

Validation report: a gross-profitability screen on the S&P 500

Report specimen

What the validation found on the screen: whether its documented record reproduces, where it holds, and in what range of cost, capital and market state it can be relied on.

THE MODEL

A quality screen on the S&P 500 as it stood on each date: every member with a usable filing is ranked on trailing-twelve-month gross profit over total assets, the measure of Novy-Marx (2013), and the twenty highest are held at equal weight, re-selected every quarter. The documentation states the record as a comparison against the same construction ranked on return on equity, the quality measure retail screeners ship with, both in price returns against RSP, the equal-weight S&P 500 fund, over twenty one-year windows anchored on each first of January from 2006 to 2025.

THE CLAIM, AND WHAT WAS FOUND

The documentation states 9.43 percent a year for the screen, 9.76 for the ROE screen and 7.51 for RSP. The rebuild on the registered record reproduces those figures within a tenth of a point (section D). One price series in the record failed the identity test and is excluded, its slot carried at cash in the eight windows it was held; on that corrected record, the basis of every figure in this report, the screen made 9.24 percent a year against 9.74 for the ROE screen and 7.51 for RSP, a dollar becoming \$5.86, \$6.42 and \$4.26. The two screens agree on 2.8 names of twenty at an average re-selection and arrive half a point apart in price; the screen led RSP in 11 of 20 windows and led ROE in 12 of 20. With the dividends of the same books added (section E) the screen made 10.60 a year, the ROE screen 12.32 and RSP 9.51: the two screens no longer arrive together, the difference being the ROE book's dividends, and the comparison against ROE changes sign with the decade, behind it by 2.8 points a year in 2006 to 2015 and ahead by 1.9 in 2016 to 2025.

THE OPERATING RANGE

Cost, on total return: at the turnover recorded, 11 percent of the book replaced a quarter against 33 for ROE, the lead over RSP halves at 65 basis points a side and is gone at 129, and the ROE screen's lead, paid for by three times the turnover, is gone at 95. Regime, on total return: the lead over RSP is 0.2 points a year in the first decade and 2.0 in the second; without 2008 and 2009 it is 0.1; by market state a drawdown lead, 11.5 points a year with RSP ten percent or more under its high, -3.0 otherwise. Concentration: twenty names at five percent; the largest sector holds 25 to 40 percent of the book; banks and insurers never enter it. Capacity: with impact priced by the square-root law on the vendor's daily volumes, the total-return lead over RSP is gone at about 447 million dollars of capital (199 to 1,788 million across the impact band; 1,188 million on the price-return lead), and the binding trades are the entries into the smallest names of the book.

RECOMMENDED ACTION

The screen is validated for use as a large-cap quality screen within the operating range above: at capital up to about 447 million dollars, at a realised cost below 65 basis points a side, and with its claim stated on total return and by period, where its lead over the equal-weight fund is 1.09 points a year over twenty years, earned in the second decade and in drawdowns, and where the ROE screen it is compared with is ahead by 1.72 points a year. Two conditions attach: the record is stated for the priced universe (section A), and the screen is re-run on the current data vintage before a decision rests on it, with the vintage recorded. The documentation is completed on the four settings of section B, and the triggers of section J are monitored from the first quarter of use.

FINDINGS, CLASSIFIED, WITH THE ACTION EACH REQUIRES

The classification follows the methodology: Critical means the stated result cannot be reproduced or rests on information not available at the time; High that it holds as documented but reverses inside the plausible range of live implementation; Medium that it is concentrated in a period, a component or a small number of positions in a way the documentation does not disclose; Low that the result stands but the documentation, the reproducibility or the record falls short; Observation that nothing is affected. Two High findings, two Medium, two Low and one Observation; the record reproduces the documented claim from its inputs, and every input was known at the time it was used.

SEVERITY	FINDING	ACTION	SECTION
High	The documented equality of the two screens holds in price returns and reverses in total returns: the ROE screen is ahead by 1.7 points a year once each book's dividends are added, its dividend part 2.6 points a year against the screen's 1.4. A holder receives dividends, so the price basis is not the live basis.	State results in total return; the price basis hides the ROE screen's lead.	E
High	Impact priced on the vendor's daily volumes takes the total-return lead over RSP to zero at about 447 million dollars of capital (1,188 million on the price-return lead); above that the screen is a smaller book than its record suggests, and the binding trades are the entries into its smallest names.	State the capital range; a participation limit on the binding names; re-price at the client's size.	F
Medium	The lead over RSP is a second-decade lead and a drawdown lead: on total return 0.2 points a year in 2006 to 2015 and 2.0 in 2016 to 2025; 11.5 points a year while RSP is ten percent or more under its high and -3.0 otherwise; the comparison against ROE changes sign with the decade.	Disclose; report by period and by market state, never only pooled.	E, F
Medium	The ratio never selects a bank or an insurer, and the largest sector holds up to 40 percent of the book; the documentation calls it a quality screen and does not say so.	Disclose the sector behaviour; composition trigger.	C, F
Low	Winsorisation, z-scoring, the 365-day filing lookback and the re-selection day were recovered from the registered circuit, not from the written description.	Documentation remedy.	B
Low	No search record: the number of designs evaluated before this one is unknown, so no multiplicity correction can be computed.	Keep a search record; present raw out-of-sample results.	I
Observation	Value-at-risk breaches on 5.37 percent of days against 5 expected, 1.2 standard errors above; band coverage 90.0 percent against 90.	None.	H

MONITORING TRIGGERS

Conditions under which the conclusion of this report stops being reliable, evaluated as each quarter closes. Cost: a realised cost above 65 basis points a side, where the total-return lead over RSP halves. Capital: the book above the capacity of section F, or one re-selection trade above ten percent of the name's twenty-day volume. Data: a change in the vendor's tables for any anchor already walked, found by re-running the twenty windows on the new vintage, a difference above one point in any window. Composition: the largest sector above 40 percent of the book, or a bank or an insurer entering it. Regime: an RSP drawdown beyond ten percent in which the screen trails the index, the lead being a drawdown lead.

A. SCOPING AND DATA ADEQUACY

The rule needs three things: the membership of the S&P 500 on every re-selection date, quarterly statements with the date each became public, and daily prices for every name held. All three exist in the vendor's tables (Financial Modeling Prep). Membership is rebuilt from the exchange's dated change log at every anchor, and the record confirms it as point-in-time on all twenty. Statements carry SEC acceptance dates and are visible only from that date, with a 365-day lookback. Prices are daily bars, price only, without dividends. For the cost work the vendor also serves daily volume and five-minute bars from 2010, and both were read in September 2026.

What does not exist is prices for the names the vendor no longer carries. At the 2006 anchor the index had 500 members and the vendor priced 349; the unpriced 151 are names that later left the index and were not kept. Coverage rises to 90 percent by 2016 and to 99 by 2020. The scored pool, members with a usable filing, tracks the priced set within a few names. This is the limit of the data and it is stated before any result: the early books are drawn from the two thirds of the index the vendor still prices, and the record is stated for that priced universe.

Classification. Capital at risk: none; the screen is not in use. Portfolios mapped to the model: none. Third-party reliance: none. The three answers set the depth of the work; the standard shape applies, twenty one-year windows.

B. DOCUMENTATION SUFFICIENCY

The written description is the methodology section of the documentation. Rebuilding the rule from it alone left four points open, each recovered from the registered circuit, not from the text: the composite score is winsorised and z-scored before ranking; a filing is usable for 365 days from its acceptance date; the book is re-selected on the first trading day of each quarter from the full point-in-time universe; and equal weight is reset at every re-selection, so drift inside a quarter is not carried. None changes the result, since the registered circuit is what ran; a third party rebuilding the rule from the text alone would have to guess them, which is the Low finding and its documentation remedy.

Two points the text does state and the circuit confirms: gross profit over total assets is the only ranking variable in the screen (the quality family with one metric switched on and nine off), and the comparison arm differs in exactly that one place, return on equity on, gross profitability off.

COVERAGE AT THE ANCHOR, TEN OF THE TWENTY WINDOWS

ANCHOR	MEMBERS	PRICED	WITH A FILING	RANKED	PRICED SHARE
2006	500	349	335	348	70%
2008	500	380	370	380	76%
2010	501	405	394	405	81%
2012	501	425	417	425	85%
2014	501	440	434	440	88%
2016	505	465	460	465	92%
2018	505	486	484	486	96%
2020	506	502	500	502	99%
2022	506	503	502	503	99%
2025	505	503	503	503	100%

Members: the index on the anchor date from the change log. Priced: names the vendor carries daily bars for. With a filing: names with a statement accepted inside the lookback. Ranked: names that entered the ranking. The full twenty rows are in the frozen record, one per registered step.

C. CONCEPTUAL SOUNDNESS

The rule is coherent: one ratio, one sort, one holding rule. Its rationale is the documented one and the literature's, that gross profit is the cleanest accounting measure of a firm's productivity because it sits above the lines management can move, and the rule computes exactly that ratio from the latest accepted statements. Two parameters have no justification that is independent of the outcome: twenty names, and quarterly re-selection. Neither is tuned in the record (the design was registered once and walked; no variant was run), so the finding is that they are conventions, not fitted values, and the report treats them as such.

One property of the ratio is built into it and the documentation does not name it: gross profit over assets is small or undefined for banks and insurers, whose assets are the business, and low for utilities, energy and real estate. Over the twenty anchors the book drew 26 percent of its name-years from consumer cyclicals, 21 from industrials, 21 from consumer defensives, 13 from healthcare and 10 from technology; financials, utilities, energy and real estate together account for 16 of 400, the financials being an asset manager and a rating agency, never a bank. A screen documented as a quality screen is also a sector rule, and a reader of the claim should be told so (Medium).

D. INDEPENDENT RECONSTRUCTION

The screen was rebuilt on the platform's engine and data from the registered circuit and walked on the twenty windows, each registered before it ran and its report frozen when it landed (the record, page 16). The documentation states 9.43 and 9.76 percent a year, the twenty per-window returns chained as printed to one decimal; the rebuilt daily path chained gives 9.44 and 9.74, the difference being the compounding of a daily

path against one-decimal window returns. The figures reproduce.

Every price series the record used was then inspected name by name: for each of the 99 names the screen held, every quarter held was checked on the vendor's bars for the median dollar volume and the median price against the company's known trading. One series failed the identity test: the vendor's history under the ticker BBBY belongs to another company (a fiftieth of Bed Bath & Beyond's volume at a fifth of its price), and the record held it at five percent in eight windows. The correction is the standard one: the slot is carried at cash from each re-selection it entered to the next, the daily path is rebuilt, and the window figures are recomputed. The difference is 2.1 points in the window most affected and 2.4 points summed over twenty years; every figure in this report is on the corrected record, and the documented figures are quoted only in this section. A series keyed by ticker inherits a reassignment through the corporate-action chain, whatever the vendor, so the identity test runs on every series in every engagement.

The second check is the data vintage. The same signal walked one month later on the vendor's later tables, in a neighbouring construction (thirty names at equal weight, re-selected annually, in total returns net of a cost), agrees within a point in fifteen windows of twenty and differs by eight in the 2017 window (26.7 against 18.4 percent), the fundamentals tables having moved between the two months. The vintage is recorded in the artifact, the screen is re-run on the current vintage before a decision rests on it, and a change in the tables is a monitoring trigger (section J). The names the screen held most often over the 95 books were GWW (93), CL (91), KR (84), RHI (84), FAST (82), EL (75), TPR (58); the ROE screen's were CL (70), CLX (56), LMT (55), SPGI (53), MO (47), BA (42), WU (42); the appendix prints every book.

E. OUTCOMES ANALYSIS

Each window was registered with its circuit hash before it ran and scored on its own; the table on the next page carries all twenty, the pooled figures follow, and nothing here is a fitted quantity, since the rule estimates nothing from history. The screen beat RSP in 11 windows of twenty and the ROE screen in 12. The worst window is 2008, -28.0 percent against -40.2 for RSP; the largest lead over RSP is 13.2 points in 2020. Figure 1 chains the twenty windows into one daily path, each window rebased to the level the previous one left, so the reader

sees the record as a holder would have lived it; Figure 2 is the same record one window at a time.

