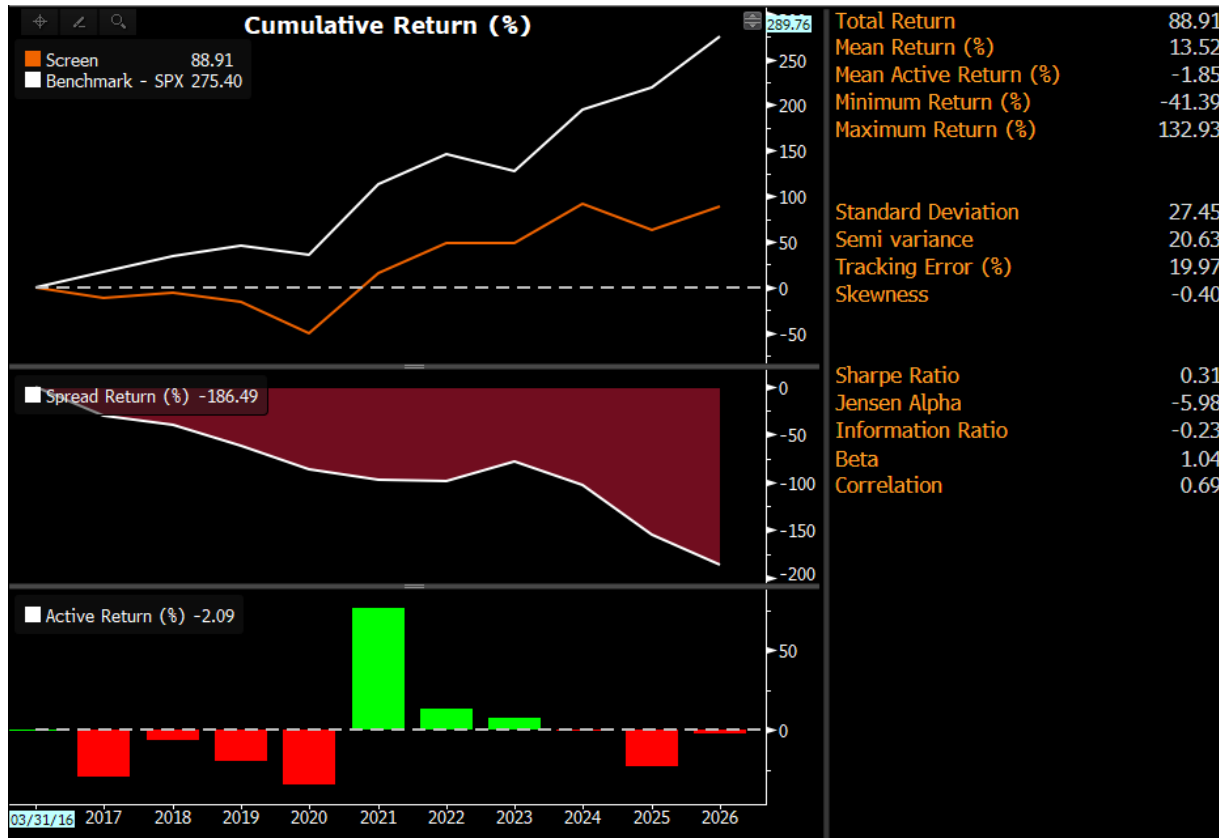
Mitigates False Negatives:

- Higher frequency rebalancing can force the sale of a winning stock due to a temporary quarterly score dip (e.g., a 9 dropping to a 8), only for the fundamentals to recover in the following 90 days

