

The background is a blurred image of a financial newspaper page. It features various stock market data, including a table of stock prices, a line graph showing a stock's price movement over time, and a bar chart. A semi-transparent red rectangle is overlaid on the center of the page, containing the title and authors. The text is in white, bold, sans-serif font.

Share Buybacks

***SIFway Surfers
Zachary Burrows, Dylan Mingo, Richard Schettler***

2/28/24



Summary

Idea – Share buybacks lead to an improved efficiency for net working capital turnover, and have been the leading driver for SP500 returns over the last 10 years. Change to efficiency can change the speed at which markets adjust to value change. We can capitalize on companies whose efficiency and value change has not been fully priced in.

Strategy – Invest in financially strong companies that have recently engaged in buyback, anticipating potential returns.

Historical Performance – Our selected strategy has an AAGR of 22.81% and a CAGR of 21.04%

Recommendation – Buy \$75k in School fund

Recommendation – Liquidate ESG fund, buy \$75k of strategy, remainder goes into ESGV (Vanguard ESG U.S. Stock ETF, E.R 0.09%)

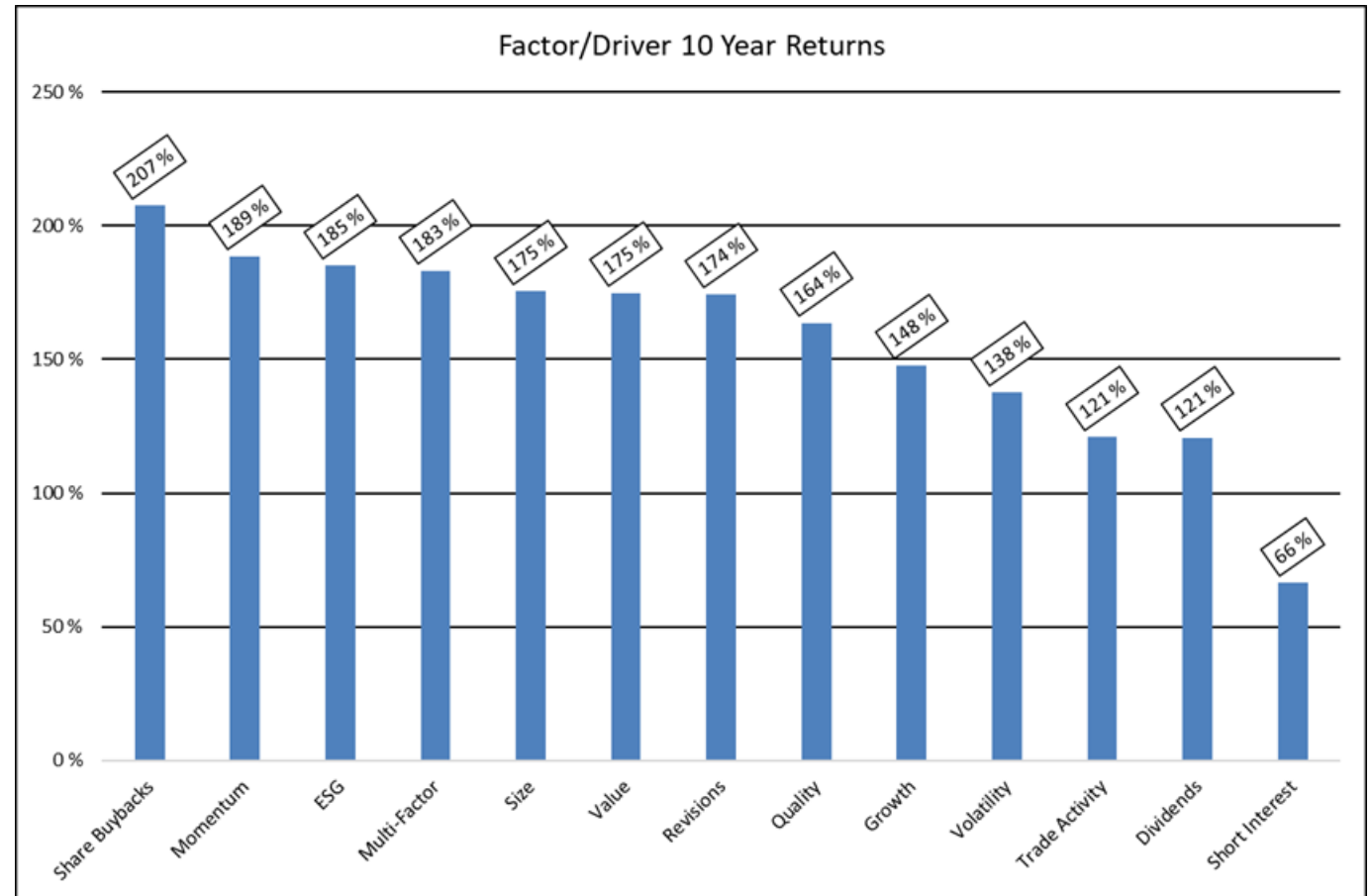
What to Sell – Sell SPY holdings (school), entire portfolio (ESG)