The paired comparison of the two arms, a block bootstrap of 2,000 paths over 5,011 paired trading days with blocks of ten, puts the probability that the gross-profitability screen ends ahead of ROE at 53.9 percent, a coin flip, with a paired Sharpe of 0.02; the pooled Sharpe of the screen's own series is 0.54 against 0.59 for ROE. The period splits on the next page show where the coin flip comes from: ROE led by 2.8 points a year in the first decade and trailed by 1.9 in the second.

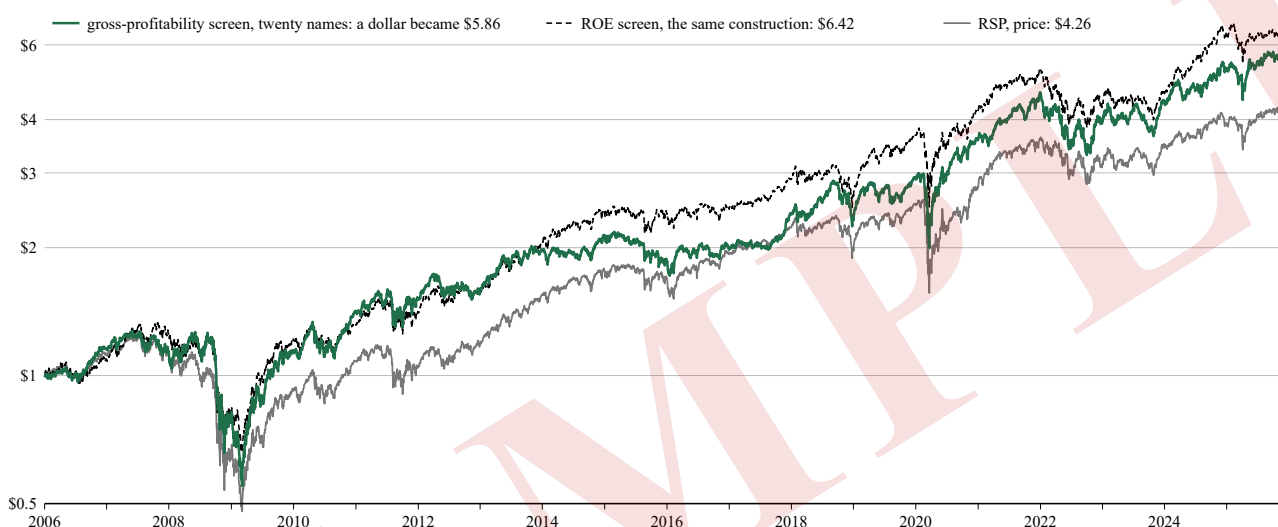


Figure 1. Growth of a dollar, daily, the twenty registered windows chained: the screen, the ROE screen and RSP, price returns, logarithmic scale. Each window is rebased to the level the previous one left; the record carries the book and the benchmark on every day.

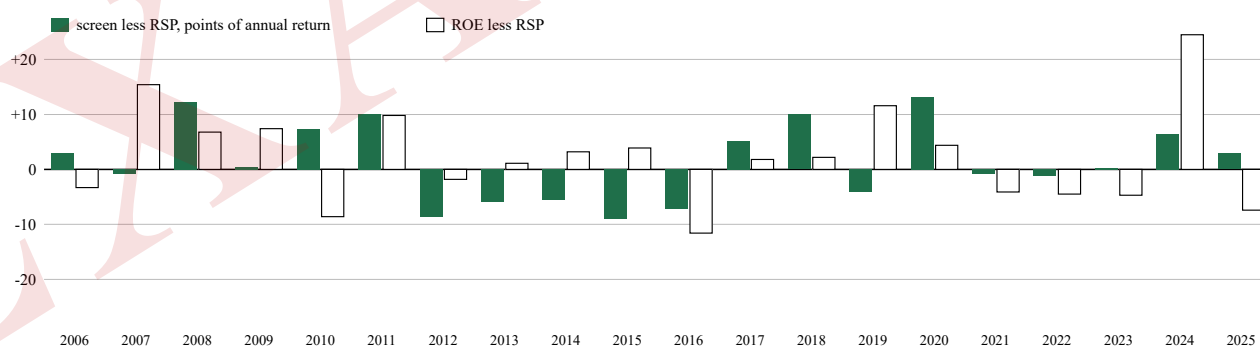


Figure 2. The windows one at a time: the screen's annual return less RSP's (filled) and the ROE screen's less RSP's (hollow), points of annual return. The screen led RSP in 11 of twenty.

E, CONTINUED: THE TWENTY WINDOWS

WINDOW	SCREEN, %	ROE, %	RSP, %	SCREEN LESS RSP	SCREEN LESS ROE	MAX DRAWDOWN, %	VOLATILITY, %
2006	15.2	8.9	12.2	3.0	6.3	-7.7	12.1
2007	-1.1	15.1	-0.3	-0.8	-16.2	-12.5	16.3
2008	-28.0	-33.4	-40.2	12.2	5.4	-48.1	42.2
2009	37.9	44.9	37.5	0.4	-7.0	-33.0	34.2
2010	25.1	9.1	17.7	7.4	16.0	-18.0	19.3
2011	6.9	6.6	-3.2	10.1	0.3	-18.7	23.2
2012	4.9	11.7	13.5	-8.6	-6.8	-13.0	15.5
2013	24.4	31.5	30.4	-6.0	-7.1	-7.0	13.3
2014	7.9	16.6	13.4	-5.5	-8.7	-8.2	11.8
2015	-13.2	-0.3	-4.2	-9.0	-12.9	-17.4	15.5
2016	7.1	2.7	14.3	-7.2	4.4	-8.3	13.7
2017	20.9	17.5	15.7	5.2	3.4	-5.2	9.8
2018	-0.2	-8.0	-10.2	10.0	7.8	-21.9	17.5
2019	22.4	38.1	26.5	-4.1	-15.7	-11.0	14.8
2020	23.1	14.3	9.9	13.2	8.8	-33.3	33.4
2021	28.7	25.4	29.5	-0.8	3.3	-8.1	13.0
2022	-14.5	-17.8	-13.3	-1.2	3.3	-28.7	25.8
2023	12.0	7.1	11.8	0.2	4.9	-16.2	14.7
2024	17.5	35.5	11.0	6.5	-18.0	-10.5	14.5
2025	12.5	2.2	9.6	2.9	10.3	-18.5	20.5

Each window runs from the first trading day of January to the last of December; returns are price returns; drawdown and volatility are the screen's own, daily, inside the window.

PERIOD SPLITS, ANNUAL RETURN, PRICE AND TOTAL RETURN

PERIOD	WINDOWS	SCREEN	ROE	RSP	LEAD OVER RSP, PTS	SCREEN, TOTAL RETURN	ROE, TOTAL RETURN	LEAD OVER RSP, TOTAL RETURN	LED RSP	LED ROE
2006 to 2015	10	6.34	9.16	5.36	0.98	7.66	11.99	0.18	5 of 10	4 of 10
2016 to 2025	10	12.24	10.36	9.69	2.55	13.62	12.65	2.04	6 of 10	8 of 10
without 2008 and 2009	18	10.37	11.12	9.55	0.82	11.72	13.49	0.11	9 of 18	11 of 18
without 2020	19	8.56	9.52	7.38	1.19	9.91	11.93	0.55	10 of 19	11 of 19

The record also carries, for every re-selection, the projection the engine made before it from the book's own two prior years, a Monte Carlo cone and a daily value at

risk, and the outcome scored against it. That scoring is section H, with Figure 9: the forecast beside the outcome, not the outcome alone.

E, CONTINUED: THE TOTAL-RETURN READING

The record is price returns. A holder receives dividends, so the reading a client needs is the same books with their dividends, and the books are fixed in the record: ninety-five re-selections, twenty names each at five percent. The dividends are laid over the recorded path; nothing is re-run. For each quarter a name was held, its dividend part is its total-return factor less its price-return factor, from the vendor's dividend-adjusted and unadjusted closes, on the name's value at the quarter's start; the adjusted series reinvests a dividend in the paying name on the ex-date and carries a distribution in kind at its value on the day. The book's dividend part for the quarter is five percent of the sum over the twenty names, credited at the quarter's end and put back into the book at the reset, and the quarters chain. RSP is read the same way at weight one. The price path stays the corrected record's; CERN, WFM in the screen and CSRA in the ROE screen have no adjusted series and count as zero. Three distributions above a tenth of the name's price fall inside held quarters: Altria's distribution of Philip Morris International in shares in 2008 (3.4 points of the ROE screen's window); Apartment Investment and Management's special dividend, paid part in stock in 2008 (0.6 points of the ROE screen's window); NortonLifeLock's twelve-dollar

special dividend in 2020 (2.7 points of the ROE screen's window). A payment record carries the cash and not the shares, so it would miss two of these; the adjusted series carries all three at their value on the day. The method is checked against a number the engine itself produced: RSP with its dividends comes out at 9.51 percent a year, a dollar to \$6.15, the figure the engine's own total-return walks report for the same fund over the same years.

The screen made 10.60 percent a year in total return against 9.24 in price, a dividend part of 1.4 points; RSP 9.51 against 7.51, 2.0 points; the ROE screen 12.32 against 9.74, 2.6 points, because it holds the payers (Altria, Clorox, Hershey, Lockheed Martin, Colgate-Palmolive). Two of the record's findings move. The screen's lead over RSP is 1.09 points a year in total return against 1.73 in price, and it led RSP in 10 windows of twenty. The equality of the two screens, the documented headline, holds in price returns and reverses in total returns: the ROE screen is ahead by 1.7 points a year but leads in 9 windows of twenty; where in price returns the screen led in 12, in total return it leads in 11. The ROE screen's lead comes from a few large years (2024 by 18.8, 2019 by 16.8, 2007 by 16.6 points). That is a High finding (register, page 2): the documented result holds as documented and reverses on the basis a holder lives on.

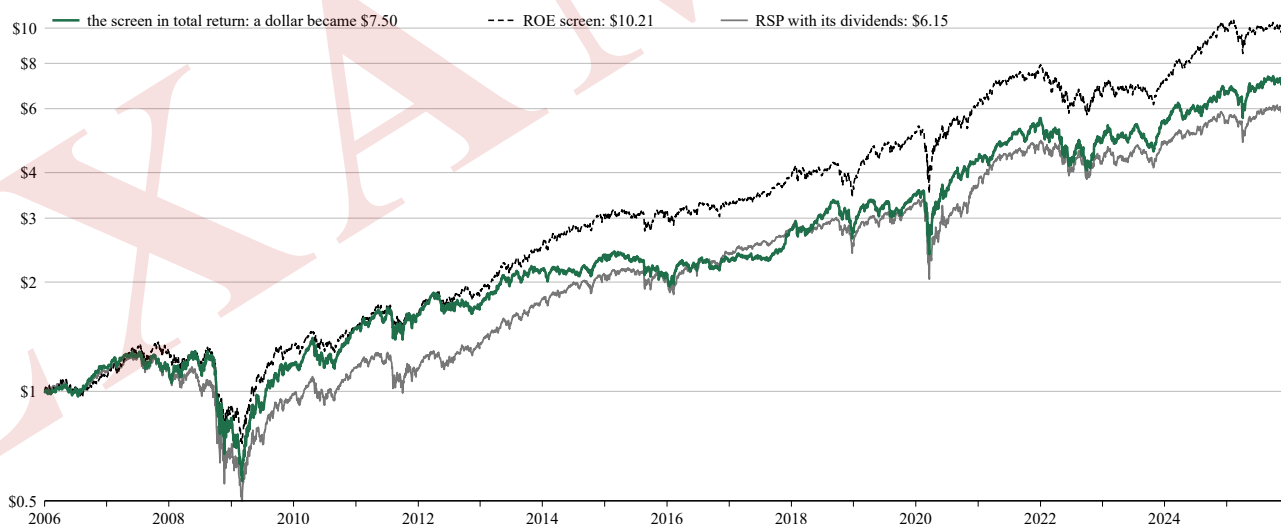


Figure 3. The same books with their dividends: growth of a dollar in total return, daily, the twenty windows chained, the screen, the ROE screen and RSP with its dividends. The price-only reading is Figure 1.

