Sector Rotation Through Business Cycles

SIFway Surfers:
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Summary

Idea – *As market conditions evolve and adapt, so does market sentiment. We want to take advantage of this by investing in companies poised to generate excess returns during current market conditions.*

Strategy – *Following business cycles, we can target companies in sectors that historically generate excess returns as a function of the business cycle. Investment horizon is 6 months.*

Historical Performance – *Within our 3 backtested timeframes, our strategy outperformed the benchmark*

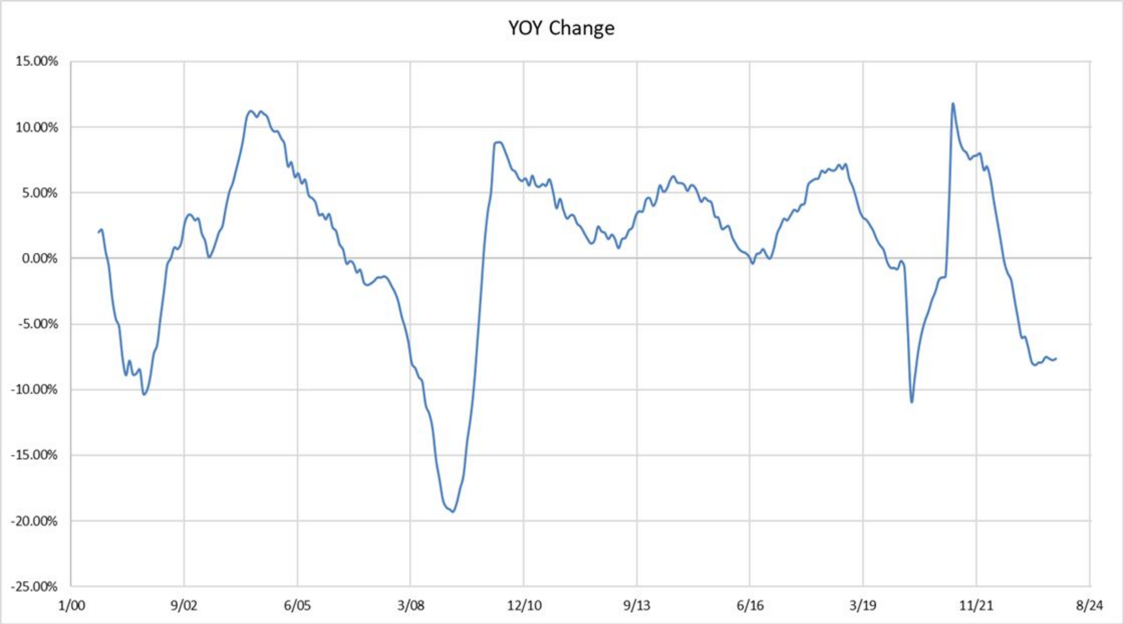
Recommendation – *We recommend selling $100,000 of SPY stock, and using that to purchase our recommendations.*

