Volaris Capital Management – Failure of the Collar and How to Fix It

Vivek Kapoor,
CEO & CIO
Margaret Sundberg,
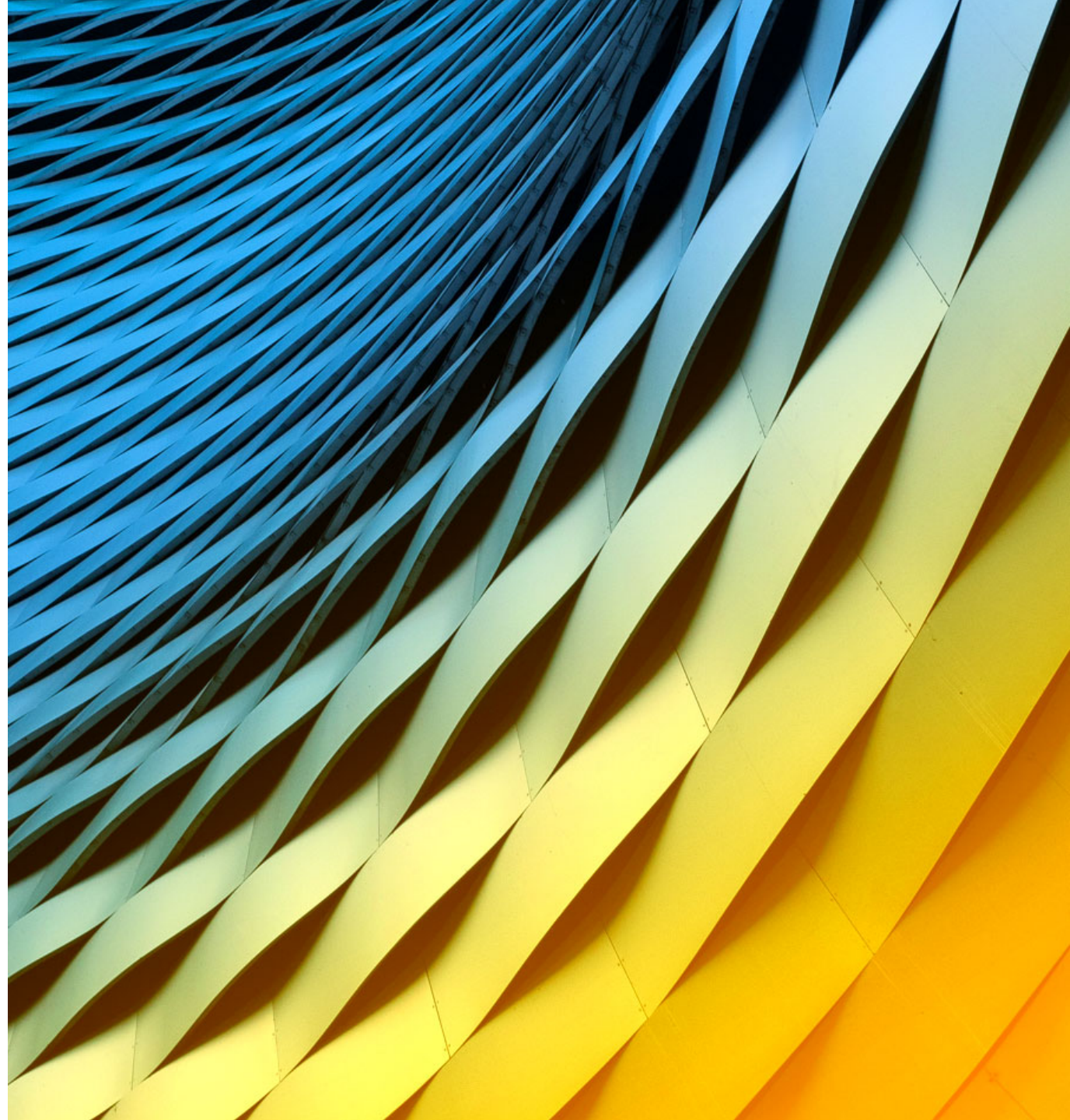Quantitative Trader & Portfolio Manager
Volaris Capital Management

May 13, 2021

IBKRWebinars
by **InteractiveBrokers**

Disclosures

Options involve risk and are not suitable for all investors. For information on the uses and risks of options, you can obtain a copy of the Options Clearing Corporation risk disclosure document titled Characteristics and Risks of Standardized Options by calling (312) 542-6901.