TWENTY YEARS, 2006 TO 2025	PRICE, % A YEAR	TOTAL RETURN, % A YEAR	DIVIDEND PART, PTS	A DOLLAR, PRICE	A DOLLAR, TOTAL
The screen	9.24	10.60	1.36	5.86	7.50
The ROE screen	9.74	12.32	2.58	6.42	10.21
RSP	7.51	9.51	2.00	4.26	6.15

E, CONTINUED: THE TWENTY WINDOWS IN TOTAL RETURN

WINDOW	SCREEN, %	ITS DIVIDEND PART	ROE, %	ITS DIVIDEND PART	RSP, %	ITS DIVIDEND PART	SCREEN LESS RSP
2006	16.1	1.0	10.5	1.6	13.5	1.3	2.7
2007	-0.2	0.9	16.4	1.4	0.9	1.2	-1.2
2008	-27.2	0.9	-29.4	4.0	-39.1	1.1	11.9
2009	40.0	2.1	48.2	3.3	39.9	2.4	0.1
2010	26.8	1.7	11.5	2.5	19.5	1.8	7.3
2011	8.3	1.3	9.1	2.5	-0.8	2.3	9.1
2012	6.3	1.4	15.0	3.3	16.7	3.3	-10.4
2013	25.9	1.4	34.8	3.3	33.4	3.0	-7.5
2014	9.3	1.4	19.7	3.1	16.2	2.8	-6.9
2015	-11.9	1.3	2.1	2.4	-1.7	2.5	-10.1
2016	8.8	1.7	5.2	2.6	15.8	1.5	-7.0
2017	22.3	1.4	19.7	2.2	17.6	1.9	4.7
2018	1.1	1.4	-6.1	1.9	-8.5	1.7	9.6
2019	24.1	1.7	40.9	2.8	28.8	2.3	-4.7
2020	24.6	1.4	20.0	5.8	12.3	2.4	12.2
2021	30.0	1.3	27.3	1.9	31.3	1.8	-1.3
2022	-13.4	1.1	-16.5	1.3	-11.7	1.6	-1.6
2023	13.7	1.6	8.7	1.7	13.8	2.0	-0.1
2024	18.6	1.1	37.4	1.9	12.8	1.7	5.9
2025	13.4	1.0	3.6	1.4	11.5	1.9	1.9

Each window's return with the dividends of its books added at the quarters' weights; the dividend part is the difference from the price return of the same window. RSP with its own dividends.

The capacity of section F is priced on this lead, 1.09 points a year in total return against 1.73 in price, and comes out at about \$447 million at $k = 1$; on the price-return lead the same curve would give 1,188 million, since the drag grows with the square root of capital and the lead it has to consume is a third larger. The binding trades are the same.

What the overlay cannot do: it cannot move a name in or out of a book, so the ROE screen's ranking on return on equity, which is what selects the payers, is as the record made it; and it credits a dividend at the quarter's end, not on the ex-date, a difference below a hundredth of a point a year at these weights. Costs are not in these figures; section F charges them on these levels, since the books and the trades are the same.

F. SENSITIVITY AND OPERATING RANGE

Cost. The record is gross of every cost. The turnover is read from the ninety-five books: the screen replaced 11 percent of its twenty names at an average quarterly re-selection, the ROE screen 33 percent, so a cost charged per side on every traded dollar costs the screen 0.08 points a year at 10 basis points and the ROE screen 0.27. The ladder prices both on one design, on the total-return levels of section E (Figure 4 and the table). The lead over RSP, 1.09 points gross, halves at 65 basis points a side and is gone at 129, outside any cost a large-cap book pays for the spread and the commission alone; the ROE screen's lead over the screen, 1.72 points gross, is gone at 95, because its turnover is three times the screen's. On the price basis of the record the same ladder puts the lead over RSP at 1.73 points, gone at 206, and the two screens within a third of a point, the ordering reversing at 28. The flat charge is one of the two cost estimators in this report: it prices the spread and the commission, and it is blind to size. The other, impact at a given capital, is the next page.

Regime. On total return the lead over RSP is 0.2 points a year in 2006 to 2015 and 2.0 in 2016 to 2025; without 2008 and 2009 it is 0.1, without 2020 it is 0.5 (on the price basis 1.0, 2.5, 0.8 and 1.2). No single window carries it. On total return the screen trails ROE by 4.3 points a year in the first decade and leads it by 1.0 in the second; on the price basis the second decade is the screen's by 1.9. The lead over RSP is a second-decade lead on either basis, and on total return the first decade is close to nothing.

Concentration. Five percent a name, reset quarterly, so no single name is a finding. The sector is: the largest sector holds between 25 and 40 percent of the book at the anchor, consumer cyclicals in nine anchors of twenty, and the book never held a bank or an insurer (Figure 7). The composition drifted from industrials and consumer names in 2006 to 2013 toward healthcare in 2020 to 2022 and back.

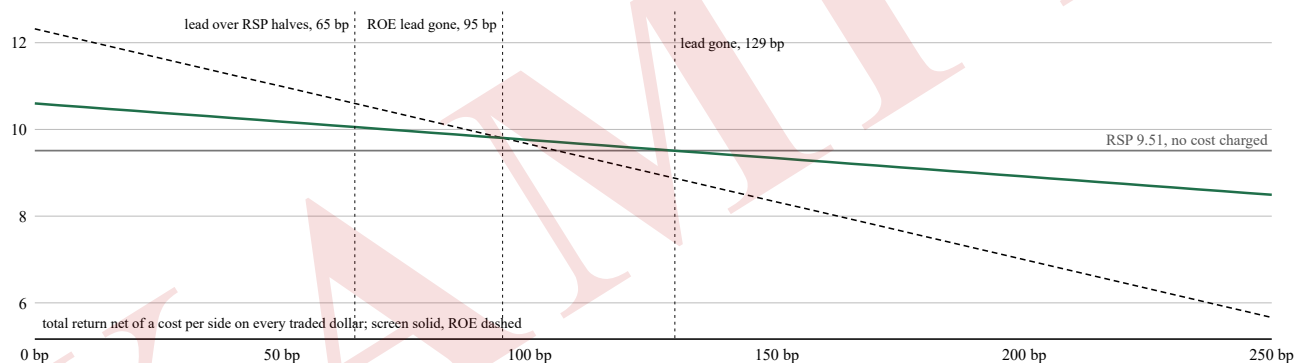


Figure 4. The cost ladder on total return: annual return net of a flat cost per side on every traded dollar, from the turnover the books record; the screen solid, the ROE screen dashed, RSP uncharged. The marked levels are where the ROE screen's lead is gone, where the screen's lead over RSP halves, and where it is gone.

BASIS POINTS A SIDE	SCREEN, TOTAL RETURN	ROE	RSP	SCREEN LESS RSP	SCREEN LESS ROE
0	10.60	12.32	9.51	1.09	-1.72
5	10.56	12.19	9.51	1.05	-1.63
10	10.51	12.05	9.51	1.01	-1.54
25	10.39	11.65	9.51	0.88	-1.27
50	10.18	10.99	9.51	0.67	-0.81
100	9.76	9.66	9.51	0.25	0.10

F, CONTINUED: CAPACITY

The flat charge cannot say how much capital the screen carries; impact can. Every re-selection trade of the screen was rebuilt from the books: an entry buys five percent of capital, an exit sells the drifted weight, and the names kept are reset to five percent, 2,052 trades over twenty years, one-way turnover 0.69 of the book a year. Each trade is priced at a capital level by the square-root law, $\text{cost} = k \text{ times the name's daily volatility times the square root of the trade's share of the name's twenty-day average dollar volume}$, with $k = 1$ and 0.5 and 1.5 as the band, the calibration the execution literature reports for large-cap equities. Volumes and volatilities are the vendor's daily bars before each trade day; 2 trades had no usable history and the 26 trades of the excluded series (section D) are left out. A flat 5 basis points a side is charged on top for the spread and the commission, 0.07 points a year.

The lead the impact has to consume is the total-return lead over RSP, 1.09 points a year (section E), the basis a

holder lives on; the price-return lead would give the larger figures in brackets. At 100 million dollars the impact costs 0.48 points a year and the net lead over RSP is 0.54; at one billion the impact costs 1.53 and the net lead is -0.51. The lead is gone at about 447 million (199 to 1,788 across the band; 1,188 million on the price-return lead), which is the capacity of the screen as a book that has to beat the equal-weight index after cost. The binding trades are the entries into the book's smallest names: at one billion the largest single trade is BIG (entry, 2006-01-03, 647 percent of its twenty-day volume), 484 trades of 2,052 exceed ten percent of the name's daily volume, the level at which a desk starts to work an order over more than a day. The curve overstates capacity in one way and understates it in another: it prices every trade on one day, where a desk would spread the entries over several, and it uses today's volumes for the 2006 to 2009 trades of names the vendor still carries, which were thinner then.

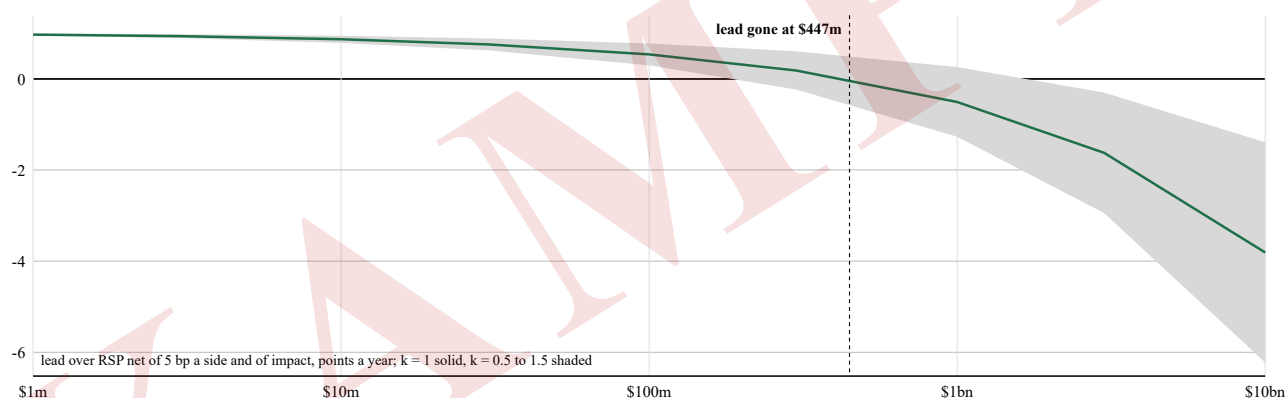


Figure 5. The capacity curve: the lead over RSP net of the flat charge and of impact, against the capital run, impact by the square-root law with $k = 1$ (solid) and the 0.5 to 1.5 band (grey). The lead is gone where the curve crosses zero.

CAPITAL, \$M	IMPACT, K 0.5	K 1.0	K 1.5	NET LEAD, K 1	THE BINDING TRADE	TRADES OVER 10% OF VOLUME
30	0.13	0.26	0.40	0.76	BIG entry 2006-01-03, 19% of its volume	2
100	0.24	0.48	0.72	0.54	BIG entry 2006-01-03, 65% of its volume	34
300	0.42	0.84	1.25	0.18	BIG entry 2006-01-03, 194% of its volume	210
1,000	0.76	1.53	2.29	-0.51	BIG entry 2006-01-03, 647% of its volume	484
3,000	1.32	2.65	3.97	-1.62	BIG entry 2006-01-03, 1,942% of its volume	888

Impact and the net lead in points of annual return; the binding trade is the one with the largest share of its name's twenty-day average dollar volume.

F, CONTINUED: FILLS

The record marks every trade at the day's close, which is the price a backtest sees and no desk gets. Two benchmarks from the vendor's five-minute bars put a number on the difference, for every entry and exit of the screen from 2010, 274 trades (143 entries, 131 exits); 6 trade days were refused because the vendor's intraday bars and its daily close disagree by more than ten percent, a reassigned ticker or an adjustment mismatch, not a trade. The first is the day's volume-weighted average price against the close: a buy worked over the day pays the average, so the difference, signed so that a positive number means the record's close flattered the trade, is the slippage the flat charge has to cover. It averages 4.2 basis points with a median of 2.8; the tenth and ninetieth percentiles are -67.4 and 74.1, so the sign is the trade's luck on the day and the mean is close to zero, which is

what a buy at the average of a day the record marks at its close should show, since the close is not systematically the low.