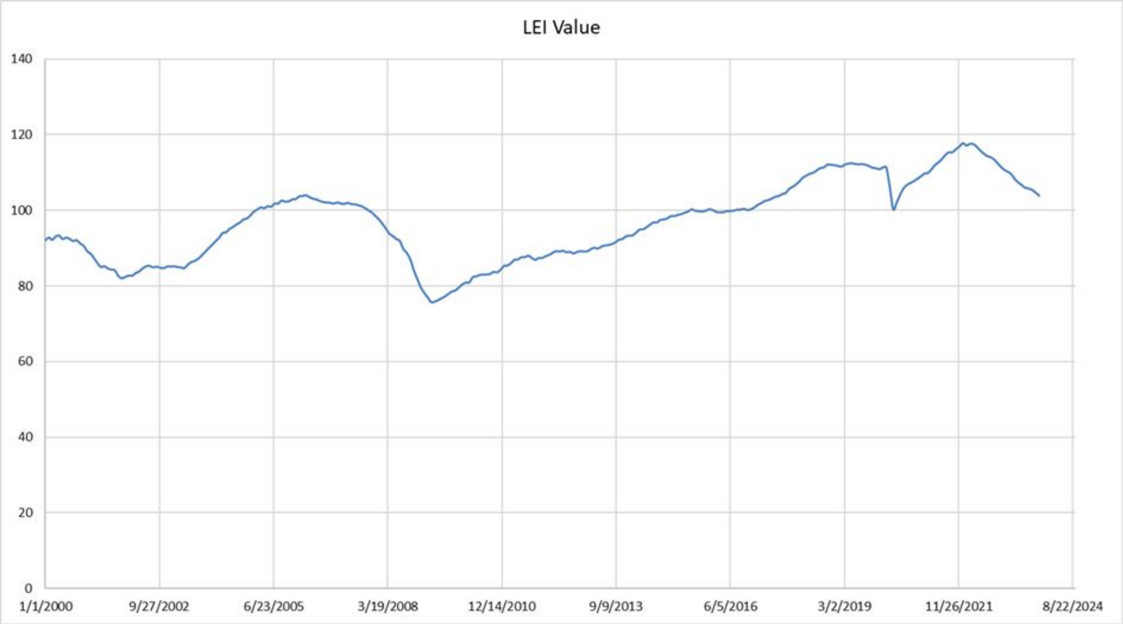
What to Sell – *Current SPY holdings.*

Effect on Portfolio – *Increased exposure to Consumer Discretionary sector, and Basic Materials sector.*

The Conference Board's Leading Economic Indicator

The Conference Board's Leading Economic Indicator reflects market conditions, based on a weighted 10 factor model.





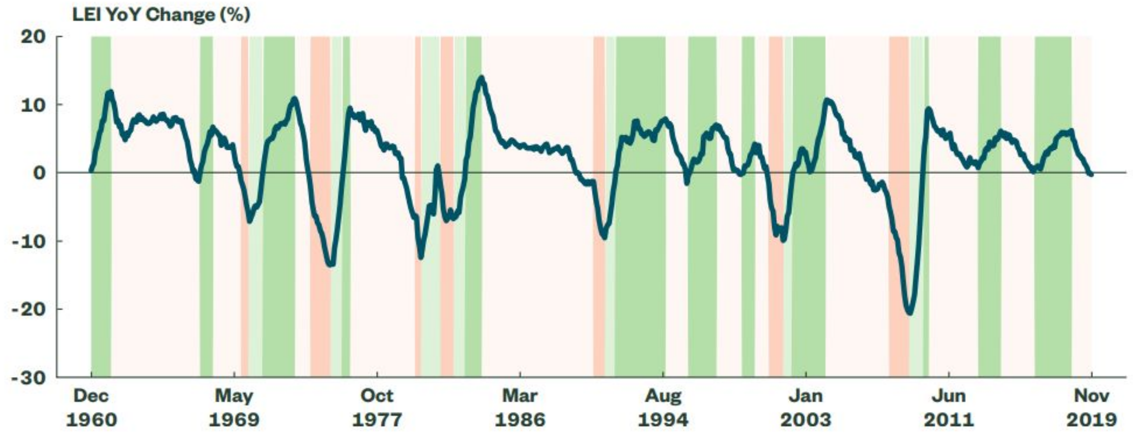
State Street Advisors Report

State Street Advisors conducted and published a report in which they analyzed the effectiveness of this indicator in relation to business cycles.

- **Recession** The LEI Index declines to a trough at an accelerating pace[2]
- **Recovery** The LEI Index rebounds from a trough but below long-term trends
- **Expansion** The LEI Index YoY changes are positive and above long-term trends
- **Slowdown** The LEI Index YoY changes pass the peak and begin moderating

The chart below shows the delineation between these parts of the cycle:

Figure 1
Business Cycles Since 1960



Source: Bloomberg Finance L.P., SPDR Americas Research, as of November 30, 2019.

Our Work

We conducted a regression of current LEI data against previous data to determine where in the cycle we are, and what the upcoming cycle would hold. What we found is that we are entering a “Recovery” cycle. The most similar cycle from previous data concluded in 10/2001, where we began our backtesting, with an R^2 value of 0.85.

Recovery

	Cons. Disc.	Cons. Staples	Energy	Financials	Health Care	Industrials	Materials	Real Estate	Technology	Utilities
Average Monthly Return (%)	3.4	1.9	2.8	2.4	2.3	2.9	3.0	3.6	3.0	1.6
Average Monthly Excess Return (%)	1.1	-0.3	0.6	0.1	0.0	0.6	0.7	1.3	0.7	-0.6
Average Period Return (%)	33.1	18.0	27.1	23.1	21.4	27.4	29.3	39.2	28.4	14.7
Average Period Excess Return (%)	12.0	-3.0	6.0	2.0	0.0	6.0	8.0	18.0	7.0	-7.0
Hit Rate (% of Months Outperforming the Market)	64.5	43.5	53.2	54.8	46.8	56.5	61.3	58.1	53.2	45.2
Hit Rate (% of Periods Outperforming the Market)	86.0	29.0	57.0	57.0	43.0	71.0	71.0	57.0	71.0	29.0
Aggregated Z-Score	7.3	-7.5	0.8	-1.5	-4.1	2.2	3.8	7.2	2.3	-9.1

Source: Kenneth French Data Library, SPDR Americas Research, as of November 30, 2019. The top three sectors are shaded in green. The bottom three are shaded in orange.

