

CBOE STRATEGY BENCHMARK INDEXES

CBOE SMA LARGE-CAP WEEKLY INDEX (SMLCWSM INDEX)

The CBOE SMA Large-Cap Weekly Index (SMLCWSM Index) is a weekly version of the CBOE SMA Large-Cap Index (SMLCSM Index). Similar to the SMLC Index, the SMLCW Index follows the return of a hypothetical portfolio strategy designed to monetize the information in Social Market Analytics (SMA) S-Scores. SMA derives actionable signals, which quantify market sentiment for stocks, from social media data streams. S-Scores express rising or declining sentiment for different stocks. The SMLCW portfolio is an equally-weighted portfolio of 25 stocks drawn from the CBOE Large-Cap Universe with the highest average 5-period S-Scores. Stocks in this universe (a) are in the top 15% capitalization tranche of stocks that are the underlying for options listed on the CBOE (approximately 3000 stocks) and (b) have a market capitalization greater than or equal to \$10 billion.

The CBOE Large-Cap Universe is reconstituted quarterly on the third Friday of the month. The SMLCW portfolio is reconstituted every Friday at 8:30 am CT, based on average 5-period SMA S-Scores at 8:10 am CT. A period is a date on which there is sufficient social media data to derive SMA S-Scores. Stocks are deemed sold and purchased at market-on-open prices. The portfolio is held until 8:30 am CT on the next Friday. If Friday is a business holiday, the portfolio is rebalanced on the preceding Thursday.

SMLCW INDEX PERFORMANCE TO DATE

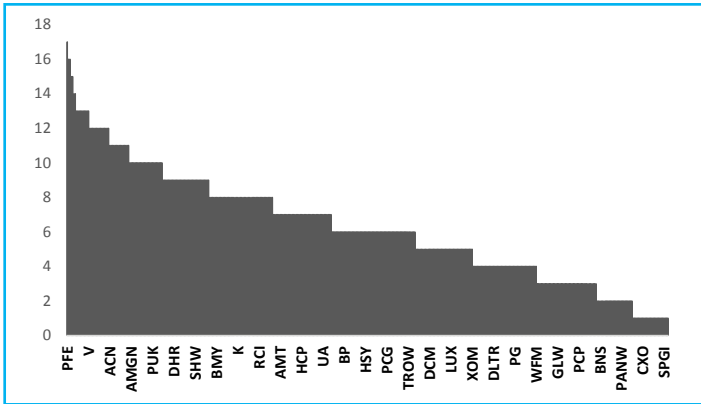
November 2016	1M	3M	YTD	1Y
CBOE SMA SMLCW INDEX	5.32%	0.14%	13.85%	9.88%
S&P 500	3.42%	1.28%	7.58%	5.69%

Sources: SMA and CBOE

SMLCW INDEX PORTFOLIO CHARACTERISTICS

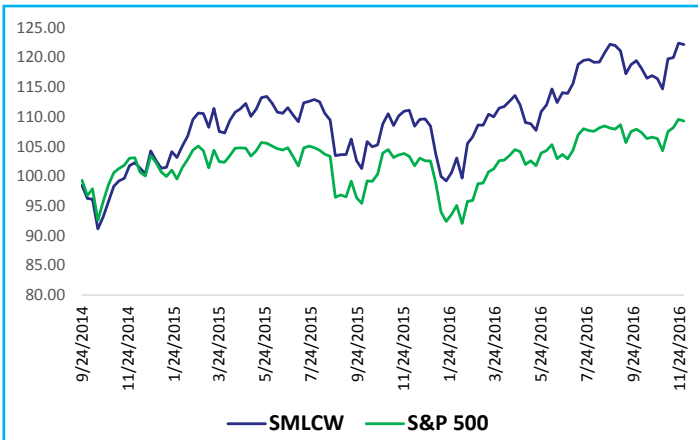
The CBOE Large-Cap Universe typically includes around 450 large capitalization stocks. From October 2014 to October 2016, 452 different stocks from the Universe were included in the SMLCW Index, which indicates significant turnover. Certain stocks had repeat appearances in the Index, some as many as 17 appearances, but typically not in consecutive weeks. The following graph shows the most active stocks in the SMLCW Index during this period.