Futures are not suitable for all investors. The amount you may lose may be greater than your initial investment. Before trading futures, please read the CFTC Risk Disclosure. For a copy visit interactivebrokers.com.

Security futures involve a high degree of risk and are not suitable for all investors. The amount you may lose may be greater than your initial investment. Before trading security futures, please read the Security Futures Risk Disclosure Statement. For a copy visit Interactivebrokers.com.

There is a substantial risk of loss in foreign exchange trading. The settlement date of foreign exchange trades can vary due to time zone differences and bank holidays. When trading across foreign exchange markets, this may necessitate borrowing funds to settle foreign exchange trades. The interest rate on borrowed funds must be considered when computing the cost of trades across multiple markets.

The Order types available through Interactive Brokers LLC's Trader Workstation are designed to help you limit your loss and/or lock in a profit. Market conditions and other factors may affect execution. In general, orders guarantee a fill or guarantee a price, but not both. In extreme market conditions, an order may either be executed at a different price than anticipated or may not be filled in the marketplace.

There is a substantial risk of loss in trading futures and options. Past performance is not indicative of future results.

Any stock, options or futures symbols displayed are for illustrative purposes only and are not intended to portray recommendations.

IRS Circular 230 Notice: These statements are provided for information purposes only, are not intended to constitute tax advice which may be relied upon to avoid penalties under any federal, state, local or other tax statutes or regulations, and do not resolve any tax issues in your favor.

Interactive Brokers LLC is a member of NYSE FINRA SIPC

IBKRWebinars
by InteractiveBrokers

Failure of the Collar & How to Fix It

Presented by:

Vivek Kapoor

CIO

Margaret Sundberg

Quantitative Trader Portfolio Manager

VOLARIS
CAPITAL MANAGEMENT

Simulation of potential returns while being cognizant of long-term as well as *recent* observations:

observed S&P 500 Index

extrapolation
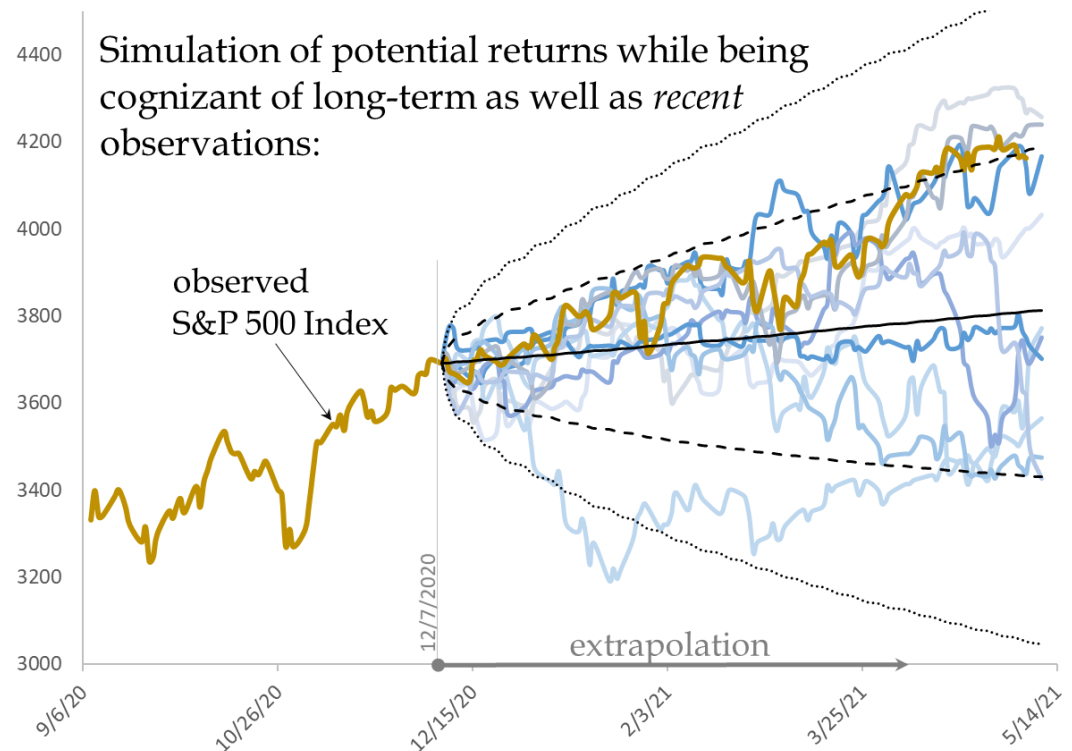
Take calculated risks. That is quite different from being rash.