Regression Factors:

Value, d/dx (value), d^2/d^2x (value)

Monthly change, d/dx (monthly change)

Year over year change, d/dx (year over year change)

Regression Factors:

10 month moving average, d/dx (10 Mo MA)

Value - 10 Mo MA

Strategy Details

Specifics of strategy:

Backtesting Method: Backtest using Bloomberg

Data needed and sources: Returns for SPY, and GICS Sectors (WRDS). ROE, PE (Bloomberg)

Rebalance frequency: Quarterly

Number of positions: 10

Number of years backtested: 0.5 & 1 year

Minimum stock market cap: None

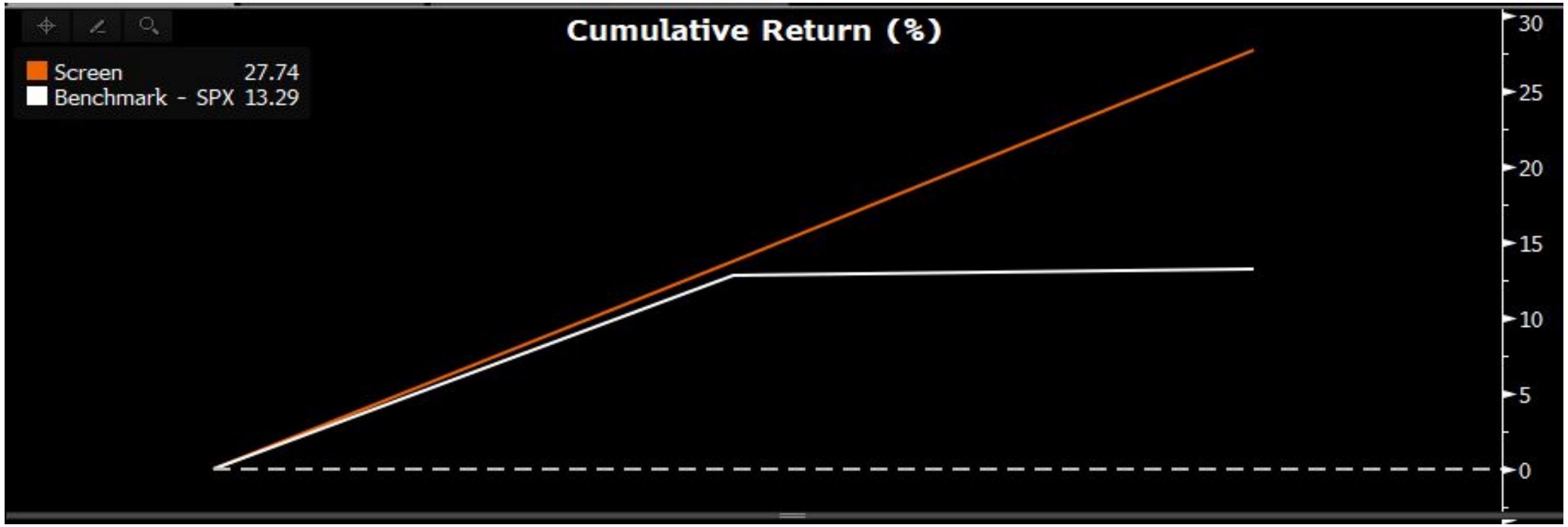
Weighting: Equal weighting

Type of stock: Consumer Discretionary, Basic Materials, Above Benchmark (P/E | ROE)

