GLOBAL VOLATILITY SUMMIT

June 2020 Newsletter

Dear Investor,

The Global Volatility Summit ("GVS") brings together volatility and tail hedge managers, institutional investors, thought-provoking speakers, and other industry experts to discuss the volatility markets and the roles volatility strategies can play in institutional investment portfolios. The GVS aims to keep investors updated on the volatility markets throughout the year, and educated on innovations within the space.

Dominice has provided the latest piece in the GVS newsletter series.

Cheers,
Global Volatility Summit

11th Annual Global Volatility Summit

Due to the growing escalation of the Covid-19 outbreak around the world, we made the difficult decision to postpone the 11th Annual Global Volatility Summit. After careful consideration, we are excited to announce that the rescheduled event will take place on Wednesday, September 23rd, 2020, at Pier 60 in New York City.

We want to thank all of our partners and sponsors for their support, open discussions and encouragement. Our top priority is the health and safety of our attendees and we remain excited to host you later this year. Given the recent market environment, we expect a very full day of lively discussions!

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Performance Analysis of Long Volatility and Relative Value Volatility Strategies

May 2020

Abstract

The aim of this document is to look specifically at the historical returns of the Eurekahedge CBOE Long Volatility and Relative Value Volatility Indices. Our analysis shows that long volatility traders cannot simply be considered equity hedgers, it sheds light on the performance of relative value volatility funds and concludes with a portfolio section.

Martin Dudler
Fund Manager

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I would like to thank Michel Dominicé, Pierre de Saab, and Manuel Sigrist for their insights and input in the research process.

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Foreword

This research paper highlights and compares the risk-return characteristics of Long Volatility and Relative Value Volatility strategies. More importantly, it demonstrates that both strategies add value to a portfolio and offer diversification.

I would like to share some thoughts as to why we essentially observe such good results in these particular volatility strategies.

The first reason is the expertise of volatility managers and the diversity of volatility strategies. Most volatility managers actively trade a few key markets, such as the S&P500 and VIX complex. The variety of strategies that are possible in these few markets is, however, staggering, not just because every derivative instrument encompasses a multitude of risk factors, but also because the way these risk factors are timed, managed and hedged can yield very different outcomes. For example, we at Dominicé are experts in index volatility and have been trading VIX futures since their launch. Other managers may also trade these instruments, but will go about it in a very different way. Every manager has its own expertise and take on how volatility behaves and what drives the price of derivatives. The diversity in the volatility space is the reason why the benchmark tracking the volatility industry shows such good results.

The second reason why volatility managers do so well is down to rigorous risk management. Derivatives are highly convex and present extreme risks if poorly managed. It is of no use to diversify if, by increasing the number of managers, one increases the number of possible blow-ups. The data and the recent COVID-19 crisis show that the volatility sector as a whole has been successful in avoiding the pitfalls. This does not mean that the managers never lose money individually, only that the losses are not correlated.

In short, volatility managers differentiate themselves by their unique expertise in volatility and derivatives trading, but share a common culture of rigorous risk management.

This leads to the conclusion that an alternative to spending excessive resources to select one “best” manager, is to consider building a diversified portfolio of volatility strategies to fit the investment objectives, such as uncorrelated returns or portfolio insurance.

Pierre de Saab, *Partner*

Introduction

Volatility investing has evolved significantly since the 2008 financial crisis, when some volatility hedge funds posted exceptional returns. Volatility is nowadays considered an asset class by institutional investors, and although most of the volatility hedge funds focus on the equity space, other asset classes also offer opportunities to trade volatility (see The Hedge Fund Journal (2020)). Moreover, a majority of these funds pursue an active investment approach to account for sudden changes in the volatility signature.