Effect on Portfolio – Higher Standard Deviation, but increases Sharpe and Information Ratio, and decreased beta



Source Idea

Over the last 10 years, the companies with the highest 20% of share buybacks (\$) returned 207% compared to 125% for the total US stock market, and 211% for SPY



Source Idea

Stock Buybacks, Corporate Performance and EVA

Benton E. Gup, Ph.D & Doowoo Nam, Ph.D, University of Alabama,
Journal of Applied Corporate Finance, Volume 14.1

This study concluded that: “the operating performance of the buyback companies is better than the performance of the non-buyback companies, and that it improves significantly in the year after the initiation of buyback activities. These improvements are more impressive when we look at EVA and the value spread than when we consider only ROIC”

- After companies start to repurchase shares, from an accounting perspective they will operate better
- Manifest through an increase to working capital turnover ratio

$$\text{NWCT} = \text{Net Sales} / \text{Net Working Capital}$$





Source Idea

Actual Share Repurchases, Price Efficiency, and the Information Content of Stock Prices

Stefan Obernberger, Ph.D and Pascal Busch, Ph.D

(The Review of Financial Studies, Volume 30, Issue 1, January 2017, Pages 324–362)

Which in explores, in part, how an increase in price efficiency (NWCT) leads to a shorter delay in “lagged market returns”

$$r_{i,t} = \alpha_i + \beta_i^0 r_{m,t} + \varepsilon_{i,t} \text{ (Base model),} \quad (3)$$

$$r_{i,t} = \alpha_i + \beta_i^0 r_{m,t} + \sum_{n=1}^5 \beta_i^n r_{m,t-n} + \varepsilon_{i,t} \text{ (Extended market model).} \quad (4)$$



Source Idea

What does this mean?

Hypothesis: We can capture unrealized/lagged value by investing in companies with high share repurchasing whose NWCT is lower than others in the same field.