Backtesting Implementation Details

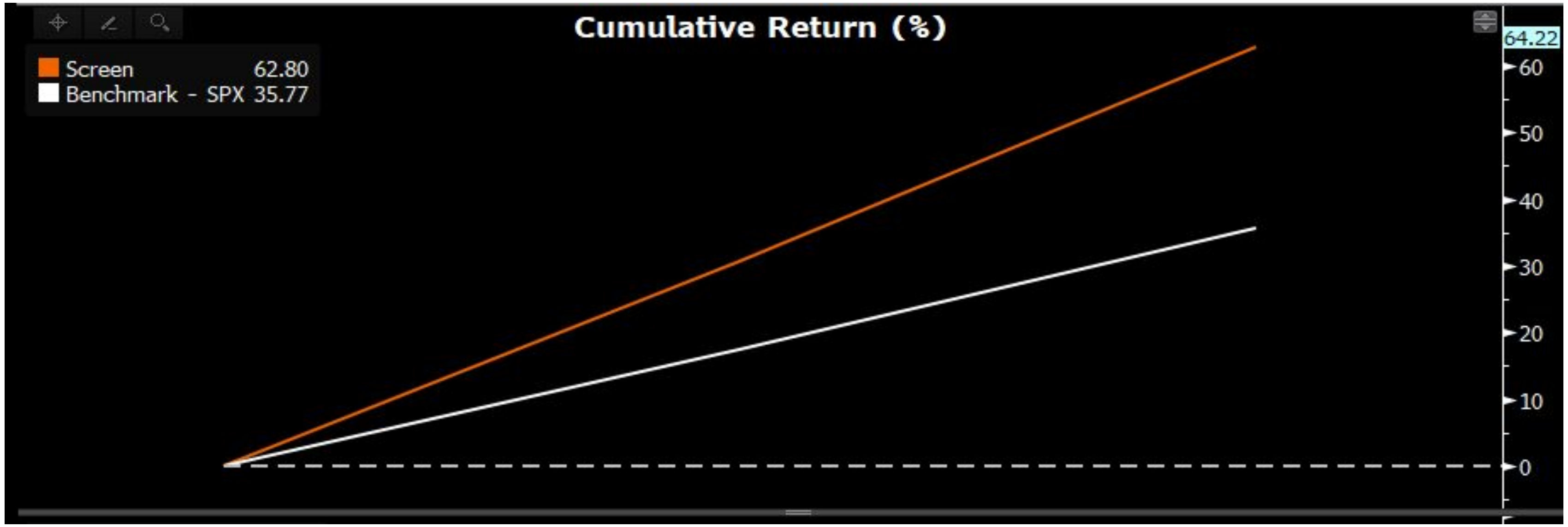
# OF STOCKS	ANY
MIN MARKET CAP	NONE
MIN MONTHLY TRADING VOLUME	NONE
WEIGHTING SCHEME	EQUAL
REBALANCING FREQUENCY	QUARTERLY
TIME FRAME	6 Months & 1 Year
CURRENCY	USD

Backtesting Results - Materials 2020 Performance



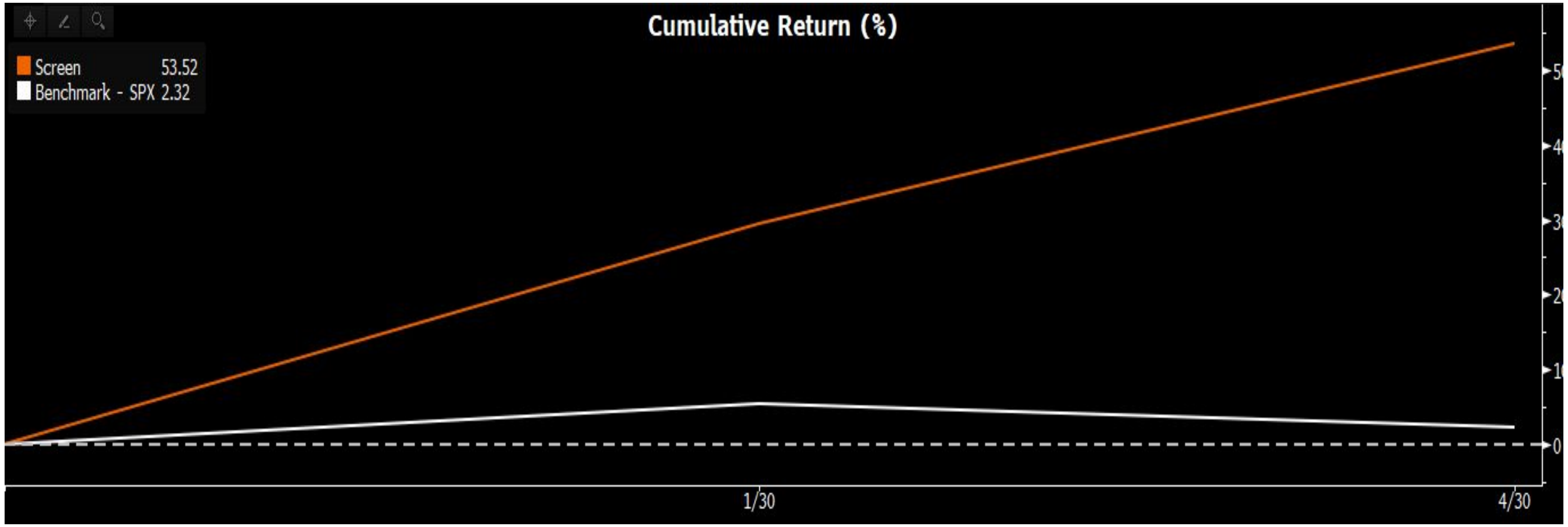
Annualized	Return	α*	β*	σ	Sharpe	Treynor	Max DD	Info Ratio*	Idio. Risk
1 YR	60.11%	22.54	0.87	23.73	2.72	63.07	TBD	0.61	TBD
6 MO	27.74	41.73	0.83	25.62	2.62	27.00	TBD	0.37	TBD
1 YR SPY	45.96%	0	1	TBD	TBD	40.63	TBD	TBD	TBD
6 MO SPY	13.29	0	1	TBD	TBD	7.96	TBD	TBD	TBD