The second is a participation fill: the order takes ten percent of every bar's volume from the open until it is done. At 100 million dollars of capital a five-percent position averages 7.4 basis points against the close and 18 of the 274 orders are not complete by the close; at one billion the average is 3.6 and 250 orders are left open at the close, which is the capacity finding seen from the tape. What these bars cannot show is the quoted spread, the queue and the fill probability of a resting order; those need quote data, which is not held, and crowding, which no bar data recovers. The estimator is named with its direction: the VWAP benchmark assumes the whole day's volume is available to the order, which overstates what a ten-percent participation gets on a thin day.

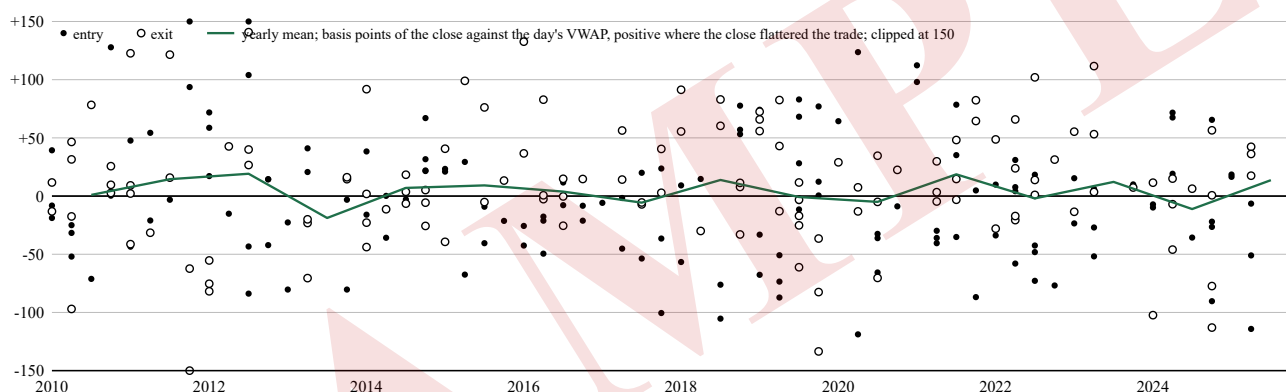


Figure 6. Slippage of the record's close against the day's volume-weighted average price, basis points, every entry and exit of the screen from 2010; positive means the close flattered the trade. The line is the yearly mean.

The six trades the close flattered most

DAY	NAME	KIND	VS VWAP, BP	FILL AT \$100M	AT \$1BN	DAY VOLUME, \$M
2012-07-02	BBY	entry	211.3	133.5	308.0	806
2011-10-03	ROST	entry	188.1	265.0	188.1	110
2012-07-02	CHRW	exit	140.8	339.4	140.8	165
2016-01-04	GME	exit	132.7	244.4	132.7	116
2010-10-01	ANF	entry	127.9	330.4	127.9	183
2020-04-01	KR	entry	123.7	-81.1	123.7	473

The three benchmarks, basis points against the close; fills at ten percent of each bar's volume

BENCHMARK	MEAN	MEDIAN	10TH	90TH	NOT DONE
Close vs VWAP	4.2	2.8	-67.4	74.1	
Fill at \$100m	7.4	3.9	-114.2	136.4	18
Fill at \$1bn	3.6	2.8	-71.1	78.3	250

F, CONTINUED: COMPOSITION

Twenty names at five percent, reset every quarter, so no single name is a finding; the sector is. The largest sector holds between 25 and 40 percent of the book at the anchor, consumer cyclicals in nine anchors of twenty, industrials and consumer defensives in most of the rest, and the book never held a bank or an insurer (Figure 7). The composition drifted from industrials and consumer names in 2006 to 2013 toward healthcare in 2020 to 2022 and back. The ratio produces this: gross profit over assets is small or undefined where the assets are the business, so

the screen is a sector rule as well as a quality rule, and the documentation should say so (Medium, section C).

What the composition means for a holder: the book's beta to RSP is 0.92 in drawdowns and its lead is earned there (section F, regime), which is the profile of a defensive book, and its capacity binds on the entries into its smallest names (section F, capacity), which are the consumer and healthcare names the ratio favours. A sector cap or a minimum on the number of sectors would change the book and is a design decision, not a correction; the composition trigger of section J watches it as it is.

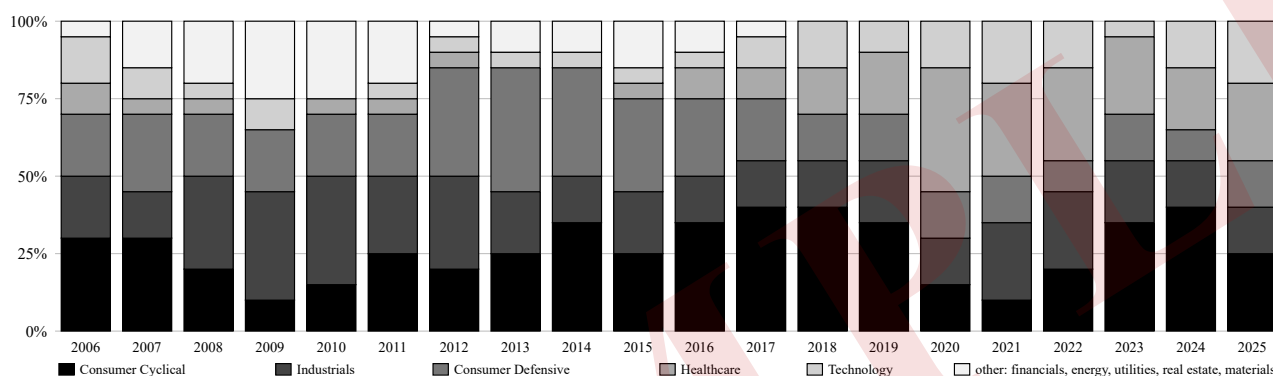


Figure 7. The sector composition of the screen's book at each anchor, twenty names, by the vendor's profile sector; the largest sector holds between 25 and 40 percent, and banks and insurers never appear.

The largest sector at each anchor

ANCHOR	SECTOR	SHARE OF THE BOOK
2006	Cons. Cyclical	30%
2008	Industrials	30%
2010	Industrials	35%
2012	Cons. Defensive	35%
2014	Cons. Cyclical	35%
2016	Cons. Cyclical	35%
2018	Cons. Cyclical	40%
2020	Healthcare	40%
2022	Healthcare	30%
2025	Cons. Cyclical	25%

Sector of the names held, 400 name-anchors

SECTOR	NAME-ANCHORS	SHARE
Consumer Cyclical	106	26%
Industrials	85	21%
Consumer Defensive	84	21%
Healthcare	53	13%
Technology	39	10%
Basic Materials	7	2%
Financial Services	6	2%
Utilities	4	1%
Energy	3	1%
Real Estate	3	1%
Communication Services	1	0%

F, CONTINUED: REGIME BY STATE

Section E splits the record by calendar; a holder asks by market state. Three labels are computed on RSP's own bars as of each day, so each was knowable on the day: drawdown, RSP more than ten percent below its running high; high volatility, trailing 63-day realised volatility above 20 percent annualised; trend, RSP above its six-month average. A fourth, a two-state hidden Markov model on RSP's daily returns fitted on the whole sample and smoothed (calm at 12 percent volatility, turbulent at 38), is the hindsight reading, shown for comparison: it knows the future and cannot be traded. The 5,030 days are the record's daily price paths, chained.

The screen's lead over RSP is a bad-state lead on every label. In drawdown, 28 percent of the days, RSP made -14.5 percent a year and the screen -3.1, a lead of 11.5

points against -3.0 outside those spells; in high volatility 6.4 against 0.4; below trend 5.7 against -1.5; in the model's turbulent state 9.4 against -1.8. It is a lead of size, not of frequency: the screen is ahead on 52 percent of drawdown days and 49 of the rest. The ROE screen's lead is the more even one, 4.1 points in drawdown and 1.2 outside, which is its dividends (section E). By window (the strip below): the seven windows with drawdown on two days in five or more led RSP by 6.0 points on average; the six with no drawdown and no high-volatility day trailed it by 0.4. Twenty years hold three spells of the bad states, 2008 to 2011, 2020 and 2022, so these figures describe a profile and forecast nothing; the profile is a defensive book's, and its monitoring trigger is a drawdown the screen does not lead.

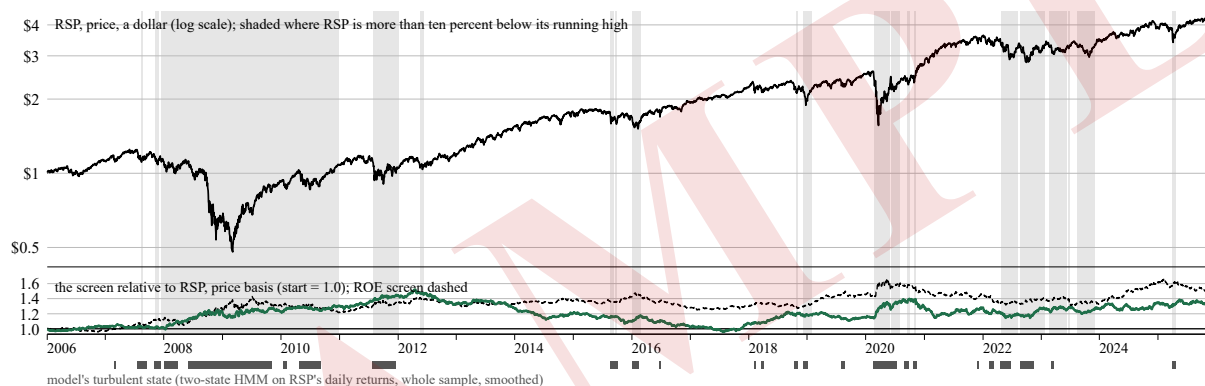


Figure 8. Regime by market state: RSP's price level on a log scale, shaded where RSP is more than ten percent below its running high; below it the screen's level relative to RSP (the accent) and the ROE screen's (dashed), rising where the lead is earned; the strip under the axis marks the model's turbulent state.

STATE, ON RSP	DAYS	SHARE	SPELLS	RSP	SCREEN	LEAD, ROE	LEAD, SCREEN	BETA, ROE	BETA, SCREEN	CORR.
RSP more than 10% below its high	1,390	28	45	-14.5	-3.1	-10.4	11.5	4.1	0.92	0.95
the rest	3,640	72	46	17.4	14.4	18.6	-3.0	1.2	0.92	0.86
63-day volatility above 20%	1,246	25	23	15.9	22.3	19.9	6.4	4.0	0.92	0.95
below	3,784	75	24	4.9	5.3	6.6	0.4	1.7	0.92	0.87
RSP below its six-month average	1,431	28	103	-35.2	-29.5	-30.5	5.7	4.7	0.94	0.95
above	3,599	72	104	31.5	30.0	31.6	-1.5	0.1	0.89	0.85
model: turbulent state	1,127	22	25	-28.0	-18.7	-21.6	9.4	6.4	0.92	0.95
model: calm state	3,903	78	26	20.7	19.0	21.0	-1.8	0.2	0.94	0.84

Share in percent of days; RSP, screen and ROE are annualised geometric returns of the days in the state, price basis, and the leads are each screen less RSP; spells are the runs of consecutive days the label was on (the drawdown label flickers at its threshold, so its spells are many and short). Beta and correlation are daily, the screen or the ROE screen against RSP.

WINDOW	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Drawdown, % of days	0	6	100	100	100	41	4	0	0	6	15	0	8	6	41	0	59	62	0	7
High volatility, %	0	3	93	92	40	40	12	0	0	17	12	0	2	15	64	0	68	11	0	25
Turbulent, %	0	27	81	86	42	41	0	0	0	13	14	0	20	7	53	3	49	4	0	6
Screen less RSP, pts	3.0	-0.8	12.1	0.4	7.3	10.1	-8.5	-6.0	-5.5	-9.0	-7.2	5.2	10.0	-4.2	13.2	-0.8	-1.2	0.2	6.5	2.8
ROE less RSP, pts	-3.3	15.4	6.8	7.4	-8.7	9.7	-1.8	1.0	3.2	3.9	-11.7	1.8	2.2	11.6	4.4	-4.1	-4.5	-4.7	24.5	-7.4

Mapping by window: the share of each window's days in the state, and the window's lead over RSP, price basis.