Percentile Analysis

Equal Weight	ROIC					OMP					Working Capital Turnover				
Year	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5
2023	0.04	-4.50	-2.40	-16.00	-5.90	-6.11	-1.89	-4.03	-12.10	-4.50	-11.50	3.80	-10.30	-16.30	9.50
2022	0.59	7.49	12.75	9.25	10.86	4.06	8.16	4.11	16.34	8.35	15.46	-1.27	7.83	11.63	9.46
2021	6.21	8.88	-2.57	0.04	1.57	0.70	5.35	1.72	-3.70	10.05	-0.31	-0.35	-3.36	0.12	18.08
2020	-5.89	2.60	2.22	-12.41	-5.62	-13.39	-6.55	-2.26	-5.97	8.84	-5.63	2.50	-2.54	-0.05	3.02
2019	9.72	-2.53	-2.50	-7.51	2.25	0.90	4.07	-0.52	1.66	-6.00	-1.71	-2.32	3.67	-2.12	-3.30
2018	1.87	2.37	0.82	-7.84	-0.89	-3.95	0.08	-2.17	4.94	-1.67	-1.71	5.51	3.19	0.96	2.03
2017	3.28	6.25	1.61	-4.34	-2.27	4.67	4.57	-0.21	0.59	-3.99	1.19	-2.79	1.92	6.21	-5.80
2016	1.13	0.97	5.17	-1.69	8.64	1.75	8.96	2.58	-0.95	1.79	-3.50	-1.40	-1.52	2.77	7.77
2015	0.97	0.14	-7.25	-5.62	-4.36	-4.27	-4.73	-1.21	-1.48	-3.79	3.88	-0.35	-8.67	0.37	-10.44
Avg	1.99	2.41	0.87	-5.12	0.48	-1.74	2.00	-0.22	-0.07	1.01	-0.43	0.37	-1.09	0.40	3.37
Factor Mean	0.12					0.20					0.53				
Factor Std dev	6.01					5.70					6.62				
Std Dev	4.07	4.24	5.39	6.92	5.67	5.44	5.23	2.45	7.40	6.08	6.96	2.72	5.57	7.08	8.38
Var	16.54	17.98	29.09	47.82	32.16	29.55	27.30	5.99	54.81	36.92	48.44	7.42	31.04	50.15	70.18

Market Cap	ROIC					OMP					Working Capital Turnover				
Year	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5
2023	13.40	1.90	6.33	-16.75	6.60	4.30	8.90	5.30	-14.70	5.60	-15.80	14.40	5.70	-22.80	19.10
2022	-12.01	0.00	13.68	22.79	1.74	-4.97	-5.19	7.87	14.19	11.60	17.42	-5.62	5.75	3.83	19.17
2021	5.24	3.30	-3.53	-1.84	0.35	1.85	12.29	-11.58	0.40	2.85	-8.53	4.80	-0.55	-0.71	4.21
2020	12.37	3.38	5.82	-11.11	-11.30	-4.25	9.56	-1.77	-7.74	7.02	-6.24	-0.17	2.31	-2.41	-8.46
2019	17.25	-0.32	-4.02	-6.16	3.46	5.46	7.50	1.16	-0.39	-11.00	-1.03	-0.49	8.30	-6.58	-12.85
2018	-0.58	4.98	2.70	0.75	-3.28	-2.96	11.16	-10.11	1.83	0.29	-3.54	2.09	7.13	-0.58	5.49
2017	5.07	8.29	5.84	-7.71	-5.15	3.46	6.32	0.43	-4.68	-3.75	5.54	1.41	0.96	4.82	-13.06
2016	-2.25	0.37	1.14	-1.80	2.80	-4.40	8.43	2.61	-2.75	-2.65	-3.14	3.93	-5.64	-4.39	2.18
2015	-1.13	2.48	-4.37	-5.11	-1.99	-2.63	-0.92	-3.47	-0.40	-2.32	0.45	-3.65	0.76	3.18	-7.43
Avg	4.15	2.71	2.62	-2.99	-0.75	-0.46	6.45	-1.06	-1.58	0.85	-1.65	1.86	2.75	-2.85	0.93
Factor Mean	1.15					0.84					0.21				
Factor Std dev	7.52					6.64					8.33				
Std Dev	8.69	2.58	5.67	10.40	5.06	3.94	5.44	6.14	7.36	6.36	8.78	5.44	4.17	7.92	11.74
Var	75.46	6.64	32.19	108.16	25.60	15.51	29.65	37.74	54.23	40.49	77.17	29.60	17.37	62.67	137.74



Screening Criteria

Criteria	Sub-Criteria	# of Companies
Security Attributes: Show Primary Security of company only		93929
Country/Territory of Domicile: United States		14418
Price 1 Day ago > 2		10179
Current Market Cap > 800 Million		2913
LT12M Total Value of Shares Repurchased has data		1804
LT12M Total Value of Shares Repurchased	Top 2 Sequential Decile Rank	361
LIF Modified Working Capital Turnover has data		270
LF Modified Working Capital Turnover (Higher is Better)	Bottom 1 Sequential Quintile Rank	54
LF Return on Invested Capital has data		54
LF Return on Invested Capital (Higher is Better)	Top 1 Sequential Quintile Rank	11
LF Operating Margin (Higher is Better)	Top 3 Sequential Quntile Rank	7





