Cboe offers dozens of benchmark indexes that show the performance of hypothetical strategies using index options or VIX® Futures, including:

### BuyWrite Indexes
- BXM: Cboe S&P 500 BuyWrite Index®
- BXD: Cboe DJIA BuyWrite Index
- BXMD: Cboe S&P 500 30-Delta BuyWrite Index
- BXR: Cboe Russell 2000 BuyWrite Index
- BXRD: Cboe Russell 2000 30-Delta BuyWrite Index
- BYEA: Cboe MSCI EAFE 2% OTM BuyWrite Index
- BYEF: Cboe MSCI Emerging Markets 2% OTM BuyWrite Index

### PutWrite Indexes
- PDEA: Cboe MSCI EAFE 20-Delta PutWrite Index
- PDEF: Cboe MSCI Emerging Markets 20-Delta PutWrite Index
- PUT: Cboe S&P 500 PutWrite Index
- PUTR: Cboe Russell 2000 PutWrite Index
- WPUT: Cboe Russell 2000 One-Week PutWrite Index
- WPTR: Cboe Russell 2000 One-Week PutWrite Index

### Put Protection Index
- PPUT: Cboe S&P 500 5% Put Protection Index

### VIX-Related Benchmark Indexes
- VPD: Cboe VIX Premium Strategy Index
- VPN: Cboe Capped VIX Premium Strategy Index
- VXTH: Cboe VIX Tail Hedge Index
- LOVOL: Cboe Low Volatility Index
- VSTG: Cboe VIX Strangle Index

### Target Outcome Indexes
- SPRO: Cboe S&P 500 Buffer Protect Index Balanced Series
- SPEN: Cboe S&P 500 Enhanced Growth Index Balanced Series
- SPRI: Cboe S&P 500 Range Bound Premium Income Index Series
- SPAI: Cboe S&P 500 Dividend Aristocrats Target Income Index
- SUPDN: Cboe S&P 500 Enhance & Buffer Index

### Other Cboe Benchmark Indexes
- CMBO: Cboe S&P 500 Covered Combo Index
- BFLY: Cboe S&P 500 Iron Butterfly Index
- CNDR: Cboe S&P 500 Iron Condor Index
- CLL: Cboe S&P 500 95-110 Collar Index
- CLLR: Cboe Russell 2000 Zero-Cost Put Spread Collar Index
- CLLZ: Cboe S&P 500 Zero-Cost Put Spread Collar
- RXM: Cboe S&P 500 Risk Reversal Index

Cboe Eurekahedge Short Volatility Index
Cboe Eurekahedge Long Volatility Index
Cboe Eurekahedge Relative Value Volatility Index
Cboe Eurekahedge Tail Risk Index

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**Annualized Returns**

_June 30, 1986 - Dec. 31, 2019_

6 of the 7 top indexes below use SPX options

<table>
<thead>
<tr>
<th>Index</th>
<th>Annualized Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>BXM</td>
<td>10.6%</td>
</tr>
<tr>
<td>S&amp;P 500 Index</td>
<td>10.4%</td>
</tr>
<tr>
<td>PUT</td>
<td>9.7%</td>
</tr>
<tr>
<td>CMBO</td>
<td>9.5%</td>
</tr>
<tr>
<td>BXM</td>
<td>8.7%</td>
</tr>
<tr>
<td>CLLZ</td>
<td>7.5%</td>
</tr>
<tr>
<td>PPUT</td>
<td>7.2%</td>
</tr>
<tr>
<td>MSCI EAFE (US)</td>
<td>6.4%</td>
</tr>
<tr>
<td>S&amp;P GSCI</td>
<td>3.6%</td>
</tr>
</tbody>
</table>


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**Standard Deviations**

_June 30, 1986 - Dec. 31, 2019_

The 6 indexes with lowest volatility below use SPX options

<table>
<thead>
<tr>
<th>Index</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUT</td>
<td>9.9%</td>
</tr>
<tr>
<td>BXM</td>
<td>10.5%</td>
</tr>
<tr>
<td>CMBO</td>
<td>10.9%</td>
</tr>
<tr>
<td>CLLZ</td>
<td>11.4%</td>
</tr>
<tr>
<td>PPUT</td>
<td>12.1%</td>
</tr>
<tr>
<td>BXM</td>
<td>12.8%</td>
</tr>
<tr>
<td>S&amp;P 500 Index</td>
<td>14.9%</td>
</tr>
<tr>
<td>MSCI EAFE (US)</td>
<td>16.9%</td>
</tr>
<tr>
<td>S&amp;P GSCI</td>
<td>20.2%</td>
</tr>
</tbody>
</table>


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Mutual Funds – Visit www.cboe.com/funds for testimonials and links to a study on the use of options by mutual funds.

Hedge Funds – For information on the four indexes designed to show the performance of select hedge funds that invest in volatility-based strategies, please visit www.cboe.com/EH.

Annualized Returns

(6 of the 7 top indexes below use SPX options)

Standard Deviations

(6 indexes with lowest volatility below use SPX options)
Benchmark Indexes

Benchmark Indexes Since Mid-1986

Highest returns for BXMD Index that sells OTM SPX call options

- $29.08 - BXMD - Cboe S&P 500 30-Delta BuyWrite Index
- $27.42 - S&P 500 Index
- $21.96 - PUT - Cboe S&P 500 PutWrite Index
- $20.89 - CMBO - Cboe S&P 500 Covered Combo Index
- $16.42 - BXM - Cboe S&P 500 BuyWrite Index
- $10.13 - PPUT - Cboe S&P 500 5% Put Protection Index
- $8.02 - MSCI EAFE Index
- $7.52 - Bloomberg Barclays

US Treasury Index
- $3.31 - S&P GSCI

Benchmark Indexes Since March 2006

Two benchmarks that do cash-secured selling of VIX futures - VPD & VPN - had higher returns

- $4.79 - VPD - Cboe VIX Premium Strategy Index
- $4.26 - VPN - Cboe Capped VIX Premium Strategy Index
- $3.90 - S&P 500 Index
- $3.74 - MSCI Emerging Markets Index (USD)
- $2.34 - MSCI EAFE Index (USD)
- $0.51 - S&P GSCI

Most Severe Drawdowns Since 2006

(From 2006 through 2019)

-80.9% - S&P 500 Index
-51.0% - Russell 2000 Index
-52.9% - PXEF - Cboe MSCI Emerging Markets PutWrite Index
-51.0% - S&P 500 Index
-52.9% - Russell 2000 Index
-56.7% - MSCI EAFE Index (USD)
-61.0% - MSCI Emerging Markets Index (USD)
-80.9% - S&P GSCI

Total return (pre-tax) indexes. Past performance is not predictive of future results. Sources: Zephyr and Cboe Options Exchange. Please read disclosures at www.cboe.com/benchmarks

Please visit cboe.com/Benchmarks for more information and links to white papers by Aon Hewitt, Callan, Cambridge, Meketa, Wilshire, and other consulting firms.

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