G. COMPONENT ATTRIBUTION

The rule has one component, the ranking variable, so the attribution is the comparison arm: the same construction with return on equity in place of gross profit over assets, one difference and nothing else, walked on the same windows. The two books have almost nothing in common, 2.8 names of twenty at an average re-selection, at most 6, and none once in 95, and they arrive half a point apart over twenty years in price, which is the documented headline; in total return the ROE screen is ahead by 1.72 points a year, and the difference is its dividends (section E). The result in price therefore belongs to the construction, twenty large-cap names at equal weight re-selected quarterly, more than to the choice of quality measure; what the measure decides is turnover, 11 percent a quarter against 33, and through

turnover the net result. Leave-one-out does not apply to a single-variable rule.

H. RISK MODEL CALIBRATION

Before every re-selection the engine fits a Monte Carlo cone and a daily value at risk to the book from its own prior two years and scores them against what happened. Over 95 re-selections, 80 were scored: 72 realised returns fell inside the 90 percent band, 90.0 percent against 90 expected, 0.0 standard errors from the expectation; the 8 that fell outside are the open circles in Figure 9, and the widest miss is the quarter from 2020-01. Daily VaR at 95 percent was breached on 266 of 4,951 days, 5.37 percent against 5 expected, 1.2 standard errors above it; the ROE arm breached on 5.88 percent, 2.8 standard errors above. The tail is a little heavier than the projection; the amount is visible and it is recorded as an observation, not as a finding against the model.



Figure 9. The projection against the outcome, every scored re-selection: the grey bar is the 5th to 95th percentile of the quarter's return projected before it from the book's own two prior years, the tick its median, the dot the realised quarter; open circles fell outside the band, 8 of 80.

ARM	RE-SELECTIONS	SCORED	INSIDE THE 90% BAND		COVERAGE, %	VAR DAYS	BREACHES	BREACH RATE, %	STANDARD ERROR, PTS	ABOVE 5, IN STANDARD ERRORS
			90%	90%						
Gross profitability	95	80	72	90.0	4,951	266	5.37	0.31	1.2	
Return on equity	95	80	71	88.8	4,951	291	5.88	0.31	2.8	

Scored: re-selections whose quarter had closed when the record was frozen. The standard error is the binomial one at the expected rate over the days scored; the last column is the breach rate's distance from 5 percent in those units.

I. SEARCH AND SELECTION ACCOUNTING

Twenty steps were registered, each with its circuit hash and prospectus, and each ran once; the platform recorded no explored runs and no lineage. The number of designs evaluated before this one is therefore unknown, which is a different fact from one, and the report declines to compute a multiplicity correction that would imply a discipline that was not in place. The out-of-sample results stand as raw results with this disclosure.

J. LIMITATIONS

The record is price returns without dividends, benchmark included; the total-return reading of section E lays the dividends over the recorded books and is bounded by what an overlay can do (it cannot change a book). The membership and the filings are the vendor's tables as they stood when the record was registered and move with the vintage (section D). The cost work rests on two estimators, a flat charge and the square-root impact law on daily volumes, and on two fill benchmarks from five-minute bars; the quoted spread, the queue and crowding are outside all four. The volumes are today's vendor bars, which for the names the vendor still carries are the volumes of the time, and for names it no longer carries are absent, so those trades are left out of the capacity count. The inspection of the price series (section D) uses two marks, volume and price level, against the vendor's own bars and public knowledge of the company; with a second data source it would be a test, not a screen. The

book is long only, so borrow does not arise. The early windows are formed from the priced part of the index (section A). Names and sectors are the vendor's current profile fields, not dated ones; the book is equal-weighted and never reads a market value, so the return is unaffected. Every series in this report is one vendor's; where a client's index is built on Bloomberg or LSEG data the reconstruction runs on the client's data under its licence beside ours, and the two are reconciled series by series, which is priced into the engagement. The rule is a screen, not an index methodology: it carries no capping rule, no buffer zone, no liquidity threshold, no free-float adjustment, no corporate-action rules and no review calendar, and each of those is a section-B item on an index engagement.

Where the story stops. What the record supports, read in total return, is a large-cap quality screen that beat RSP by 1.09 points a year over twenty years, on 10 windows of twenty, almost all of it in the second decade (0.2 points a year in the first, 2.0 in the second, 0.1 without 2008 and 2009), with its lead halved at 65 basis points a side and gone at 129; behind the ROE screen it was compared with by 1.72 points a year while ahead of it in 11 windows of twenty, its ranking variable decisive for the turnover; and its capacity bounded at about 447 million dollars by the entries into its smallest names. What would change the conclusion: delisted prices for the early windows, a vintage that moves the 2017 window again, or an impact calibration for these names outside the band used here.

THE RECORD

The screen was registered on the platform as twenty steps and run on 4 to 6 August 2026 under one circuit hash, 051fc583d702, each step registered before it ran and its report frozen when it landed; the correction of section D is recorded beside it with the series it excludes. The data vintage is the vendor's point-in-time tables as of each anchor, read in August 2026; the bars for the cost work were read in September 2026 and are kept beside the artifact. The artifact holds, per step and per arm, the universe and its sources, the priced and filed names, the ranked cross-section with each name's score, profile and latest accepted filing, the book at every re-selection with weights, the daily equity path with the benchmark, the projection made before each re-selection and its outcome,

and the paired comparison over the twenty windows. It is retained for seven years. The table lists the twenty steps; the appendix prints the books.

VERSION CONTROL

Report specimen, September 2026, under validation methodology v1.0; reissued when the methodology changes. In an engagement the final issue follows the findings review call, with the client's responses recorded against each finding.

Serhat Girgin

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quanterlab.com/services

ANCHOR	STEP	OUT-OF-SAMPLE WINDOW	REGISTERED, UTC	RAN, UTC
2006	0111e6623273	2006-01-03 to 2006-12-29	2026-08-04 17:05	2026-08-04 17:30
2007	054768c5e1cc	2007-01-03 to 2007-12-31	2026-08-04 17:30	2026-08-04 17:48
2008	86b63597dfb5	2008-01-02 to 2008-12-31	2026-08-04 17:49	2026-08-04 18:01
2009	27afb6b1ec86	2009-01-02 to 2009-12-31	2026-08-04 18:01	2026-08-04 18:17
2010	1bbaac16ed7f	2010-01-04 to 2010-12-31	2026-08-04 18:17	2026-08-04 18:32
2011	a7d8c4143614	2011-01-03 to 2011-12-30	2026-08-04 18:32	2026-08-04 18:48
2012	926794e481c8	2012-01-03 to 2012-12-31	2026-08-04 18:48	2026-08-04 19:02
2013	19cb35977f3e	2013-01-02 to 2013-12-31	2026-08-04 19:02	2026-08-04 19:40
2014	23ac850f2294	2014-01-02 to 2014-12-31	2026-08-04 19:40	2026-08-04 19:57
2015	f918f5bc975d	2015-01-02 to 2015-12-31	2026-08-04 19:57	2026-08-04 20:14
2016	667c55f142f9	2016-01-04 to 2016-12-30	2026-08-04 20:14	2026-08-04 20:29
2017	29dea9a651dd	2017-01-03 to 2017-12-29	2026-08-04 20:29	2026-08-04 20:47
2018	7d117988a4bc	2018-01-02 to 2018-12-31	2026-08-04 20:47	2026-08-04 21:06
2019	da30ac451cc5	2019-01-02 to 2019-12-31	2026-08-04 21:07	2026-08-04 21:25
2020	6edd71343baf	2020-01-02 to 2020-12-31	2026-08-04 21:25	2026-08-04 21:40
2021	59492f1368c7	2021-01-04 to 2021-12-31	2026-08-04 21:40	2026-08-04 21:59
2022	c735fea1ba13	2022-01-03 to 2022-12-30	2026-08-04 21:59	2026-08-04 22:18
2023	f230c39f70d2	2023-01-03 to 2023-12-29	2026-08-04 22:18	2026-08-04 22:36
2024	dd00fd1b023e	2024-01-02 to 2024-12-31	2026-08-04 22:37	2026-08-04 22:52
2025	3691d8d22b36	2025-01-02 to 2025-12-31	2026-08-04 22:52	2026-08-04 23:11

Report specimen under the validation methodology v1.0, showing the form and content of the report an engagement produces. The screen it validates is one QuanterLab published in its own research, taken as the model under validation and treated exactly as an engagement treats a client's. It is not investment advice and not a recommendation to buy or sell any security. QuanterLab is not a regulated firm, performs no regulated activity and issues no assurance opinion; references to supervisory frameworks describe the standard the procedure is written against.

APPENDIX. THE BOOKS, WINDOW BY WINDOW

For every window: the book formed at the anchor, then each quarterly re-selection's entries and exits, then the record's per-name figures for the screen: the quarters held inside the window, the name's forward return over the periods it was held (weight five percent), and the product of weight, return and the share of the year held, an indication of each name's contribution in points. The products are indicative; the window return is the daily path compounded with the quarterly reset, and the two differ by the compounding and the drift inside each quarter. The ROE screen's books are in the artifact. The books are the corrected record's: the series section D excluded does not appear, and its slot is cash in the quarters it was held.

2006 window, 2006-01-03 to 2006-12-29: the screen 15.2 percent, ROE 8.9, RSP 12.2

2006-01-01, the book: ADSK, BIG, FDX, RHI, TPR, WBA, UPS, XOM, KR, CL, ODP, GWW, SYK, INTU, NKE, SYU, ADBE, AMZN, GPS · **2006-04-01**: in AVP, EL, SHW, TJX; out AMZN, INTU, SYK · **2006-07-01**: in AMZN, CVS, SPGI, TROW; out ADBE, AVP, GPS, SHW, UPS · **2006-10-01**: in AVP, BBY, INTU, VFC; out CVS, SPGI, TJX, TROW · **2007-01-01**: in SHW; out BBY

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
BIG	Defensive	4	88.2	4.4
XOM	Energy	4	31.1	1.6
FDX	Industrials	4	30.6	1.5
TPR	Cyclical	4	29.0	1.5
VFC	Cyclical	2	49.1	1.2
EL	Defensive	4	22.4	1.1
KR	Defensive	4	21.7	1.1
SHW	Materials	2	40.7	1.0
ODP	Cyclical	4	19.3	1.0
CL	Defensive	4	18.8	0.9
SYU	Defensive	4	18.2	0.9
NKE	Cyclical	4	15.3	0.8
AVP		3	16.8	0.6
TJX	Cyclical	2	23.1	0.6

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
INTU	Technology	3	12.8	0.5
SPGI	Financials	1	31.3	0.4
SYK	Healthcare	1	23.6	0.3
GPS	Cyclical	2	10.1	0.3
TROW	Financials	1	19.9	0.2
CVS		1	17.3	0.2
ADBE	Technology	2	6.7	0.2
BBY	Cyclical	1	10.0	0.1
WBA	Healthcare	4	1.1	0.1
UPS	Industrials	2	-0.8	-0.0
RHI	Industrials	4	-1.0	-0.1
GWW	Industrials	4	-2.6	-0.1
ADSK	Technology	4	-5.4	-0.3
AMZN	Cyclical	4	-17.2	-0.9

2007 window, 2007-01-03 to 2007-12-31: the screen -1.1 percent, ROE 15.1, RSP -0.3

2007-01-01, the book: FDX, VFC, RHI, EL, TPR, ADSK, AVP, BIG, WBA, GWW, XOM, KR, ODP, CL, SYU, NKE, AMZN, INTU, SHW · **2007-04-01**: in ANF, GPC, R, TJX; out AMZN, INTU, SHW, SYU · **2007-07-01**: in AMZN, CPWR, MCO, UPS; out NKE, ODP, R, TJX · **2007-10-01**: in LLTC, R, TROW; out AMZN, GPC, VFC · **2008-01-01**: in BBY, EXPD; out LLTC, XOM