Strategy Details

Backtesting Method - Bloomberg

Data needed and sources - N/A

Rebalance frequency - Quarterly

Number of positions - Relative to each test

Number of years backtested - 1 year (10 total observations)

Minimum stock market cap - 800M

Weighting - Equal

Type of stock - Common

Exchange listings included - Major US Exchanges





Backtesting Implementation Details

# OF STOCKS	Relative to each backtest
MIN MARKET CAP	\$800M
MIN MONTHLY TRADING VOLUME	\$15M
WEIGHTING SCHEME	EQUAL
REBALANCING FREQUENCY	QUARTERLY
TIME FRAME	1 YEAR
CURRENCY	USD



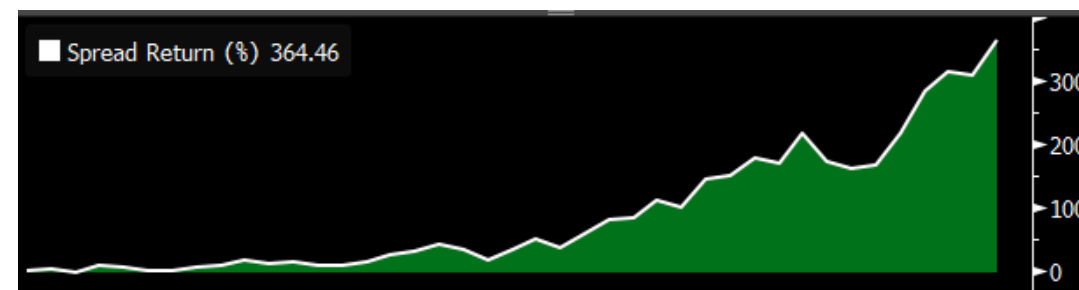
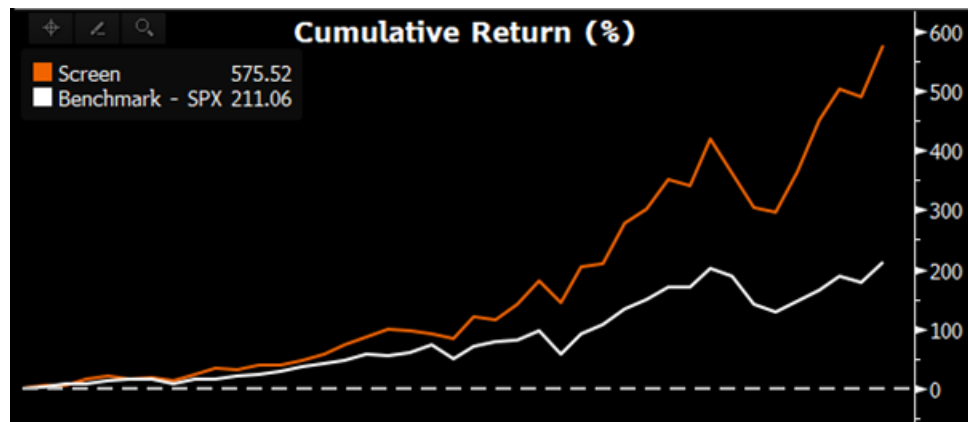


Backtesting Results - Characteristics

<u>Results Analysis</u>	Mean	Min	25%	Median	75%	Max
Market Cap (\$Millions)	67,674.91	3,140	22,125	46,755	88,135	1,070,000
P/E Ratio	24.37	3.77	15.95	22.38	29.11	99.93
Monthly Trading Volume* (\$Millions)	483.98	19.25	147.37	323.95	551.04	23,311.11
Share Price*	\$209.63	\$36.28	\$89.66	\$149.62	\$301.36	\$783.26