To meet the demands of institutional investors, Eurekahedge partnered with the CBOE to create a suite of representative indices reflecting distinct volatility-based strategies. We have carried out a performance analysis on two of these benchmarks, the CBOE Eurekahedge Long Volatility and Relative Value Volatility Indices[1]. At the time of writing, the Long Volatility and Relative Value Volatility Indices were made up of 10 and 20 constituents respectively. The Indices are calculated on a monthly basis and represent the equally weighted net returns of their constituents. They are close to investable, but it should be noted that (i) they include returns of funds that are closed for capital inflows and (ii) averaging is done over local currency returns. More importantly, the index methodology avoids a survivorship bias (see Eurekahedge (2020)).

Long Volatility

As the term implies, long volatility funds take a net long view on realized and/or implied volatility. Delta-hedged[2] put/call options on an equity index and options on the VIX or VIX futures, are examples of basic instruments used to capitalize on rising volatility. At the risk of stating the obvious, these strategies are typically thought of as an equity hedge, since uncertainty arises during equity declines, resulting in volatility shooting up. Figure 1 shows the evolution from January 2005 to March 2020 of the Long Volatility Index and the S&P500. As one can see, the Long Volatility Index performs extremely well during big equity drawdowns, but rather than focusing on the hedging aspect, the graph clearly shows that long volatility funds often perform well during positive equity months. Clearly, this observation is less apparent during the past couple of years. Why is that? The answer lies in the rise and fall in realized volatility.

A rise in realized volatility emerged with the financial crisis in 2008 and prevailed during the subsequent recovery up to 2012, enabling long volatility funds to continue to excel despite a rising market. It is a while ago since this occurred, but soaring equity valuations accompanied by increasing volatility is a scenario, which has happened in the past. Certainly, more often than not, upward jumps in realized volatility come with equity crashes. That is why we have the overall negative statistical Beta of long volatility funds versus the S&P500 (see Figure 3).

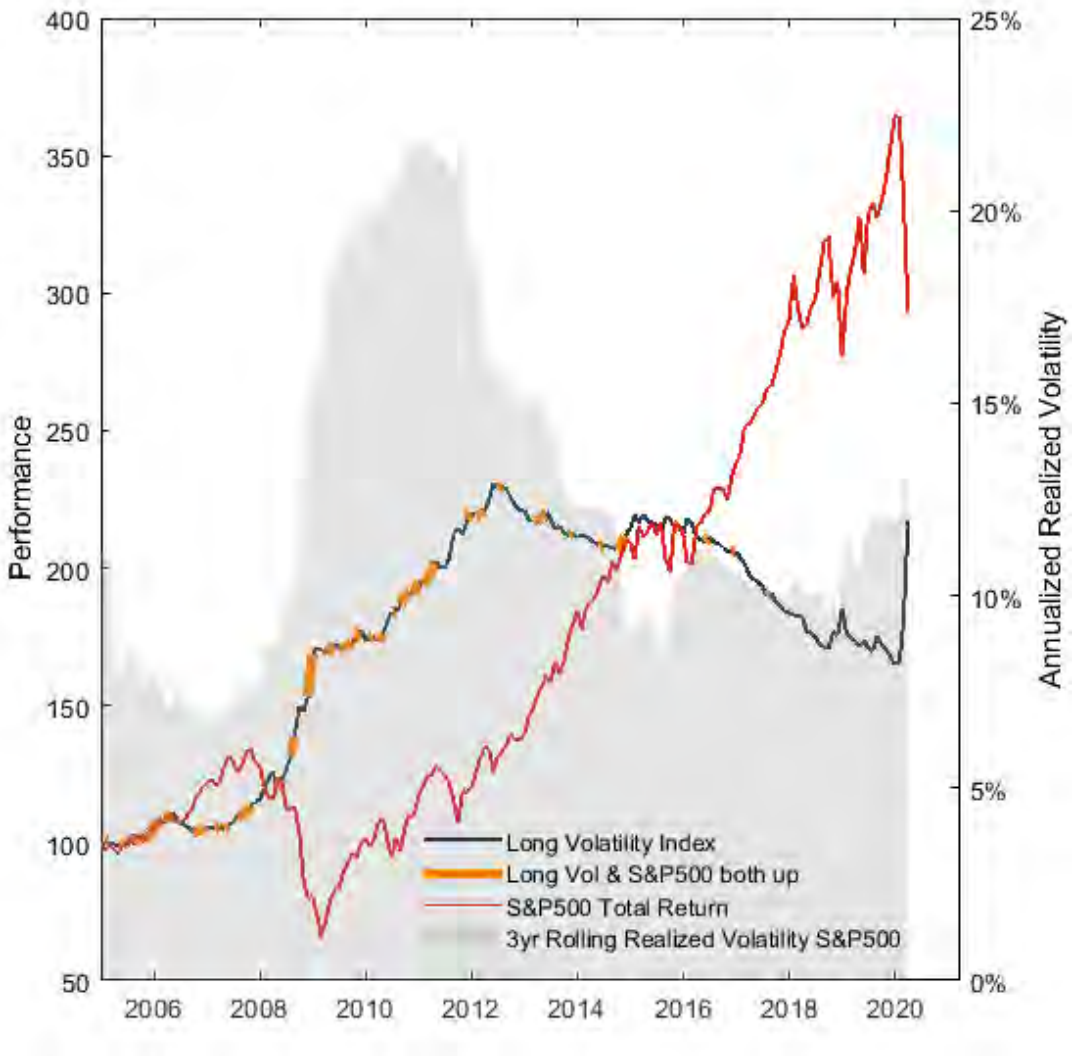
[1] The two other Indices are CBOE Eurekahedge Short Volatility and CBOE Eurekahedge Tail Risk (see DeMeo (2016) for a comprehensive description of all four Indices).