Backtesting Results - Materials 2009 Performance



Annualized	Return	α*	β*	σ	Sharpe	Treynor	Max DD	Info Ratio*	Idio. Risk
1 YR	89.19%	14.98	1.68	42.90	2.50	49.85	TBD	1.08	TBD
6 MO	62.80%	55.17	1.58	47.98	4.01	36.39	TBD	1.60	TBD
1 YR SPY	52.21%	0	1	TBD	TBD	46.88	TBD	TBD	TBD
6 MO SPY	35.77%	0	1	TBD	TBD	30.44	TBD	TBD	TBD

Backtesting Results - Materials 2001 Performance



Annualized	Return	α*	β*	σ	Sharpe	Treynor	Max DD	Info Ratio*	Idio. Risk
1 YR	18.57%	35.81	0.36	28.91	1.02	36.78	TBD	1.81	TBD
6 MO	53.32%	146.78	0.46	31.06	4.79	104.33	TBD	4.33	TBD
1 YR SPY	-14.64%	0	1	TBD	TBD	-19.97	TBD	TBD	TBD
6 MO SPY	2.32%	0	1	TBD	TBD	-3.01	TBD	TBD	TBD

Backtesting Results For Highest Correlation Time (Materials)

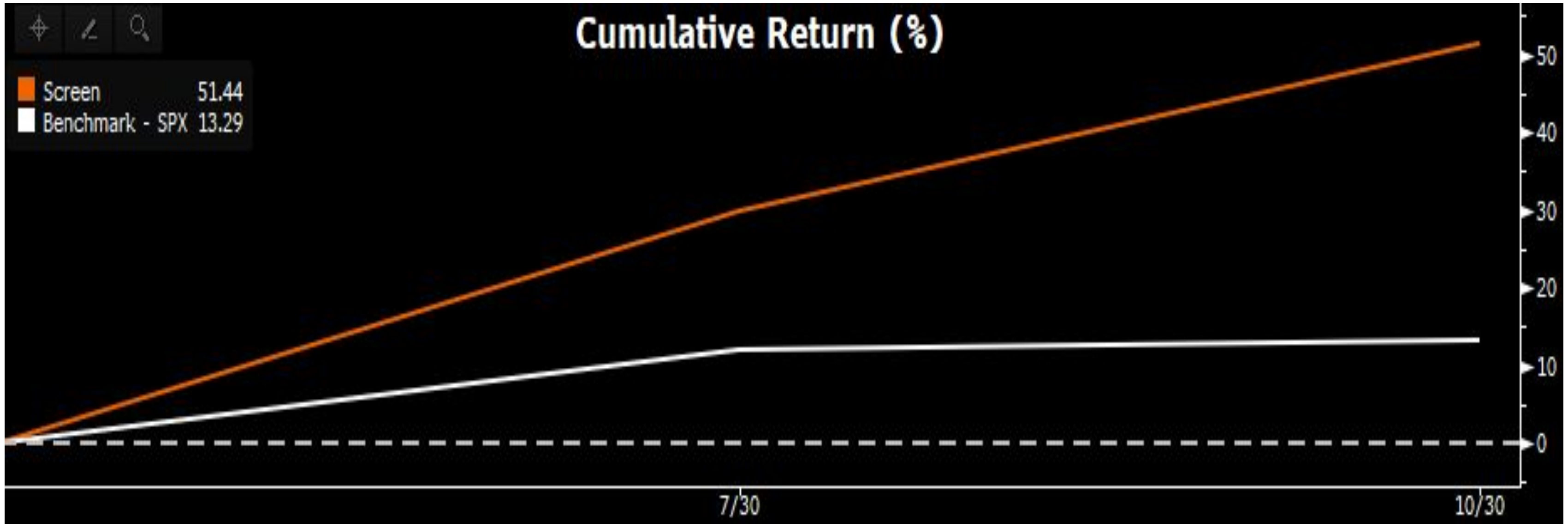
6 Month Analysis	Mean	Min	25%	Median	75%	Max
Market Cap ($Millions)	$276	$115.92	$195.99	$279	$356.18	$436.27
P/E Ratio	17	12.5	14.75	18.5	19.25	21.5
Monthly Trading Volume* ($Millions)	*	*	*	*	*	*
Share Price*	*	*	*	*	*	*

* data not provided on bloomberg. Finding alternatives at this time.