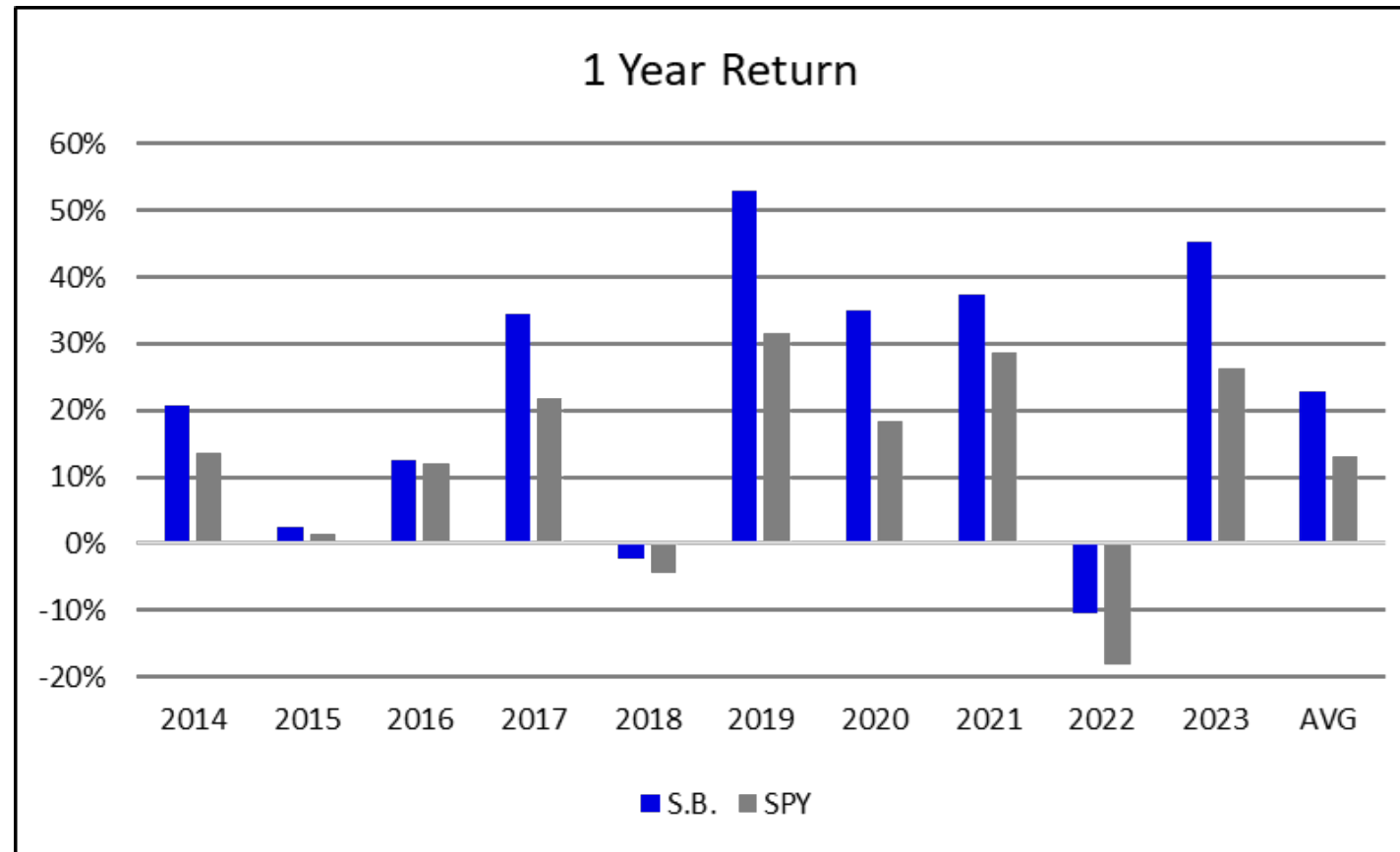
Backtesting Results - Performance



<u>Annualized</u>	% Return	α	β	σ	Sharpe	Treynor	Max DD	Info Ratio	Idio. Risk
1 Year S.B.	45.36	16.42	1.21	19.78	2.19	0.36	34.45	1.34	5.85
1 Year SPY	26.26	0.0	1.0	13.37	1.71	0.22	22.26	0.00	0.00
10 Year S.B.	575.52	8.95	1.15	24.32	0.96	0.47	27.64	0.71	8.70
10 Year SPY	211.06	0.0	1.0	17.81	1.05	0.15	38.91	0.00	0.00