[2] The degree of Delta hedging lies in the discretion of the fund (see Hull and White (2017) for different methods of Delta hedging and the distinction between Delta and Beta hedging).

To summarize, Figure 1 shows that long volatility funds behaved as expected. Their gains and losses are fundamentally aligned with the trajectory of realized volatility. In this regard, the following detail is critical: excluding March 2020, the starting and ending points of realized volatility during the period under review are almost identical, whereas long volatility funds almost doubled their initial investment. It appears that they dispose of timing skills, i.e. they gained heavily with the explosion in volatility but only gave back a portion of their profits when realized volatility settled to its initial level.

Thus, long volatility seems to be a strategy in its own right and not only an equity hedge[3] and Figure 1 suggests that a combination of the S&P500 and long volatility funds would have yielded a solid performance. The portfolio context is addressed in the last section.

Figure 1. Performance of the CBOE Eurekahedge Long Volatility Index and the S&P500 Index



Source: Dominicé, Bloomberg

[3] It is not a contradiction that both the Long Volatility and the Short Volatility Indices show an overall positive performance (see Ang, et al. (2018) for more details on short volatility investing).

For completeness, Table 1 shows the pervasive hedging quality of the Long Volatility Index. It gains in each of the ten worst equity quarters between 2005 and March 2020. The third column introduces relative value volatility funds. These also show a respectable crisis Alpha[4], especially during the two worst equity quarters.

Table 1. Crisis Alpha: Performance from January 2005 to March 2020 of the CBOE Eurekahedge Long Volatility and Relative Value Volatility Indices in the worst quarters for the S&P500 Total Return Index

End of Quarter	S&P500 Total Return Index	CBOE Eurekahedge Long Volatility Index	CBOE Eurekahedge Relative Value Volatility Index
12/31/2008	-21.9%	12.7%	7.7%
3/31/2020	-19.6%	31.8%	3.4%
9/30/2011	-13.9%	7.3%	0.9%
12/31/2018	-13.5%	8.5%	-4.8%
6/30/2010	-11.4%	6.2%	-2.7%
3/31/2009	-11.0%	0.1%	3.2%
3/31/2008	-9.4%	8.9%	5.1%
9/30/2008	-8.4%	18.8%	3.2%
9/30/2015	-6.4%	1.1%	-1.0%
12/31/2007	-3.3%	4.5%	5.6%
Average	**-11.9%**	**10.0%**	**2.1%**