Backtesting Implementation Details

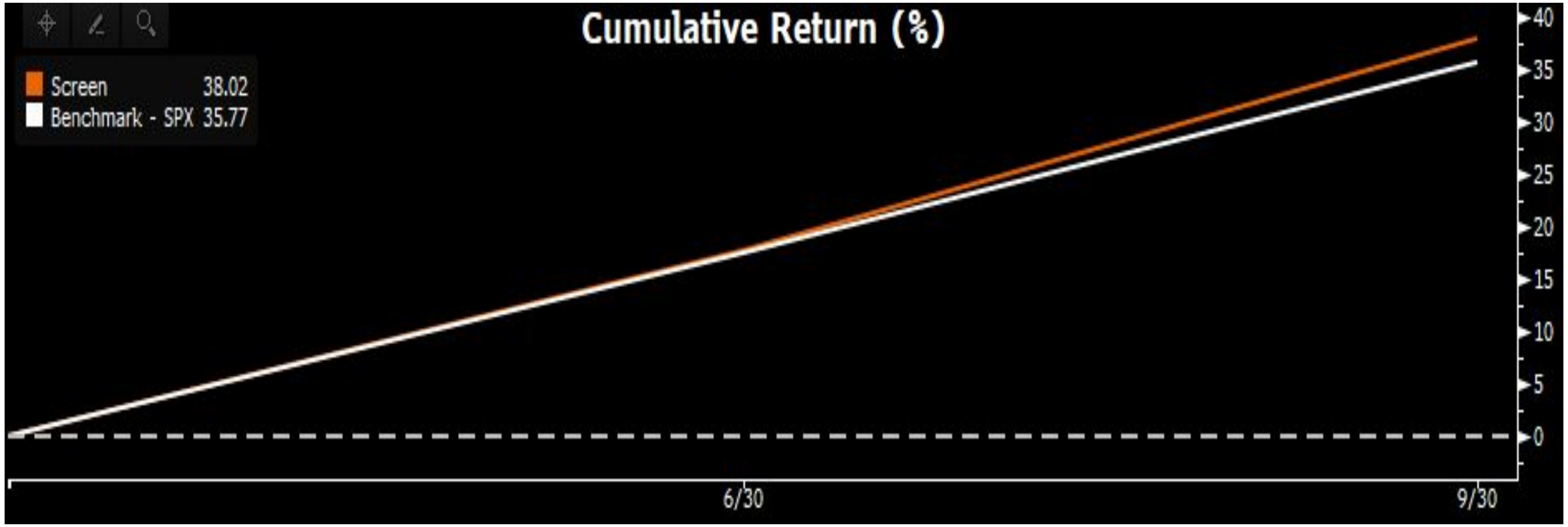
# OF STOCKS	10
MIN MARKET CAP	NONE
MIN MONTHLY TRADING VOLUME	NONE
WEIGHTING SCHEME	EQUAL
REBALANCING FREQUENCY	QUARTERLY
TIME FRAME	6 MONTHS, 1 YEAR
CURRENCY	USD

Backtesting Results - Consumer 2020 Performance



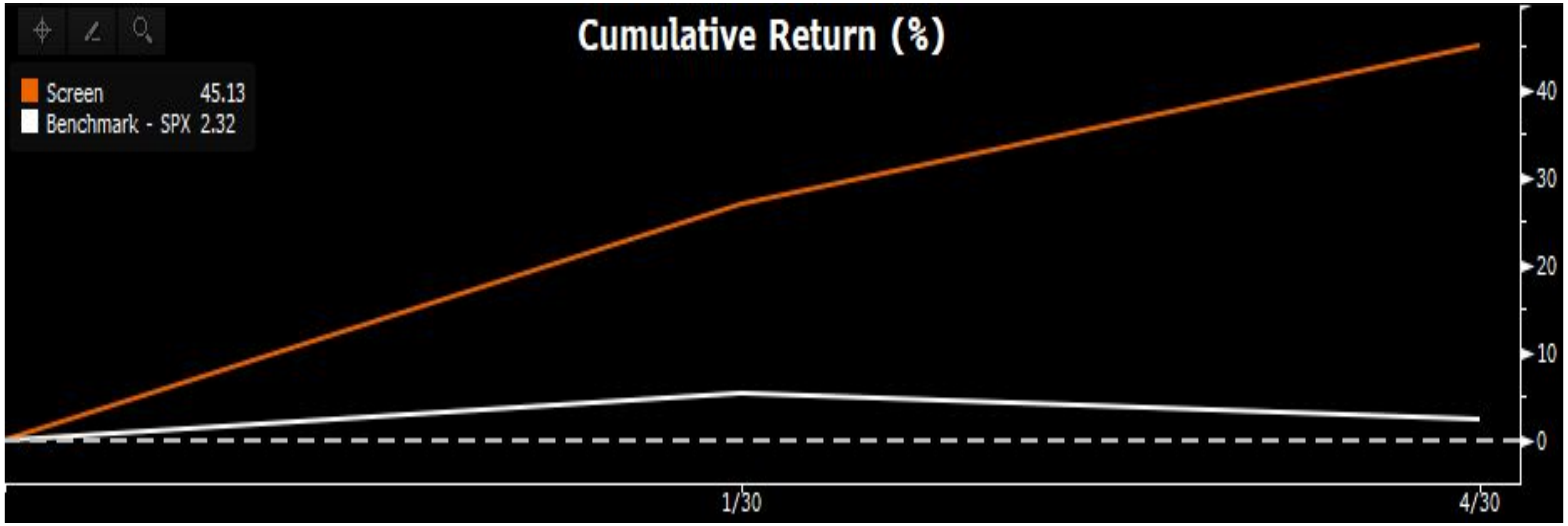
Annualized	Return	α*	β*	σ	Sharpe	Treynor	Max DD	Info Ratio*	Idio. Risk
1 Yr	149.48	91.66	1.52	35.05	4.71	94.85	TBD	3.30	TBD
6 Mo	51.44	95.81	1.50	36.59	3.88	30.74	TBD	1.30	TBD
1 Yr SPY	45.96%	0	1			40.63	TBD	TBD	TBD
6 Mo SPY	13.29	0	1			7.96	TBD	TBD	TBD