NUMBER OF APPEARANCES IN SMLCW



Source: SMA and CBOE

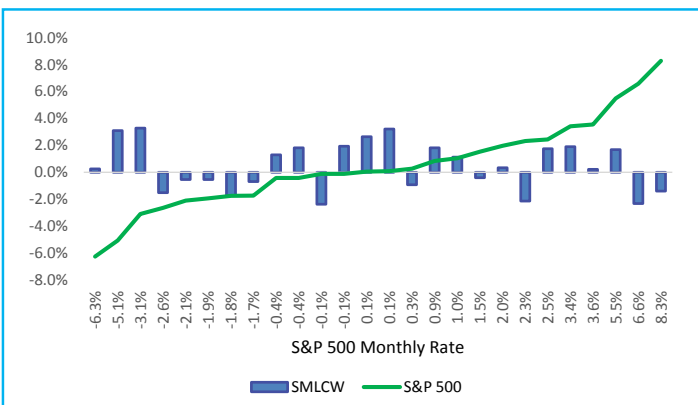
CUMULATIVE RETURNS SINCE SEPTEMBER, 2014



Source: SMA and CBOE

The SMLCW Index consistently outperformed the S&P 500® Index cumulative returns on the interval from October 2014 to October 2016.

SMLCW - S&P 500 Rate Spread in S&P 500 Bull & Bear Markets



Sources: SMA and CBOE

The returns of the SMLCW Index relative to the S&P 500® Index tend to be largely independent of whether the market is in a bull or bear cycle.

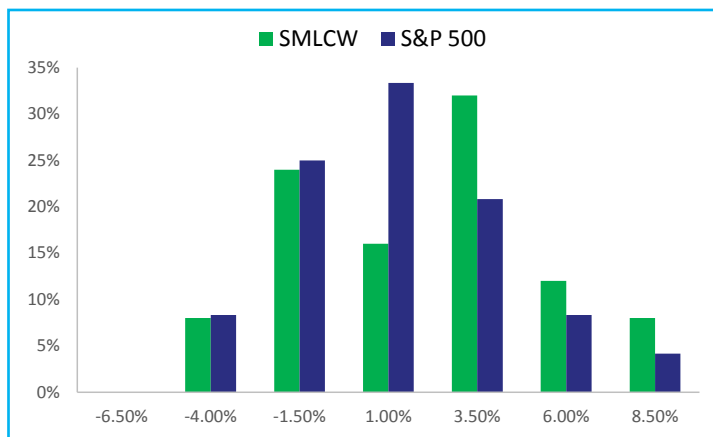
RISK AND RETURN PROFILE

SMLCW INDEX MONTH END RETURN STATISTICS

	SMLCW	S&P 500
Mean	1%	0%
Min	-6%	-6%
Max	7%	8%
Stdv	3%	3%
Neg Dev	2%	2%
Skew	-0.08	0.36
Kurt	-0.61	0.49
Sharpe	0.27	0.14
Sortino	0.47	0.24

Source: SMA and CBOE

HISTORICAL DISTRIBUTION OF SMLCW INDEX RETURNS



Source: SMA and CBOE

The SMLCW Index strategy shifts monthly returns to the right relative to the returns of the S&P 500® Index. The left tail of the returns probability distribution is thinner – indicating a lower probability of smaller returns – the right tail is fatter – implying a higher probability of greater returns, relative to the S&P 500® Index.

The CBOE-SMA Large-Cap Weekly Index (SMLCWSM Index) is designed to represent a hypothetical yield enhancement strategy. Like many passive indexes, the SMLCW Index does not take into account significant factors such as transaction costs and taxes. Transaction costs and taxes for a strategy such as that underlying the SMLCW Index could be significantly higher than transaction costs for a passive strategy of buying-and-holding stocks over a longer period of time. In the construction of the hypothetical SMLCW Index, the stocks in the portfolio are assumed to be purchased weekly at the market-on-open and are then sold the next Friday at the market-on-open. However, there is no guarantee that all investors will be able to sell at these prices, and investors attempting to replicate the SMLCW Index should discuss with their brokers possible timing and liquidity issues. Past performance does not guarantee future results. It is not possible to invest directly in an index. Chicago Board Options Exchange, Incorporated (CBOE) calculates and disseminates the SMLCW Index.

This document contains index performance data based on back-testing, i.e., calculations of how the index might have performed prior to launch. Back-tested performance information is purely hypothetical and is provided in this document solely for informational purposes. Back-tested performance does not represent actual performance and should not be interpreted as an indication of actual performance. Index performance returns do not reflect management fees, transactions costs or expenses. No representation is being made that any investment will or is likely to achieve a performance record similar to that shown.

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