Source: Dominicé and Bloomberg (Bloomberg tickers are SPXT Index, EHFI451 Index and EHFI452 Index)

Relative Value Volatility

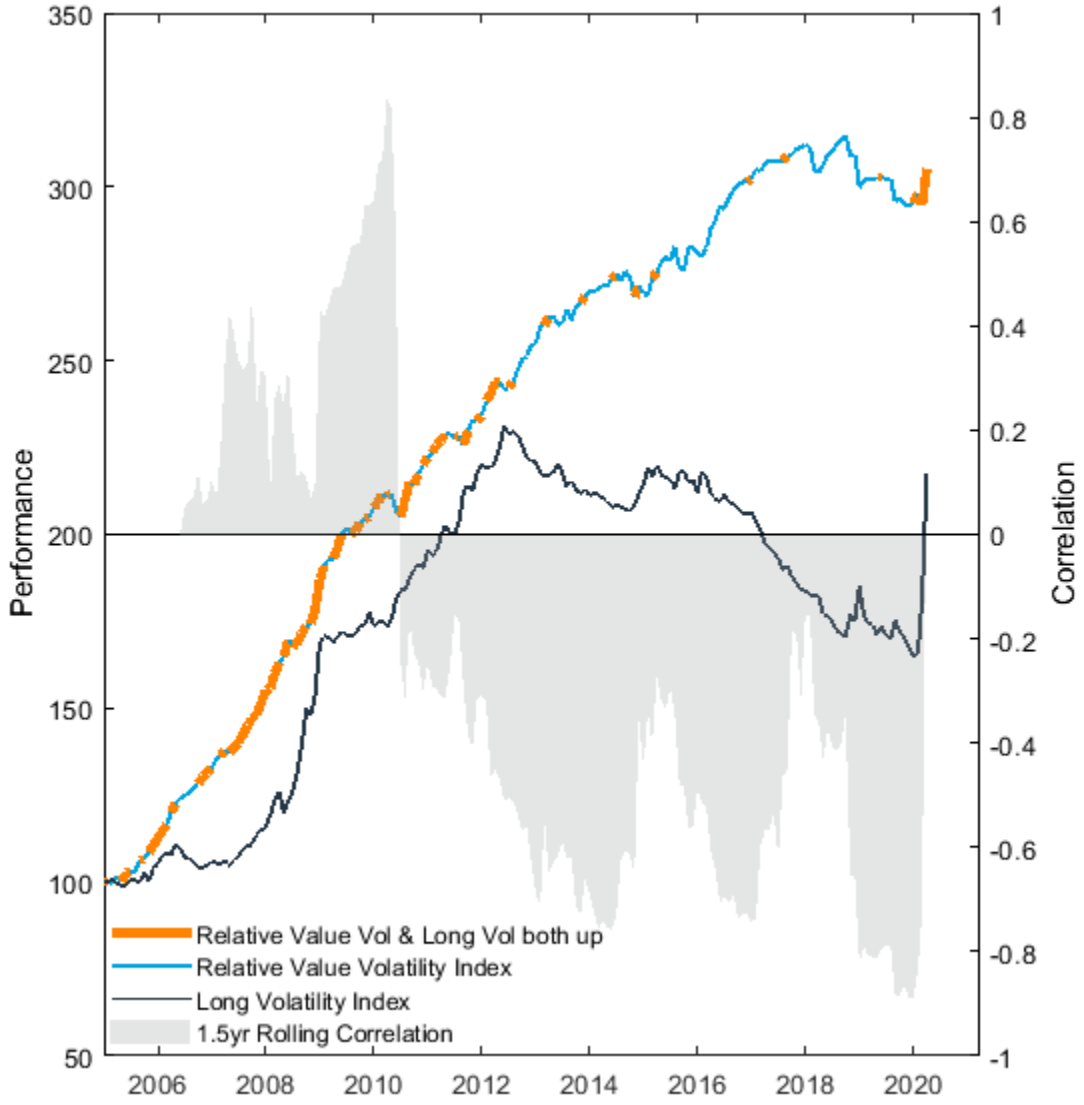
The notion of relative value volatility is more ambiguous. For instance, it can relate to relative value in time. A dynamic long-short strategy that buys volatility when it appears to be cheap with respect to its own history and vice versa falls under this category. Alternatively, it can relate to relative value across markets, e.g. taking a view on the spread between US and European equity volatility, by means of a long-short position based on the relative attractiveness (see Pedersen (2015)). Relative value can even span a range of disparate asset classes. Furthermore, the relative value can take a view relating to the volatility surface of a specific product.