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
AMZN	Cyclical	2	138.7	3.5
XOM	Energy	4	26.4	1.3
GWW	Industrials	4	23.3	1.2
ADSK	Technology	4	22.7	1.1
CL	Defensive	4	18.7	0.9
AVP		4	17.6	0.9
TROW	Financials	2	33.1	0.8
NKE	Cyclical	2	31.5	0.8
KR	Defensive	4	15.2	0.8
ANF	Cyclical	4	12.5	0.6
EL	Defensive	4	6.1	0.3
CPWR	Utilities	3	5.3	0.2
BBY	Cyclical	1	7.3	0.1
INTU	Technology	1	7.2	0.1
EXPD	Industrials	1	6.9	0.1

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
LLTC	Technology	1	5.0	0.1
TJX	Cyclical	1	0.1	0.0
GPC		2	-2.6	-0.1
SHW	Materials	1	-8.4	-0.1
SYU	Defensive	1	-13.5	-0.2
UPS	Industrials	3	-5.7	-0.2
R	Industrials	3	-11.1	-0.4
VFC	Cyclical	3	-16.0	-0.6
WBA	Healthcare	4	-17.3	-0.9
FDX	Industrials	4	-18.8	-0.9
BIG	Defensive	4	-30.0	-1.5
RHI	Industrials	4	-30.2	-1.5
TPR	Cyclical	4	-30.2	-1.5
ODP	Cyclical	2	-63.5	-1.6
MCO	Financials	3	-49.2	-1.8

APPENDIX, CONTINUED

2008 window, 2008-01-02 to 2008-12-31: the screen -28.0 percent, ROE -33.4, RSP -40.2

2008-01-01, the book: EL, CPWR, RHI, FDX, BIG, ANF, AVP, MCO, UPS, ADSK, TROW, GWW, TPR, R, WBA, KR, BBY, CL, EXPD · **2008-04-01**: in SHW; out BBY · **2008-07-01**: in BBY, GPS; out KR, SHW · **2008-10-01**: in FAST, KR, SBUX; out BBY, WBA

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
KR	Defensive	3	2.8	0.1
SHW	Materials	1	5.7	0.1
FAST	Industrials	1	-10.5	-0.1
BIG	Defensive	4	-6.8	-0.3
GWW	Industrials	4	-7.8	-0.4
CL	Defensive	4	-11.4	-0.6
SBUX	Cyclical	1	-51.0	-0.6
R	Industrials	4	-15.5	-0.8
GPS	Cyclical	2	-34.1	-0.9
RHI	Industrials	4	-18.5	-0.9
UPS	Industrials	4	-20.2	-1.0
BBY	Cyclical	2	-45.1	-1.1

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
CPWR	Utilities	4	-22.8	-1.1
EXPD	Industrials	4	-23.5	-1.2
WBA	Healthcare	3	-33.9	-1.3
EL	Defensive	4	-28.2	-1.4
TPR	Cyclical	4	-32.0	-1.6
AVP		4	-39.0	-2.0
TROW	Financials	4	-39.7	-2.0
FDX	Industrials	4	-40.0	-2.0
MCO	Financials	4	-42.7	-2.1
ADSK	Technology	4	-59.3	-3.0
ANF	Cyclical	4	-70.7	-3.5

2009 window, 2009-01-02 to 2009-12-31: the screen 37.9 percent, ROE 44.9, RSP 37.5

2009-01-01, the book: GNW, RHI, CPWR, EL, TPR, BIG, AVP, FDX, UPS, TROW, ADSK, FAST, ANF, R, EXPD, MCO, CL, GWW, MSFT, KR · **2009-04-01**: in CHRW, HAS, ODP, SHW; out GNW, KR, MCO, TROW · **2009-07-01**: in KR; out MSFT · **2009-10-01**: in ARG, MCO, MUR; out HAS, ODP, SHW · **2010-01-01**: in SBUX, SHW, XRAY; out ADSK, EXPD, MUR

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
BIG	Defensive	4	99.4	5.0
GNW	Financials	1	296.9	3.7
TPR	Cyclical	4	65.9	3.3
FDX	Industrials	4	60.8	3.0
EL	Defensive	4	48.2	2.4
ANF	Cyclical	4	43.1	2.2
ODP	Cyclical	2	84.3	2.1
SBUX	Cyclical	1	134.3	1.7
AVP		4	25.5	1.3
RHI	Industrials	4	25.2	1.3
MSFT	Technology	2	49.9	1.2
ADSK	Technology	4	22.9	1.1
GWW	Industrials	4	20.2	1.0
CL	Defensive	4	18.5	0.9

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
MCO	Financials	3	20.9	0.8
FAST	Industrials	4	14.0	0.7
TROW	Financials	1	46.3	0.6
ARG	Materials	2	17.1	0.4
CHRW	Industrials	4	5.2	0.3
XRAY	Healthcare	1	20.8	0.3
HAS		2	8.3	0.2
MUR	Energy	1	14.2	0.2
UPS	Industrials	4	2.2	0.1
CPWR	Utilities	4	2.1	0.1
SHW	Materials	3	2.8	0.1
R	Industrials	4	1.9	0.1
EXPD	Industrials	4	1.0	0.1
KR	Defensive	4	-22.6	-1.1

2010 window, 2010-01-04 to 2010-12-31: the screen 25.1 percent, ROE 9.1, RSP 17.7

2010-01-01, the book: ARG, CPWR, UPS, RHI, BIG, FDX, EL, SBUX, AVP, TPR, MCO, CL, FAST, KR, CHRW, SHW, ANF, R, GWW, XRAY · **2010-04-01**: in EMR, GPS, ODP, TJX; out ANF, MCO, R, XRAY · **2010-07-01**: in XRAY; out EMR · **2010-10-01**: in ANF, ROST, WBA; out ARG, RHI, XRAY · **2011-01-01**: in BBY, LXX, MUR, NFLX; out ANF, ODP, ROST, SHW

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
EL	Defensive	4	66.3	3.3
CPWR	Utilities	4	57.9	2.9
NFLX	Comm.	1	228.5	2.9
TPR	Cyclical	4	52.3	2.6
FAST	Industrials	4	42.4	2.1
GWW	Industrials	4	42.0	2.1
SBUX	Cyclical	4	39.4	2.0
SHW	Materials	4	35.8	1.8
CHRW	Industrials	4	35.1	1.8
ANF	Cyclical	2	64.2	1.6
UPS	Industrials	4	24.8	1.2
TJX	Cyclical	4	23.2	1.2
ARG	Materials	3	29.1	1.1
ROST	Cyclical	1	48.2	0.6
RHI	Industrials	3	12.8	0.5

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
KR	Defensive	4	9.2	0.5
MUR	Energy	1	33.3	0.4
EMR		1	31.9	0.4
LXX	Technology	1	31.3	0.4
GPS	Cyclical	4	7.8	0.4
R	Industrials	1	26.7	0.3
BIG	Defensive	4	5.2	0.3
WBA	Healthcare	2	4.5	0.1
MCO	Financials	1	-2.7	-0.0
XRAY	Healthcare	2	-3.3	-0.1
CL	Defensive	4	-3.0	-0.2
BBY	Cyclical	1	-14.7	-0.2
AVP		4	-9.5	-0.5
FDX	Industrials	4	-10.2	-0.5
ODP	Cyclical	3	-16.3	-0.6

APPENDIX, CONTINUED

2011 window, 2011-01-03 to 2011-12-30: the screen 6.9 percent, ROE 6.6, RSP -3.2

2011-01-01, the book: MUR, CPWR, UPS, FDX, BIG, EL, TPR, NFLX, SBUX, AVP, CL, GWW, GPS, KR, FAST, BBY, WBA, CHRW, TJX, LXX · **2011-04-01**: in ANF, LLTC, MJN; out BBY, LXX, MUR · **2011-07-01**: in RHI, WFM; out CHRW, GPS · **2011-10-01**: in GPS, ROST; out CL, NFLX · **2012-01-01**: in BKNG, CHRW, CL, DLTR; out CPWR, GPS, ROST, TJX

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
TJX	Cyclical	4	47.4	2.4
FAST	Industrials	4	43.4	2.2
EL	Defensive	4	39.6	2.0
SBUX	Cyclical	4	38.3	1.9
GWW	Industrials	4	34.1	1.7
BIG	Defensive	4	24.2	1.2
CL	Defensive	4	15.8	0.8
ROST	Cyclical	1	48.8	0.6
TPR	Cyclical	4	11.9	0.6
DLTR	Defensive	1	47.0	0.6
MJN	Defensive	4	10.3	0.5
KR	Defensive	4	10.0	0.5
WFM	Defensive	3	13.0	0.5
BKNG	Cyclical	1	12.4	0.2

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
UPS	Industrials	4	0.3	0.0
LXX	Technology	1	-6.0	-0.1
RHI	Industrials	3	-8.1	-0.3
MUR	Energy	1	-26.8	-0.3
BBY	Cyclical	1	-32.2	-0.4
FDX	Industrials	4	-10.4	-0.5
CHRW	Industrials	3	-14.4	-0.5
GPS	Cyclical	3	-16.5	-0.6
LLTC	Technology	4	-13.4	-0.7
ANF	Cyclical	4	-15.8	-0.8
WBA	Healthcare	4	-15.9	-0.8
CPWR	Utilities	4	-29.1	-1.5
AVP		4	-41.6	-2.1
NFLX	Comm.	3	-61.2	-2.3

2012 window, 2012-01-03 to 2012-12-31: the screen 4.9 percent, ROE 11.7, RSP 13.5

2012-01-01, the book: UPS, EL, TPR, RHI, WFM, BIG, LLTC, FDX, DLTR, SBUX, AVP, MJN, FAST, ANF, KR, WBA, CL, CHRW, BKNG, GWW · **2012-04-01**: in TJX; out GWW · **2012-07-01**: in BBY, FOSL, GWW, RL; out BKNG, CHRW, CL, SBUX · **2012-10-01**: in CL, GPS, INTU; out FDX, LLTC, WBA

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
WFM	Defensive	4	30.9	1.5
FDX	Industrials	3	33.7	1.3
TJX	Cyclical	3	33.3	1.2
GPS	Cyclical	1	67.3	0.8
BKNG	Cyclical	2	27.9	0.7
CL	Defensive	3	14.8	0.6
RHI	Industrials	4	11.0	0.6
LLTC	Technology	3	13.1	0.5
SBUX	Cyclical	2	18.5	0.5
WBA	Healthcare	3	11.9	0.4
FOSL	Cyclical	2	17.4	0.4
GWW	Industrials	3	9.0	0.3
FAST	Industrials	4	6.6	0.3

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
EL	Defensive	4	6.5	0.3
KR	Defensive	4	6.1	0.3
RL	Cyclical	2	9.3	0.2
INTU	Technology	1	13.4	0.2
UPS	Industrials	4	-0.6	-0.0
DLTR	Defensive	4	-1.6	-0.1
ANF	Cyclical	4	-1.9	-0.1
CHRW	Industrials	2	-9.5	-0.2
TPR	Cyclical	4	-7.5	-0.4
MJN	Defensive	4	-7.7	-0.4
AVP		4	-18.9	-0.9
BBY	Cyclical	2	-50.0	-1.2
BIG	Defensive	4	-25.5	-1.3

2013 window, 2013-01-02 to 2013-12-31: the screen 24.4 percent, ROE 31.5, RSP 30.4

2013-01-01, the book: TPR, EL, UPS, BIG, RHI, WFM, DLTR, ANF, AVP, FOSL, FAST, MNST, KR, INTU, GWW, TJX, MJN, RL, CL, SHW · **2013-04-01**: in BBWI, GPS, ROST; out BIG, INTU, SHW · **2013-07-01**: in none; out none · **2013-10-01**: in BBY, GME; out ROST, UPS · **2014-01-01**: in CPRI, DOC, INTU, ROST; out ANF, BBWI, BBY, GME, RL