Backtesting Results - Consumer 2009 Performance



Annualized	Return	α*	β*	σ	Sharpe	Treynor	Max DD	Info Ratio*	Idio. Risk
1 Yr	47.90	-7.92	1.13	28.97	1.87	37.62	TBD	-0.03	TBD
6 Mo	38.02	14.23	0.95	29.38	3.29	34.45	TBD	0.25	TBD
1 Yr SPY	52.21	0	1			46.88	TBD	TBD	TBD
6 Mo SPY	35.77%	0	1			30.44	TBD	TBD	TBD

Backtesting Results - Consumer 2001 Performance



Annualized	Return	α*	β*	σ	Sharpe	Treynor	Max DD	Info Ratio*	Idio. Risk
1 Yr	33.52%	44.74	0.69	23.19	1.53	40.85	TBD	3.24	TBD
6 Mo	45.13%	111.67	0.81	18.95	6.08	49.14	TBD	5.49	TBD
1 Yr SPY	-14.64%	0	1			-19.97	TBD	TBD	TBD
6 Mo SPY	2.32%	0	1			-3.01	TBD	TBD	TBD

Backtesting Results - For Highest Correlation Time (Consumer Disc)

6 Month Analysis	Mean	Min	25%	Median	75%	Max
Market Cap ($Millions)	$384.7 M	$129.0 M	$206.8 M	$374.9 M	$698.7 M	$1.484 B
P/E Ratio	13.28	4.41	11.48	13.75	15.98	28.32
Monthly Trading Volume* ($Millions)	*	*	*	*	*	*
Share Price*	*	*	*	*	*	*

* data not provided on bloomberg. Finding alternatives at this time.

Recommended Purchases (Materials)

Name	Ticker	P/E Ratio	Monthly Trading Volume ($M)	Market Cap ($M)	Share Price	# of Shares	Total Value
Sherwin_Williams Co	SHW	30.39	$404.71	$73,626.1	$287.64	20	$5752.8
ECOLAB Inc	ECL	39.06	$201.63	$54,262.1	$190.30	31	$5899.3
WD-40 Co	WDFC	48.73	$23.03	$3,182.6	$234.76	25	$5869
Avery Denison Corp	AVY	26.52	$89.98	$15,554.6	$193.15	30	$5794.5
Avient Corp	AVNT	30.00	$15.96	$3,236.2	$35.50	166	$5893
Dupont De Nemours	DD	27.86	$187.07	$30,373.9	$70.63	83	$5862.29
Air Products and Chemicals	APD	23.41	$275.78	$58,058.4	$261.28	23	$6009.44

Recommended Purchases (Consumer Disc)

Name	Ticker	P/E Ratio	Monthly Trading Volume ($M)	Market Cap ($M)	Share Price	# of Shares	Total Value
GAP INC	GPS	109.30	$197.06	$7,765.3M	$20.94	281	$5884.14
WINGSTOP INC	WING	107.21	$140.39	$7,267.5M	$247.07	24	$5929.68
ON HOLDING	ONON	262.59	$129.46	$8,777.2M	$27.59	213	$5876.67
BEACON ROOFING SUPPLY INC	BECN	604.68	$29.23	$5,188.4M	$82.15	72	$5914.8
SHAKE SHACK	SHAK	214.47	$48.37	$2,655.3M	$62.77	94	$5900.38