General George Patton

Presentation Overview

❯ **Destruction of Value by the Collar Hedging Strategy:**

  ✚ Forsaking Upside Participation.

  ✚ Adverse Option Risk Premium Trade.

❯ **Option Risk-Return Informed Hedging:**

  ✚ Risk Aware Approach to Options.

  ✚ Asymmetry of Irreducible Risks.

  ✚ Tail Risk versus Body Risk.

❯ **Self-Financed Net Ownership of Options**

  ✚ Single Stock and Index Solutions

VOLARIS
CAPITAL MANAGEMENT

Long Term Destruction of Value
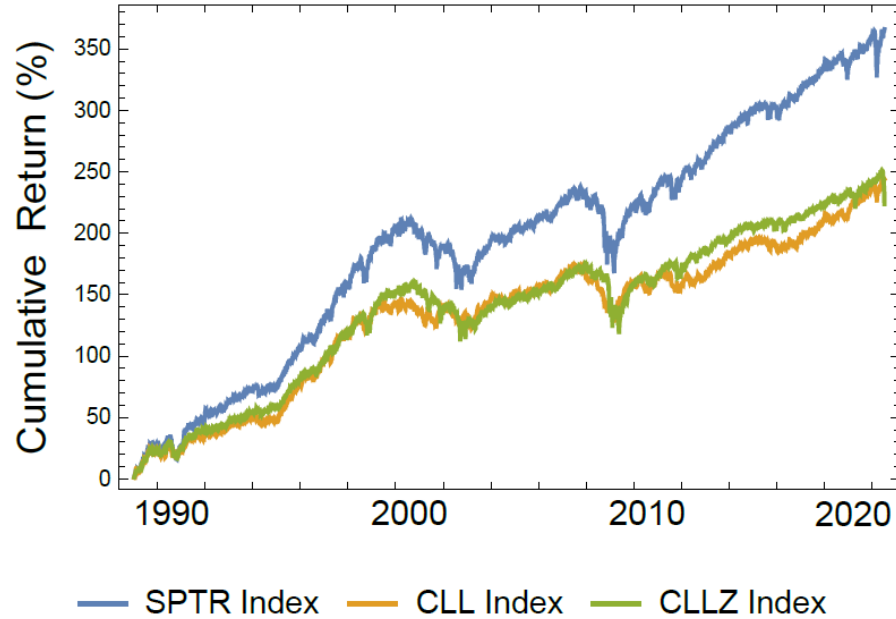
	SPTR Index	CLL Index	CLLZ Index
CAGR	10.6%	7.5%	7.0%
Volatility	18.2%	11.3%	14.1%
CAGR / Volatility	0.58	0.66	0.5

CLL Index: CBOE S&P 500 95-110 Collar Index: Entails holding the stocks in the S&P 500 Index; buying three-month S&P 500 put options to protect this S&P 500 portfolio from market decreases; and selling one month S&P 500 call options to help finance the cost of the puts.

CLLZ Index: CBOE S&P 500 Zero-Cost Put Spread Collar Index: The option strategy holds a long position S&P 500 Index; on a monthly basis buys a 2.5%-5% S&P 500 put option spread; and sells a monthly out-of-the-money S&P 500 call option to cover the cost of the put spread.