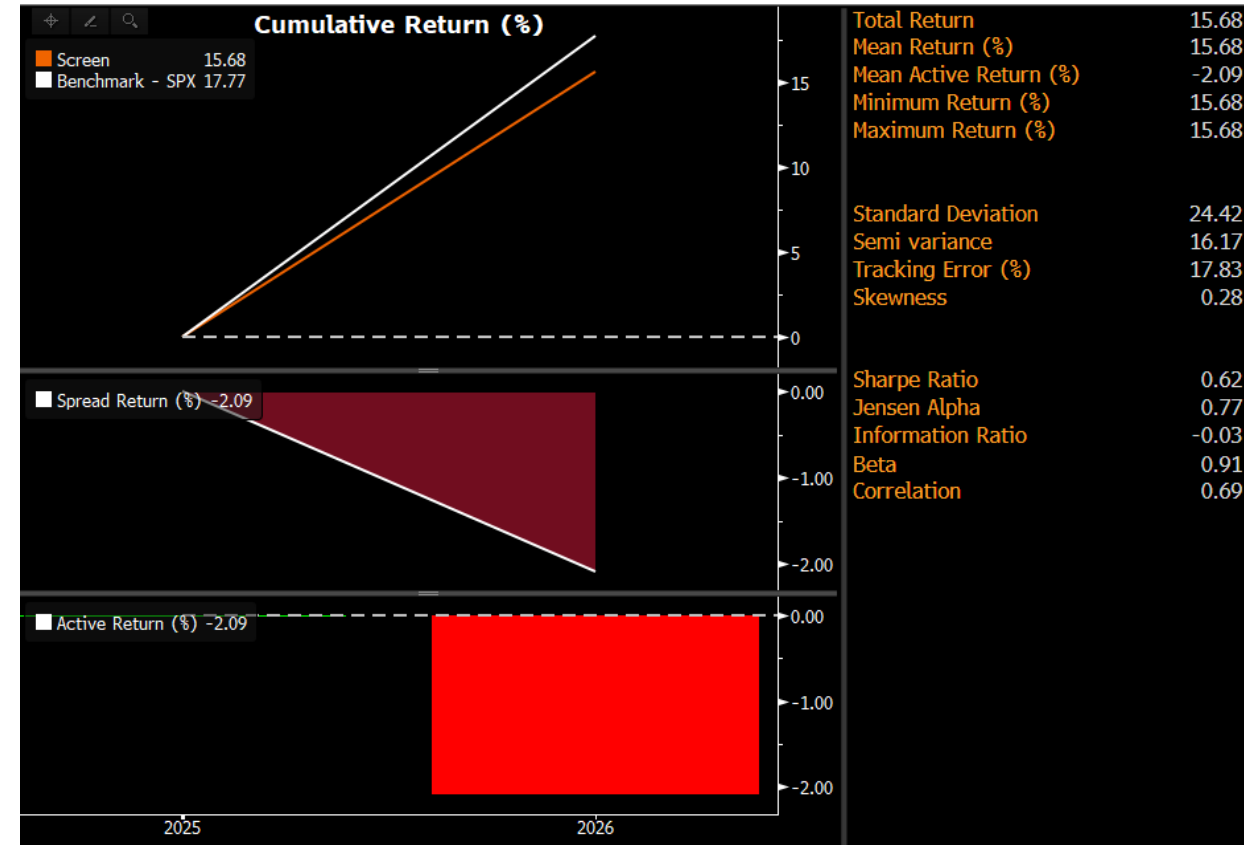


Exhibit 6: Bottom 20pctl. P/B, Equal-Weight, Annual Lookback Window: Latest Year to Y-1