Figure 2 highlights the track record of relative value volatility funds. What is most striking is the similarity in the performance of these funds and long volatility funds, up to 2012 and the breakup thereafter. This is an indication that relative value volatility funds were often similarly positioned to long volatility funds in the first half of the shown timeframe. Being less restricted by their investment style, however, they successfully adapted to the changing market environment after 2012 and continued to deliver positive performance, even though with a reduced Sharpe ratio. The graph in Figure 2 includes the rolling

[4] Crisis Alpha in this context, meaning the Index performance in the specific quarters (see Kaminski (2009) for the term crisis alpha).

correlation of the monthly returns between the two strategies. It shows quite clearly the aforementioned divergence.

Figure 2: Evolution of the Long Volatility Index and Relative Value Volatility Index from January 2005 to March 2020



Source: Dominicé, Bloomberg

In a nutshell, increasing realized volatility was the substantial performance driver for long volatility strategies (as expected) and a beneficial tailwind for relative value volatility funds up to 2012. So, what was the source of the returns of the relative value volatility funds thereafter? To answer this question, we chose to regress the index returns on the S&P500. Figure 3 shows the rolling Beta of this analysis. From 2012 until February 2020, we observe a positive statistical Beta. In other words, the returns appear to be partially explained by the equity risk premium (economic growth, profitability of companies). The question is, did relative value volatility funds have exposure to the S&P500 or are we confronted with a statistical artifact? The answer lies in the partially hedged short volatility positions.

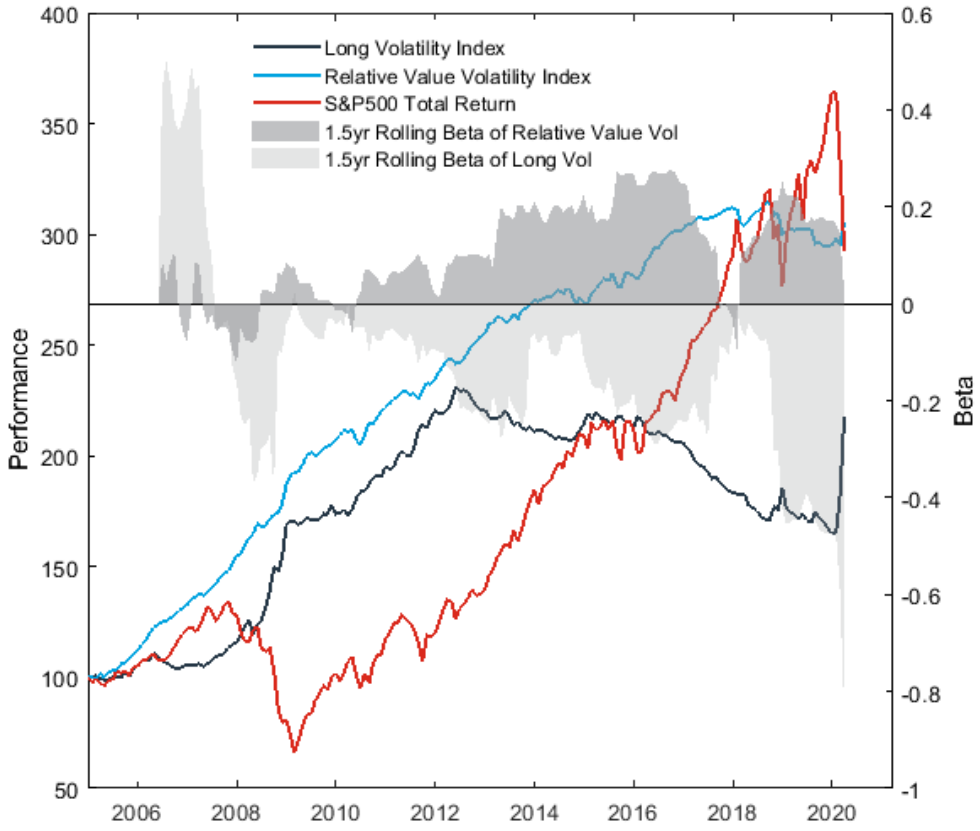
Unhedged short volatility trades tend to be profitable during rising or whipsawing equity markets, but carry the risk of elevated losses when it comes to deteriorating stock markets. The consequence of these characteristics is an overall positive equity Beta.