VOLARIS
CAPITAL MANAGEMENT

Simple Diversification >> Collar Hedging Strategy
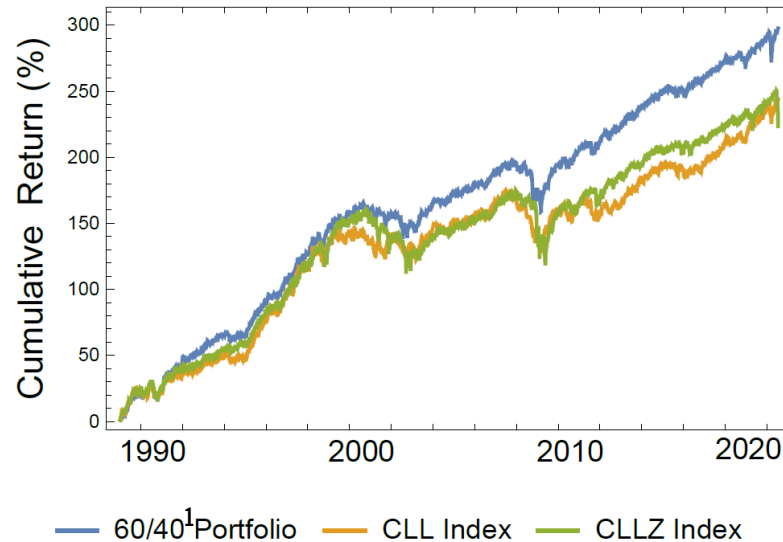
	60/40 Portfolio	CLL Index	CLLZ Index
CAGR	8.9%	7.5%	7.0
Volatility	10.9%	11.3%	14.1%
CAGR / Volatility	0.81	0.66	0.5

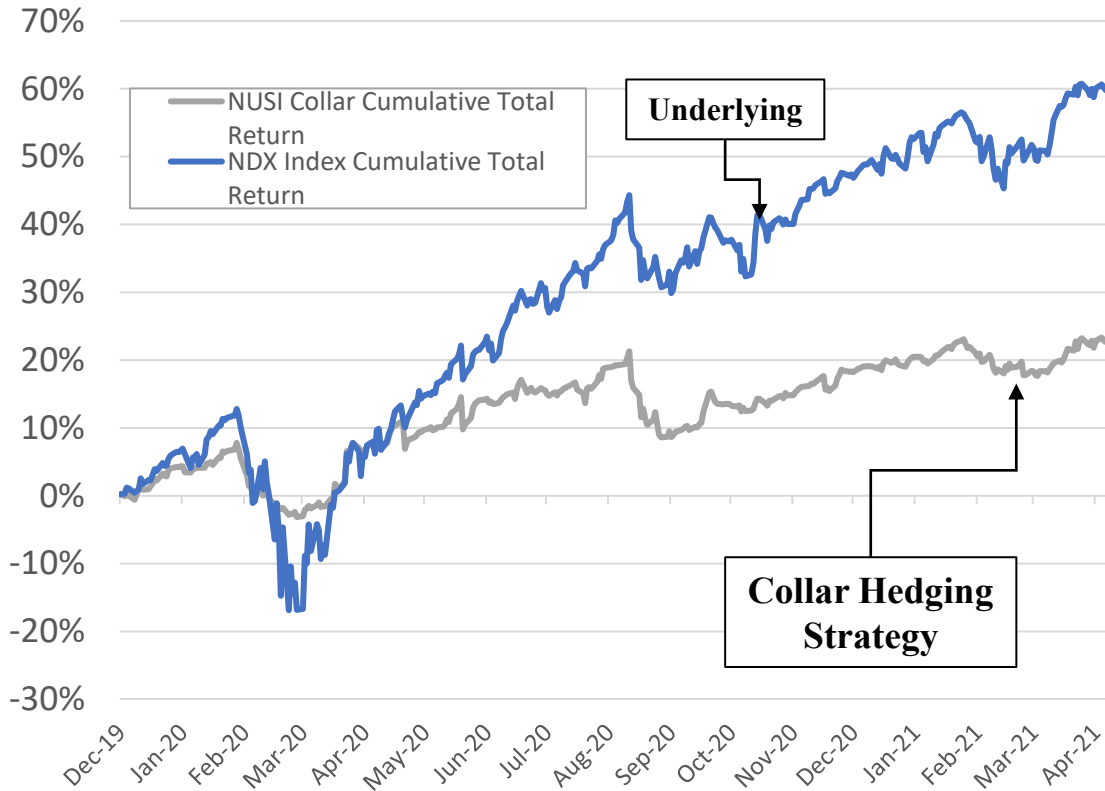[1]60% SPTR Index and 40% LBUSTRUU Index.

SPTR Index (S&P 500 Total Return Index): SPTR Index reflects effects of reinvested dividends on the SPX Index.

LBUSTRUU Index (Barclays US Aggregate Bond Index): Measures the investment grade, US dollar-denominated, fixed-rate taxable bond market (including Treasuries), government-related and corporate securities, MBS (agency fixed-rate and hybrid ARM pass-throughs), ABS, and CMBS.