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
BBY	Cyclical	1	237.7	3.0
KR	Defensive	4	49.8	2.5
TJX	Cyclical	4	47.6	2.4
DLTR	Defensive	4	41.4	2.1
RHI	Industrials	4	29.0	1.5
UPS	Industrials	3	37.7	1.4
ROST	Cyclical	3	37.7	1.4
FOSL	Cyclical	4	27.5	1.4
WFM	Defensive	4	25.7	1.3
MNST	Defensive	4	25.0	1.2
GPS	Cyclical	4	24.6	1.2
EL	Defensive	4	23.5	1.2
GWW	Industrials	4	23.0	1.2
GME		1	91.9	1.1

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
BBWI	Cyclical	3	30.5	1.1
CL	Defensive	4	22.7	1.1
MJN	Defensive	4	21.7	1.1
RL	Cyclical	4	16.1	0.8
AVP		4	14.6	0.7
CPRI	Cyclical	1	57.6	0.7
INTU	Technology	2	23.2	0.6
SHW	Materials	1	17.1	0.2
BIG	Defensive	1	14.1	0.2
TPR	Cyclical	4	1.8	0.1
FAST	Industrials	4	-0.7	-0.0
DOC	Real Estate	1	-20.2	-0.3
ANF	Cyclical	4	-30.8	-1.5

APPENDIX, CONTINUED

2014 window, 2014-01-02 to 2014-12-31: the screen 7.9 percent, ROE 16.6, RSP 13.4

2014-01-01, the book: RHI, TPR, EL, WFM, DOC, DLTR, AVP, CPRI, INTU, FOSL, GPS, FAST, KR, GWW, MJN, CL, MNST, TJX, ROST · **2014-04-01**: in TSCO, UPS; out CL · **2014-07-01**: in GME, SHW; out INTU, KR, ROST · **2014-10-01**: in CL, INTU, KR, UHS; out GPS, MJN, MNST · **2015-01-01**: in GPS, MJN; out GME, TJX

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
KR	Defensive	4	63.4	3.2
MNST	Defensive	3	62.3	2.3
RHI	Industrials	4	41.1	2.1
SHW	Materials	3	44.2	1.7
DLTR	Defensive	4	24.8	1.2
DOC	Real Estate	4	21.6	1.1
INTU	Technology	4	21.4	1.1
MJN	Defensive	4	20.9	1.0
UHS	Healthcare	2	38.0	1.0
ROST	Cyclical	2	26.9	0.7
GPS	Cyclical	4	8.8	0.4
TJX	Cyclical	4	8.0	0.4

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
UPS	Industrials	4	7.6	0.4
CL	Defensive	3	7.6	0.3
EL	Defensive	4	3.4	0.2
TSCO	Cyclical	4	2.6	0.1
FAST	Industrials	4	1.8	0.1
GWW	Industrials	4	0.7	0.0
FOSL	Cyclical	4	-6.4	-0.3
CPRI	Cyclical	4	-8.9	-0.4
WFM	Defensive	4	-11.7	-0.6
GME		2	-31.9	-0.8
TPR	Cyclical	4	-32.8	-1.6
AVP		4	-45.0	-2.2

2015 window, 2015-01-02 to 2015-12-31: the screen -13.2 percent, ROE -0.3, RSP -4.2

2015-01-01, the book: DOC, WFM, RHI, EL, TSCO, AVP, FOSL, CPRI, DLTR, TPR, GWW, SHW, GPS, UHS, FAST, INTU, UPS, CL, MJN, KR · **2015-04-01**: in HCA, TJX; out AVP, MJN · **2015-07-01**: in BBWI, GME, RL; out DLTR, INTU, TPR · **2015-10-01**: in INTU; out RL · **2016-01-01**: in MJN, NKE; out BBWI, GME, UPS

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
KR	Defensive	4	31.7	1.6
EL	Defensive	4	16.5	0.8
TSCO	Cyclical	4	9.5	0.5
NKE	Cyclical	1	31.6	0.4
UHS	Healthcare	4	7.7	0.4
BBWI	Cyclical	2	13.8	0.3
INTU	Technology	4	5.8	0.3
DLTR	Defensive	2	9.8	0.2
TJX	Cyclical	4	4.4	0.2
SHW	Materials	4	-1.1	-0.1
CL	Defensive	4	-3.5	-0.2
TPR	Cyclical	2	-12.3	-0.3
GME		2	-17.0	-0.4

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
HCA	Healthcare	4	-8.6	-0.4
RL	Cyclical	1	-39.1	-0.5
MJN	Defensive	2	-21.0	-0.5
UPS	Industrials	4	-12.8	-0.6
FAST	Industrials	4	-13.8	-0.7
AVP		1	-56.5	-0.7
DOC	Real Estate	4	-14.7	-0.7
RHI	Industrials	4	-18.6	-0.9
GWW	Industrials	4	-20.6	-1.0
WFM	Defensive	4	-33.2	-1.7
GPS	Cyclical	4	-41.3	-2.1
CPRI	Cyclical	4	-46.4	-2.3
FOSL	Cyclical	4	-66.9	-3.3

2016 window, 2016-01-04 to 2016-12-30: the screen 7.1 percent, ROE 2.7, RSP 14.3

2016-01-01, the book: RHI, CPRI, DOC, WFM, EL, HCA, INTU, SHW, TSCO, UHS, FOSL, FAST, GPS, KR, GWW, TJX, MJN, CL, NKE · **2016-04-01**: in FFIV, HD, ROST, UPS; out FOSL, MJN, NKE · **2016-07-01**: in BBY, NKE; out GWW, HD, ROST · **2016-10-01**: in GWW, HD; out DOC, UPS

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
FFIV	Technology	3	49.3	1.8
INTU	Technology	4	21.4	1.1
BBY	Cyclical	2	39.2	1.0
FAST	Industrials	4	16.9	0.8
HCA	Healthcare	4	11.7	0.6
GWW	Industrials	3	14.9	0.6
UPS	Industrials	2	20.9	0.5
CPRI	Cyclical	4	6.5	0.3
TJX	Cyclical	4	6.1	0.3
RHI	Industrials	4	5.7	0.3
SHW	Materials	4	5.5	0.3
ROST	Cyclical	1	20.7	0.3

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
HD	Cyclical	2	2.3	0.1
CL	Defensive	4	1.1	0.1
MJN	Defensive	1	-9.5	-0.1
FOSL	Cyclical	1	-24.6	-0.3
WFM	Defensive	4	-7.5	-0.4
TSCO	Cyclical	4	-9.5	-0.5
UHS	Healthcare	4	-9.8	-0.5
GPS	Cyclical	4	-12.0	-0.6
EL	Defensive	4	-12.3	-0.6
NKE	Cyclical	3	-17.4	-0.7
KR	Defensive	4	-16.2	-0.8
DOC	Real Estate	3	-22.3	-0.8

APPENDIX, CONTINUED

2017 window, 2017-01-03 to 2017-12-29: the screen 20.9 percent, ROE 17.5, RSP 15.7

2017-01-01, the book: RHI, INTU, WFM, HCA, CPRI, EL, UHS, TSCO, SHW, TJX, CL, FFIV, HD, FAST, NKE, KR, FL, GWW, GPS · **2017-04-01**: in CBOE, CERN, ROST; out FL, NKE · **2017-07-01**: in BBY, INCY; out CBOE, ROST · **2017-10-01**: in CDNS, ROST, ULTA; out CERN, SHW, WFM · **2018-01-01**: in CERN, HRB; out BBY, INCY

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
EL	Defensive	4	64.5	3.2
CPRI	Cyclical	4	46.1	2.3
GPS	Cyclical	4	45.1	2.3
HD	Cyclical	4	41.1	2.1
INTU	Technology	4	37.5	1.9
SHW	Materials	3	49.4	1.9
CDNS	Technology	2	65.0	1.6
BBY	Cyclical	2	60.1	1.5
CERN	Healthcare	3	36.4	1.4
WFM	Defensive	3	35.9	1.3
HCA	Healthcare	4	18.0	0.9
CBOE		1	70.6	0.9
ROST	Cyclical	3	22.3	0.8
FAST	Industrials	4	16.5	0.8

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
CL	Defensive	4	15.1	0.8
RHI	Industrials	4	11.6	0.6
UHS	Healthcare	4	6.2	0.3
NKE	Cyclical	1	20.3	0.3
HRB	Cyclical	1	14.4	0.2
TJX	Cyclical	4	1.3	0.1
GWW	Industrials	4	0.8	0.0
TSCO	Cyclical	4	-1.5	-0.1
INCY	Healthcare	2	-7.4	-0.2
ULTA	Cyclical	2	-12.9	-0.3
FL	Cyclical	1	-34.6	-0.4
FFIV	Technology	4	-9.4	-0.5
KR	Defensive	4	-18.6	-0.9

2018 window, 2018-01-02 to 2018-12-31: the screen -0.2 percent, ROE -8.0, RSP -10.2

2018-01-01, the book: HCA, RHI, INTU, CPRI, UHS, TSCO, EL, HD, GPS, HRB, FAST, CL, CDNS, TJX, KR, FFIV, ULTA, GWW, CERN, ROST · **2018-04-01**: in JWN; out HRB · **2018-07-01**: in BBY, IDXX; out CERN, ROST · **2018-10-01**: in NKE, ROL, ROST; out CDNS, FFIV, JWN · **2019-01-01**: in ALGN, CDNS, HRB; out BBY, ROST, ULTA

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
HCA	Healthcare	4	39.0	2.0
INTU	Technology	4	24.0	1.2
GWW	Industrials	4	19.8	1.0
TJX	Cyclical	4	16.7	0.8
FFIV	Technology	3	22.2	0.8
IDXX	Healthcare	3	17.9	0.7
TSCO	Cyclical	4	10.2	0.5
NKE	Cyclical	2	16.8	0.4
ROL	Industrials	2	16.1	0.4
ULTA	Cyclical	4	6.6	0.3
CDNS	Technology	4	3.4	0.2
ROST	Cyclical	3	3.4	0.1
RHI	Industrials	4	2.3	0.1

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
EL	Defensive	4	2.0	0.1
UHS	Healthcare	4	0.8	0.0
ALGN	Healthcare	1	-6.8	-0.1
JWN	Cyclical	2	-5.1	-0.1
HRB	Cyclical	2	-5.2	-0.1
KR	Defensive	4	-2.8	-0.1
FAST	Industrials	4	-4.1	-0.2
HD	Cyclical	4	-8.6	-0.4
BBY	Cyclical	2	-23.4	-0.6
CERN	Healthcare	2	-23.5	-0.6
CL	Defensive	4	-20.8	-1.0
GPS	Cyclical	4	-23.9	-1.2
CPRI	Cyclical	4	-40.8	-2.0

2019 window, 2019-01-02 to 2019-12-31: the screen 22.4 percent, ROE 38.1, RSP 26.5

2019-01-01, the book: INTU, EL, HCA, UHS, RHI, TSCO, ROL, CDNS, HD, GPS, IDXX, CPRI, CL, TJX, FAST, NKE, GWW, HRB, ALGN, KR · **2019-04-01**: in BBY, JWN, TRIP; out ALGN, CPRI, HRB · **2019-07-01**: in ALGN, AZO, CERN, INCY, RL; out GPS, JWN, KR, TJX, TSCO · **2019-10-01**: in CTXS, MTD, SYY; out RL, ROL, TRIP · **2020-01-01**: in ABMD; out AZO

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
BBY	Cyclical	4	63.8	3.2
CDNS	Technology	4	60.4	3.0
EL	Defensive	4	56.5	2.8
FAST	Industrials	4	43.7	2.2
IDXX	Healthcare	4	43.1	2.2
ALGN	Healthcare	4	38.1	1.9
NKE	Cyclical	4	36.8	1.8
INTU	Technology	4	34.7	1.7
CERN	Healthcare	3	41.5	1.6
INCY	Healthcare	3	37.4	1.4
HD	Cyclical	4	26.7	1.3
MTD	Healthcare	2	45.3	1.1
GWW	Industrials	4	22.4	1.1
UHS	Healthcare	4	22.2	1.1
HCA	Healthcare	4	21.4	1.1
AZO	Cyclical	2	42.1	1.1