From 2012 the relative value volatility funds anticipated the start of collapsing volatility. Consequently, they adopted net short volatility exposure, but it appears that they specifically did not fully hedge the resulting market Beta. This strategy allowed them to capitalize on both risk factors, short Vega and long Beta[5]. Then, astutely, in March 2020, the funds swiftly adapted their exposure and returned to long Vega.

Simultaneous long Beta and short Vega is an empirical observation that holds for the Relative Value Volatility Index, but not necessarily for all its constituents. As mentioned earlier, the basket of relative value volatility funds contains a broad mix of investment styles, including market-neutral, or more precisely Beta-neutral, strategies (see Lhabitant (2006)). For these strategies, long Beta does not apply.

In our opinion, it is indispensable to run similar regression analyses on the Index constituents, as the investment guidelines for relative value volatility strategies can be extremely diverse. Given that the source of a relative value volatility fund's returns is truly distinctive, or at least more extensive than the equity risk premium, makes it an extremely valuable addition to a traditional portfolio.

Figure 3: Beta of Long Volatility Index and Relative Value Volatility Index from January 2005 to March 2020



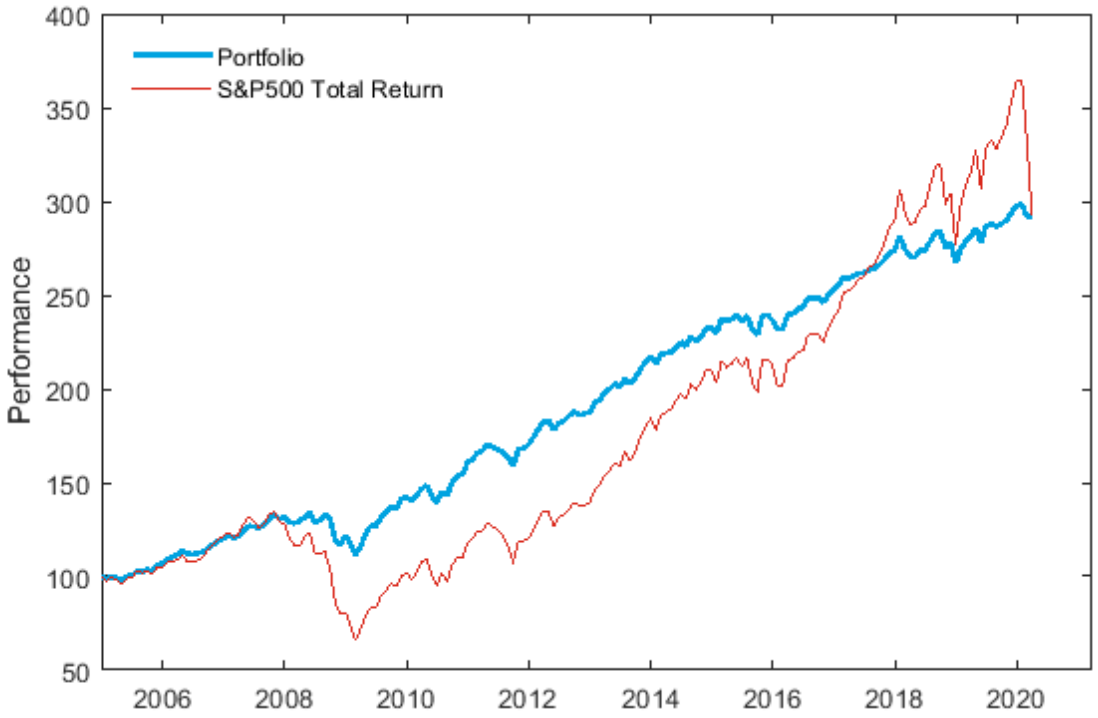
Source: Dominicé, Bloomberg.