CLL Index: CBOE S&P 500 95-110 Collar Index: Entails holding the stocks in the S&P 500 Index; buying three-month S&P 500 put options to protect this S&P 500 portfolio from market decreases; and selling one month S&P 500 call options to help finance the cost of the puts.

CLLZ Index: CBOE S&P 500 Zero-Cost Put Spread Collar Index: The option strategy holds a long position S&P 500 Index; on a monthly basis buys a 2.5%-5% S&P 500 put option spread; and sells a monthly out-of-the-money S&P 500 call option to cover the cost of the put spread.

VOLARIS
CAPITAL MANAGEMENT

Collar Hedging Programs Forsake Upside Participation

Underlying

Collar Hedging Strategy

Legend:
- NUSI Collar Cumulative Total Return
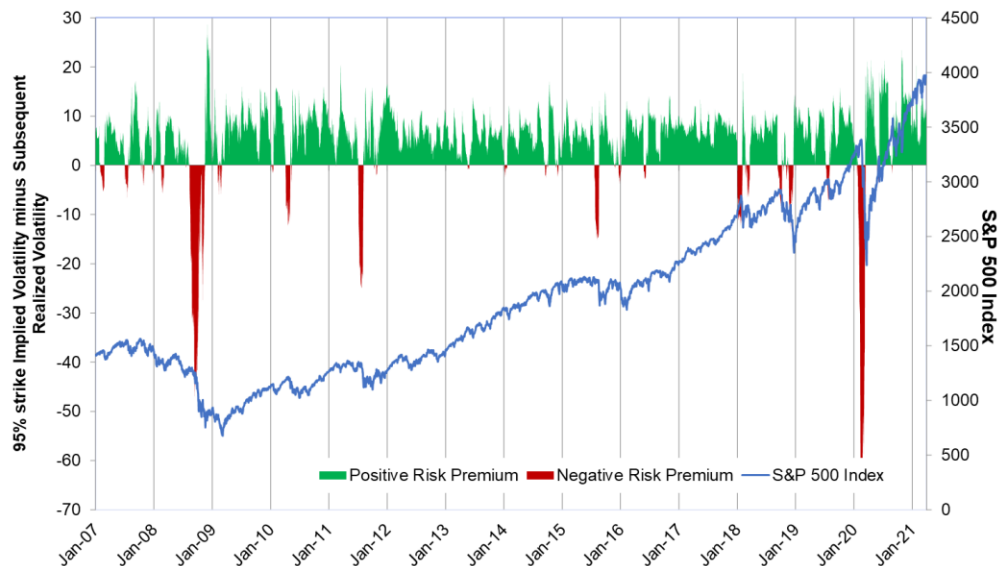- NDX Index Cumulative Total Return

*Source: Bloomberg.

NUSI US Equity: Nationwide Risk-Managed Income ETF is an actively-managed ETF that seeks to achieve its investment objective principally by investing in a portfolio of the stocks included in the NASDAQ Index.
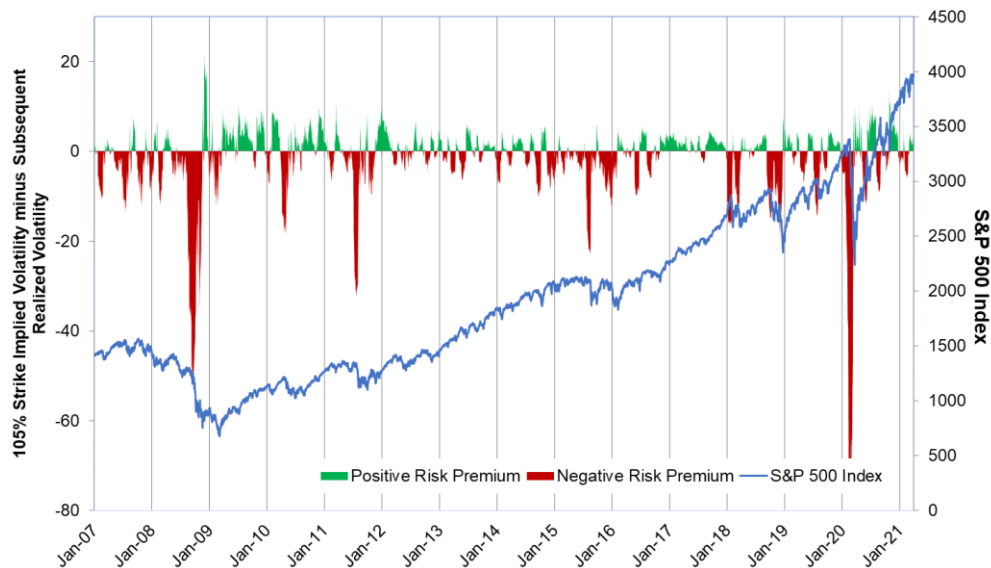
NDX Index: NASDAQ 100 Stock Index.