Backtesting Results - Performance



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	AVG
S.B.	20.67%	2.47%	12.45%	34.53%	-2.17%	52.89%	35.08%	37.30%	-10.53%	45.36%	22.81%
SPY	13.67%	1.28%	11.95%	21.82%	-4.39%	31.47%	18.39%	28.68%	-18.13%	26.26%	13.10%





Recommended Purchases

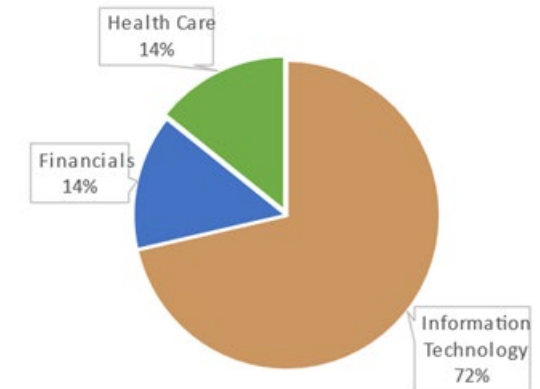
Name	Ticker	P/E Ratio	Monthly Trading Volume (\$M)	Market Cap (\$M)	Share Price	# of Shares	Total Value
LAM Research	LRCX	34.18	1,088.96	122,020.00	\$938.76	11	\$10,326.36
KLA Corp	KLAC	29.75	731.69	19,630.00	\$683.82	16	\$10,941.12
MSCI Inc	MSCI	43.98	303.89	44,120.00	\$567.93	19	\$10,790.67
Waters Corp	WAT	29.64	134.16	19,690.00	\$327.03	33	\$10,791.99
Applied Materials	AMAT	24.89	1475.74	168,560.00	\$203.55	53	\$10,788.15
Texas Instruments	TXN	23.60	974.30	149,980.00	\$164.30	65	\$10,679.50
Microchip Technologies	MCHP	19.17	489.94	44,820.00	\$82.90	129	\$10,694.10
Totals						326	\$75.011.89



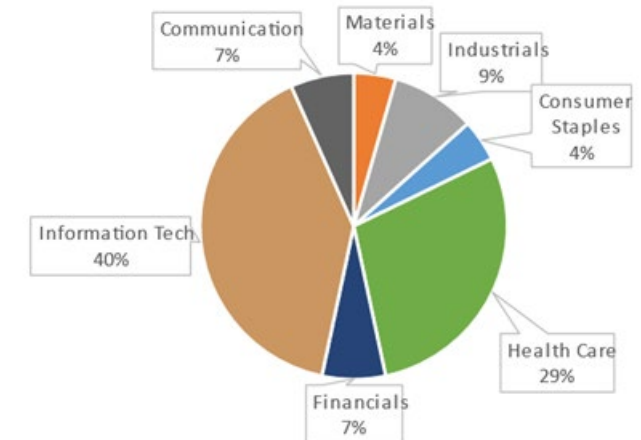
Effect on the Portfolio

	Existing Portfolio (SIF 1Yr)	New Portfolio (Buybacks)
Beta	1.24	1.15
Information Ratio	-13.6	0.71
Sharpe Ratio	0.90	0.96
Expected Return	14.97%	21.04%
Standard Deviation	16.10%	20.42%
Idiosyncratic Risk	NA	8.53%