Recommended Purchases (Consumer Disc)

Name	Ticker	P/E Ratio	Monthly Trading Volume ($M)	Market Cap ($M)	Share Price	# of Shares	Total Value
FIRST WATCH RESAURANT GROUP	FWRG	94.16	6.40	1119.2M	18.71	314	$5874.94
KURA SUSHI	KRUS	605.06	7.64	677.7M	60.79	97	$5896.63
MARCUS CORPORATIO N	MCS	429.18	4.02	440.6M	13.90	423	$5879.7
CHEWY INC	CHWY	148.29	136.59	8347.7M	19.35	304	$5882.4
NATIONAL VISION HOLDINGS INC	EYE	520.48	28.42	1509.4	19.29	305	$5883.45

Fund Allocation

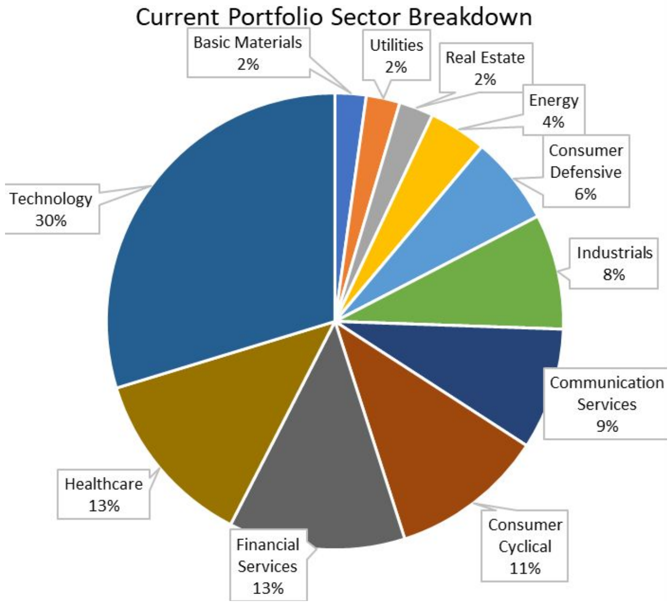
Our recommendation would be to add the 17 stock positions equating roughly ~$100,000 to the School Fund.

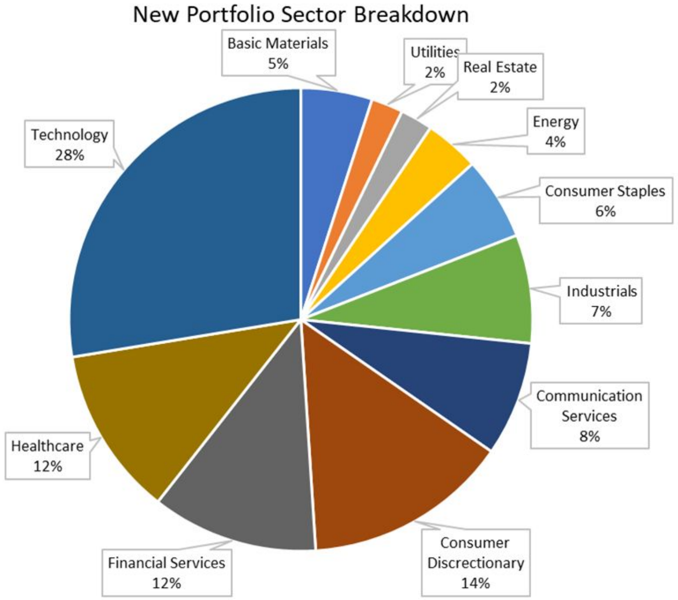
We recommend the School Fund due to our position taking up roughly $100,000. Given the School Fund has a current capital amount of around $536,035 we want our strategy to take up ⅕ of the total portfolio.

Given that the portfolio is also heavily weighted in Information Technology we believe it will add to the diversification of the individual fund.

Effect on the Portfolio

	Existing Portfolio	New Portfolio
Beta	1	1.21
Standard Deviation	TBD	TBD
Expected Return	TBD	TBD





Recap

Idea – *Capitalize on market sentiment by investing in companies positioned well in the present market environment*

Strategy – *Capture excess returns in a 6 month period by predicting where we are in the business cycle*

Historical Performance – *Outperformed SPY*

Recommendation – *Buy $100k, In School Fund*

What to Sell – *Sell SPY*

Effect on Portfolio – *Increased exposure to Consumer Discretionary and Basic Materials sector*

Sources

1:https://www.conference-board.org/topics/us-leading-indicators

2.https://www.fidelity.com/learning-center/trading-investing/markets-sectors/intro-sector-rotation-strats

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6.https://www.nber.org/research/data/us-business-cycle-expansions-and-contractions