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
SYY	Defensive	2	37.9	0.9
TJX	Cyclical	2	36.7	0.9
CL	Defensive	4	16.2	0.8
RHI	Industrials	4	11.7	0.6
TSCO	Cyclical	2	13.6	0.3
CTXS	Technology	2	8.5	0.2
KR	Defensive	2	6.2	0.2
RL	Cyclical	1	11.2	0.1
CPRI	Cyclical	1	-3.1	-0.0
HRB	Cyclical	1	-8.2	-0.1
JWN	Cyclical	1	-13.8	-0.2
ROL	Industrials	3	-7.3	-0.3
ABMD	Healthcare	1	-45.0	-0.6
GPS	Cyclical	2	-31.3	-0.8
TRIP	Cyclical	2	-44.0	-1.1

APPENDIX, CONTINUED

2020 window, 2020-01-02 to 2020-12-31: the screen 23.1 percent, ROE 14.3, RSP 9.9

2020-01-01, the book: INTU, UHS, CDNS, HCA, RHI, EL, IDXX, GWW, HD, ALGN, NKE, CERN, FAST, MTD, CTXS, INCY, CL, ABMD, SY, BBY · **2020-04-01**: in KR, ROL; out ABMD, CTXS · **2020-07-01**: in CTXS, DPZ, VRSN; out ALGN, CDNS, SY · **2020-10-01**: in WMT; out NKE

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
IDXX	Healthcare	4	88.6	4.4
ROL	Industrials	3	75.8	2.8
CDNS	Technology	2	91.0	2.3
ALGN	Healthcare	2	88.4	2.2
INTU	Technology	4	42.7	2.1
MTD	Healthcare	4	41.6	2.1
FAST	Industrials	4	31.2	1.6
EL	Defensive	4	29.1	1.5
NKE	Cyclical	3	38.4	1.4
CL	Defensive	4	25.5	1.3
ABMD	Healthcare	1	92.1	1.2
HD	Cyclical	4	20.9	1.0
GWW	Industrials	4	18.5	0.9

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
DPZ	Cyclical	2	30.7	0.8
BBY	Cyclical	4	14.3	0.7
CTXS	Technology	3	16.5	0.6
HCA	Healthcare	4	11.5	0.6
KR	Defensive	3	10.8	0.4
CERN	Healthcare	4	6.6	0.3
WMT	Defensive	1	21.2	0.3
VRSN	Technology	2	10.0	0.2
INCY	Healthcare	4	1.2	0.1
RHI	Industrials	4	-2.0	-0.1
UHS	Healthcare	4	-3.4	-0.2
SY	Defensive	2	-12.3	-0.3

2021 window, 2021-01-04 to 2021-12-31: the screen 28.7 percent, ROE 25.4, RSP 29.5

2021-01-01, the book: UHS, IDXX, DPZ, HCA, RHI, INCY, INTU, POOL, GWW, HD, CL, KR, CERN, FAST, MTD, VRSN, ROL, CTXS, EL, ADSK · **2021-04-01**: in BBY, CDNS, LOW; out ADSK, EL, INTU · **2021-07-01**: in ETSY, TGT, WMT; out CERN, CTXS, POOL · **2021-10-01**: in CERN, POOL; out ETSY, TGT · **2022-01-01**: in AMD, BBWI; out BBY, WMT

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
RHI	Industrials	4	82.4	4.1
LOW	Cyclical	4	61.2	3.1
POOL	Industrials	4	58.6	2.9
HD	Cyclical	4	57.2	2.9
HCA	Healthcare	4	57.0	2.9
DPZ	Cyclical	4	48.7	2.4
MTD	Healthcare	4	46.2	2.3
KR	Defensive	4	40.9	2.0
CDNS	Technology	4	37.3	1.9
FAST	Industrials	4	34.4	1.7
IDXX	Healthcare	4	33.9	1.7
GWW	Industrials	4	31.6	1.6
BBWI	Cyclical	1	118.1	1.5
CERN	Healthcare	4	19.5	1.0

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
VRSN	Technology	4	18.8	0.9
INTU	Technology	1	73.0	0.9
AMD	Technology	1	55.9	0.7
EL	Defensive	1	45.2	0.6
TGT	Cyclical	1	30.3	0.4
ETSY	Cyclical	1	27.2	0.3
CL	Defensive	4	1.2	0.1
BBY	Cyclical	3	1.1	0.0
WMT	Defensive	2	-1.2	-0.0
ADSK	Technology	1	-5.3	-0.1
UHS	Healthcare	4	-4.2	-0.2
ROL	Industrials	4	-10.5	-0.5
CTXS	Technology	2	-26.3	-0.7
INCY	Healthcare	4	-15.1	-0.8

2022 window, 2022-01-03 to 2022-12-30: the screen -14.5 percent, ROE -17.8, RSP -13.3

2022-01-01, the book: UHS, DPZ, BBWI, RHI, HCA, IDXX, GWW, HD, POOL, INCY, CL, ROL, MTD, FAST, CDNS, CERN, AMD, VRSN, LOW, KR · **2022-04-01**: in BBY, MRNA, UA, ULTA; out CDNS, INCY, POOL, VRSN · **2022-07-01**: in CDNS, EL, TER, TPR; out AMD, CERN, ROL, UA · **2022-10-01**: in VRSN; out TER · **2023-01-01**: in ETSY, ROL; out BBY, CDNS

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
ULTA	Cyclical	4	13.5	0.7
GWW	Industrials	4	9.0	0.5
UHS	Healthcare	4	6.7	0.3
ROL	Industrials	3	8.7	0.3
INCY	Healthcare	1	8.6	0.1
CERN	Healthcare	2	2.2	0.1
KR	Defensive	4	-1.3	-0.1
TPR	Cyclical	3	-6.7	-0.3
HCA	Healthcare	4	-5.6	-0.3
CL	Defensive	4	-6.9	-0.3
CDNS	Technology	3	-12.3	-0.5
ETSY	Cyclical	1	-42.9	-0.5
POOL	Industrials	1	-45.1	-0.6
TER		1	-47.4	-0.6

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
UA		1	-50.6	-0.6
MTD	Healthcare	4	-13.7	-0.7
VRSN	Technology	3	-18.5	-0.7
BBY	Cyclical	3	-21.5	-0.8
LOW	Cyclical	4	-22.0	-1.1
HD	Cyclical	4	-22.7	-1.1
MRNA	Healthcare	4	-23.6	-1.2
FAST	Industrials	4	-23.7	-1.2
EL	Defensive	3	-33.0	-1.2
AMD	Technology	2	-56.9	-1.4
RHI	Industrials	4	-32.5	-1.6
IDXX	Healthcare	4	-35.3	-1.8
DPZ	Cyclical	4	-37.4	-1.9
BBWI	Cyclical	4	-39.5	-2.0

APPENDIX, CONTINUED

2023 window, 2023-01-03 to 2023-12-29: the screen 12.0 percent, ROE 7.1, RSP 11.8

2023-01-01, the book: DPZ, RHI, HCA, GWW, UHS, IDXX, ULTA, ETSY, VRSN, HD, FAST, MTD, BBWI, TPR, EL, LOW, ROL, KR, CL, MRNA · **2023-04-01**: in BBY, CDNS, FICO; out BBWI, EL, MRNA · **2023-07-01**: in none; out none · **2023-10-01**: in SY Y; out ROL · **2024-01-01**: in LULU, RL; out BBY, SY Y

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
FICO	Technology	4	96.9	4.8
CDNS	Technology	4	70.6	3.5
GWW	Industrials	4	49.1	2.5
IDXX	Healthcare	4	36.7	1.8
FAST	Industrials	4	36.7	1.8
DPZ	Cyclical	4	21.5	1.1
RHI	Industrials	4	19.5	1.0
ROL	Industrials	3	19.5	0.7
LULU	Cyclical	1	58.1	0.7
LOW	Cyclical	4	11.8	0.6
HCA	Healthcare	4	11.3	0.6
HD	Cyclical	4	9.7	0.5
RL	Cyclical	1	32.2	0.4

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
UHS	Healthcare	4	6.9	0.3
ULTA	Cyclical	4	3.9	0.2
KR	Defensive	4	2.8	0.1
VRSN	Technology	4	2.0	0.1
CL	Defensive	4	0.7	0.0
BBWI	Cyclical	1	-0.1	-0.0
SY Y	Defensive	1	-3.8	-0.0
BBY	Cyclical	3	-2.6	-0.1
TPR	Cyclical	4	-5.2	-0.3
EL	Defensive	1	-42.4	-0.5
MRNA	Healthcare	1	-44.4	-0.6
MTD	Healthcare	4	-17.0	-0.9
ETSY	Cyclical	4	-28.6	-1.4

2024 window, 2024-01-02 to 2024-12-31: the screen 17.5 percent, ROE 35.5, RSP 11.0

2024-01-01, the book: DPZ, LULU, RHI, HCA, UHS, GWW, ETSY, FICO, ULTA, VRSN, FAST, IDXX, MTD, CL, HD, LOW, TPR, CDNS, KR, RL · **2024-04-01**: in BBY, DECK, NVDA; out LOW, RL, TPR · **2024-07-01**: in RL; out RHI · **2024-10-01**: in ADBE, BBWI, INCY, WMT; out BBY, CDNS, ETSY, HD

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
NVDA	Technology	3	178.8	6.7
FICO	Technology	4	76.0	3.8
DECK	Cyclical	3	80.8	3.0
RL	Cyclical	3	58.2	2.2
KR	Defensive	4	32.2	1.6
GWW	Industrials	4	29.6	1.5
TPR	Cyclical	1	71.2	0.9
WMT	Defensive	1	70.2	0.9
UHS	Healthcare	4	14.7	0.7
FAST	Industrials	4	13.2	0.7
CL	Defensive	4	12.6	0.6
CDNS	Technology	3	14.3	0.5
HD	Cyclical	3	12.7	0.5
HCA	Healthcare	4	9.0	0.5

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
BBY	Cyclical	2	11.1	0.3
LOW	Cyclical	1	12.9	0.2
VRSN	Technology	4	2.7	0.1
DPZ	Cyclical	4	1.6	0.1
INCY	Healthcare	1	5.5	0.1
MTD	Healthcare	4	0.8	0.0
BBWI	Cyclical	1	-13.4	-0.2
ADBE	Technology	1	-23.3	-0.3
RHI	Industrials	2	-18.2	-0.5
ULTA	Cyclical	4	-10.6	-0.5
LULU	Cyclical	4	-24.3	-1.2
IDXX	Healthcare	4	-24.5	-1.2
ETSY	Cyclical	3	-34.8	-1.3

2025 window, 2025-01-02 to 2025-12-31: the screen 12.5 percent, ROE 2.2, RSP 9.6

2025-01-01, the book: LULU, VRSN, UHS, NVDA, DPZ, FICO, DECK, INCY, ULTA, HCA, GWW, CL, FAST, IDXX, RL, MTD, WMT, ADBE, ROL, CLX · **2025-04-01**: in BBY, TPR, WSM; out CLX, HCA, ROL · **2025-07-01**: in none; out none · **2025-10-01**: in APP, MTCH; out BBY, WMT · **2026-01-01**: in KR; out MTCH

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
TPR	Cyclical	4	94.7	4.7
IDXX	Healthcare	4	65.5	3.3
RL	Cyclical	4	52.7	2.6
APP		2	97.2	2.4
INCY	Healthcare	4	42.1	2.1
ULTA	Cyclical	4	41.0	2.1
NVDA	Technology	4	34.8	1.7
UHS	Healthcare	4	21.3	1.1
VRSN	Technology	4	18.5	0.9
WMT	Defensive	3	23.8	0.9
MTD	Healthcare	4	14.2	0.7
HCA	Healthcare	1	56.8	0.7
FAST	Industrials	4	12.9	0.6

TICKER	SECTOR	QTRS	RETURN HELD, %	CONTRIB., PTS
ROL	Industrials	1	30.4	0.4
KR	Defensive	1	0.9	0.0
MTCH		1	-1.0	-0.0
GWW	Industrials	4	-3.1	-0.2
DPZ	Cyclical	4	-4.2	-0.2
WSM		4	-4.8	-0.2
CLX	Defensive	1	-37.7	-0.5
BBY	Cyclical	2	-22.3	-0.6
CL	Defensive	4	-12.7	-0.6
FICO	Technology	4	-15.3	-0.8
ADBE	Technology	4	-20.6	-1.0
LULU	Cyclical	4	-44.2	-2.2
DECK	Cyclical	4	-49.3	-2.5