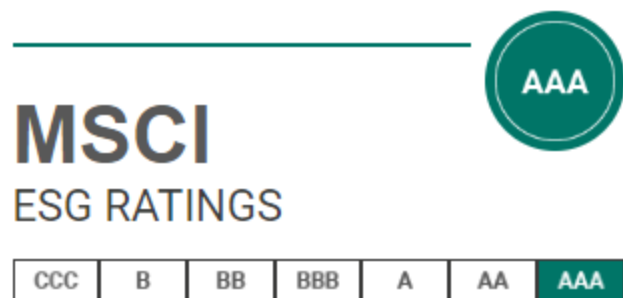
Proposed Portfolio Makeup



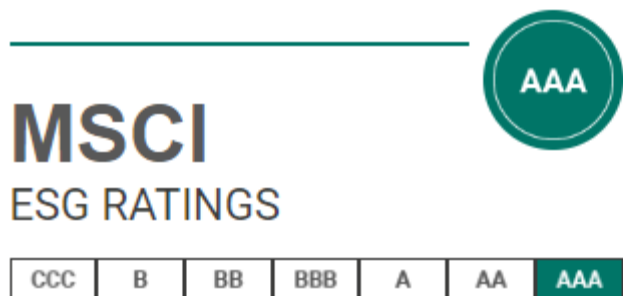
Historical Portfolio Makeup



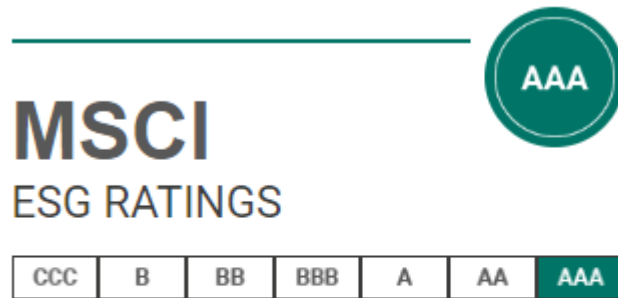
MSCI - ESG Rating



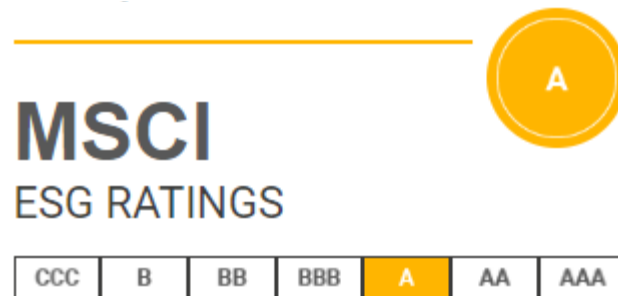
Waters is a **leader**



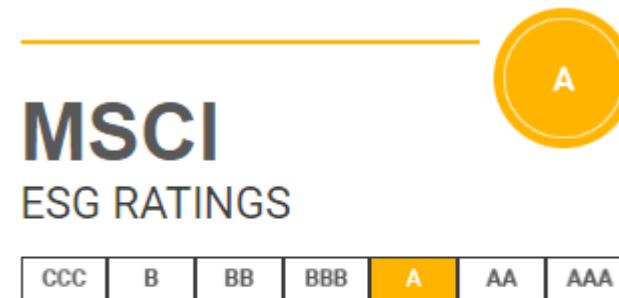
Lam Research is a **leader**



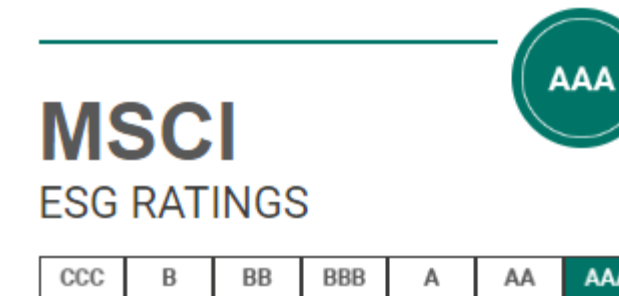
Applied Materials is a **leader**



Microchip is **average**



KLA is **average**



TI is a **leader**



Recap

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