10-year: Sharpe: 0.31, Alpha: -5.98



1-year: Sharpe: 0.62, Alpha: 0.77



Latest Q vs Q-4 | Latest Year vs Y-1

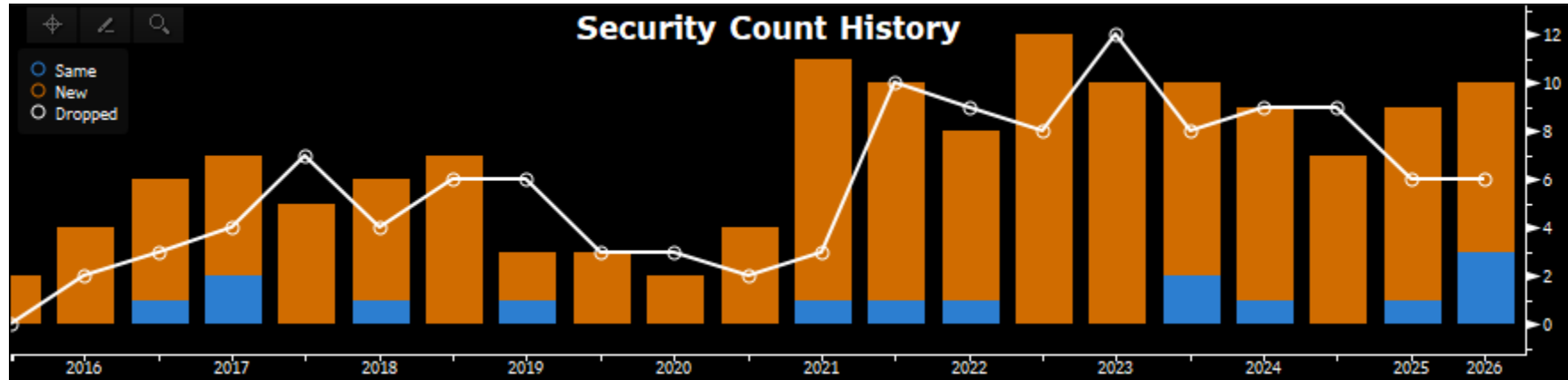
T12M Methodology: Quarterly vs. 4 Quarters Ago

- **Faster Signal Velocity:** Replaces stale, 15-month-old annual data (10-K) with fresher, <90-day quarterly insights
- **Early Pivot Detection:** Spots fundamental turnarounds (sudden margin or debt changes, etc.) 6–9 months before traditional annual-only investors.
- **Seasonal Neutrality:** Uses LTM Latest Q vs. LTM Q-4 for direct comparison, stripping out cyclical/holiday noise
- **Filtered Accounting Noise:** Using T12M window still dilutes one-off anomalies while using quarterly signals, providing a smoother and more reliable health signal



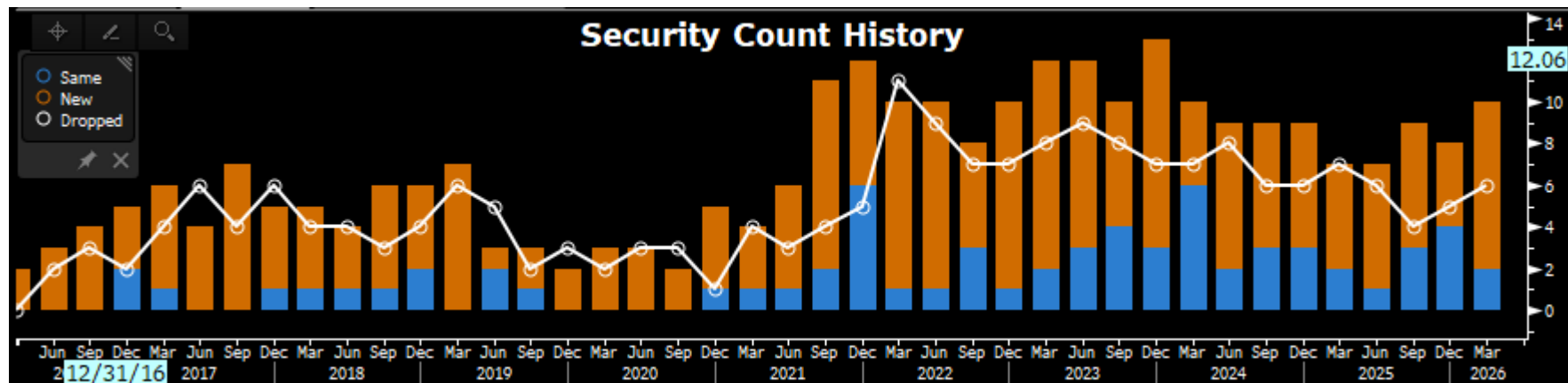
Exhibit 6: Security Count by Rebalance Freq.

Semi-Annual Rebalancing



Avg.
Turnover
91.23%

Quarterly Rebalancing



Avg.
Turnover
80.72%



Appendix - Sources

Piotroski Original Paper:

https://www.ivey.uwo.ca/media/3775523/value_investing_the_use_of_historical_financial_statement_information.pdf

Quant Investing: Crunching Numbers: Piotroski F-Score's Back-Tested Triumph

<https://www.quant-investing.com/blog/piotroski-f-score-back-test>