[5] The same result can be obtained by a multivariate regression on the market (equity risk factor, Beta) and on a Vega risk factor that is residualized against the equity exposure (see Duncombe and Kay (2018)).

Portfolio Context

We have excluded any kind of portfolio optimization. We simply show the performance of the following hypothetical portfolio: 50% S&P500 and 25% in each of the discussed volatility indices with the assumption of monthly rebalancing[6]. The portfolio yields an annualized return above 7%. Over the period January 2005 to March 2020 the Sharpe ratio of the portfolio is more than double that of the S&P500, resulting in a much more efficient investment. Even though this is a basic portfolio, the result is noteworthy.

Figure 4: Performance evolution of a hypothetical portfolio, consisting of 50% S&P500 Total Return Index, 25% Long Volatility Index and 25% Relative Value Volatility Index, and compared to S&P500 Total Return Index.



Source: Dominicé, Bloomberg

Table 2: Statistical comparison of the hypothetical portfolio, the S&P500 and Eurekahedge CBOE volatility indices

2005/01 - 2020/03	Portfolio	S&P500 Total Return Index	Eurekahedge CBOE Long Volatility Index	Eurekahedge CBOE Relative Value Volatility Index
Annualized Return	7.3%	7.3%	5.2%	7.6%
Annualized Volatility	6.8%	14.3%	8.5%	3.9%
Sharpe Ratio[7]	**0.87**	**0.41**	**0.44**	**1.59**
Max. Drawdown	-17.0%	-51.0%	-28.6%	-6.5%
Correlation to S&P500	0.9		-0.5	0.2

[6] We do not include rebalancing costs, nor the fees for the S&P500 investment.

[7] The risk-free rate taken is the time average of the US Federal Funds Effective Rate (Bloomberg Ticker: FEDL01 Index)

Conclusion

The Eurekahedge CBOE Long Volatility Index is an outstanding portfolio hedge. During the timeframe under consideration, it clearly shows a positive performance, even if we exclude March 2020. The Index outperforms a basic strategy that continuously buys (Delta hedged) put options[8], underpinning the value added by the long volatility funds of the Index.

The Eurekahedge CBOE Relative Value Volatility Index exhibits a highly attractive long-term performance. It capitalizes on extreme volatility explosions and, due to its opportunistic nature, cautiously (Beta hedged to a certain degree) benefits from the short volatility risk premium during prosperous economic years.

Their negative or low long-term correlation to the S&P500 makes these two Indices valuable additions to a classic portfolio.

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[8] This is confirmed by the results of internal backtesting. Alternatively, see AQR - Portfolio Solutions Group (2020) for the modest long-term performance of simple option buying strategies.

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