VOLARIS
CAPITAL MANAGEMENT

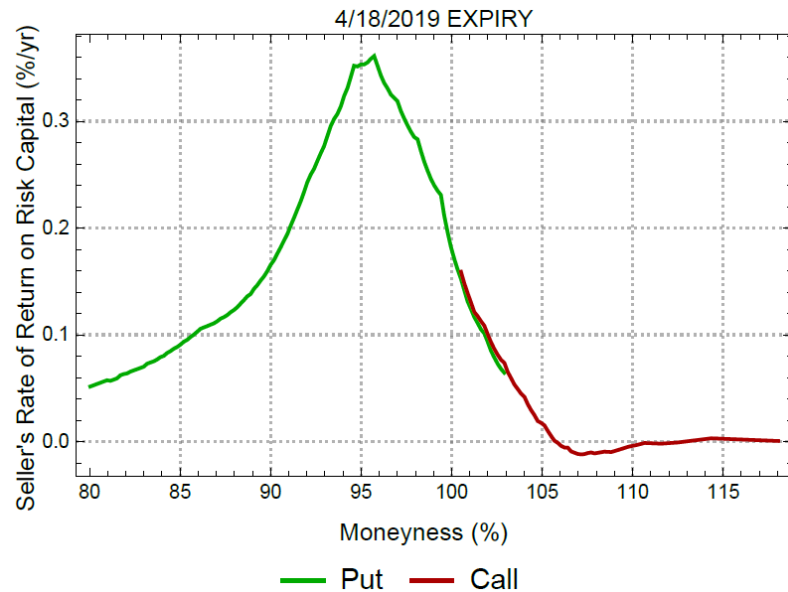# Collar: Adverse Option Risk Premium Trade

> Out-of-The-Money **Put** Option Risk Premium for S&P 500

> Out-of-The-Money **Call** Option Risk Premium for S&P 500

Source: Bloomberg, Volaris Capital Management, LLC.

VOLARIS
CAPITAL MANAGEMENT

Collar: Adverse Option Risk Premium Trade

4/18/2019 EXPIRY

Seller's Rate of Return on Risk Capital (%/yr)

Moneyness (%)

— Put   — Call

> **Sellers Rate of Expected Return on Risk Capital**

$$\theta(T) = \frac{\ln[\Theta+1]}{T} (1/\text{year})$$

$$\Theta = \frac{\text{Bid Price - Expected Hedging Cost}}{\text{Risk-Capital}}$$

T: duration of derivative (years)

A sample snapshot is shown from February 11, 2019 of the estimated risk-return profile of an option seller.
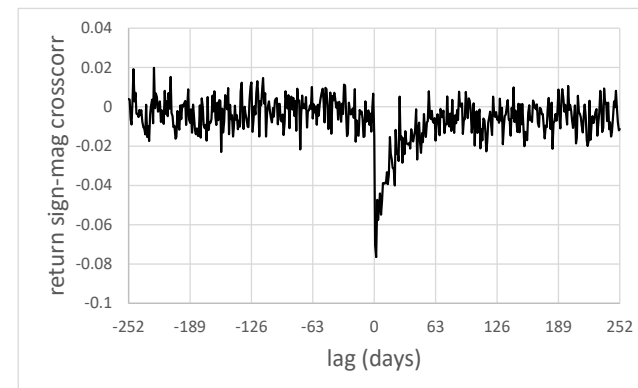
Comparison of an option *bid-price* with expected hedging costs provides an estimate of the option-seller's *expected P&L*. The *expected P&L* when compared to the *hedge-cost distribution* reveals the option's risk-return profile from a seller's perspective.

VOLARIS
CAPITAL MANAGEMENT

Real Returns

+ RYTHMS & RHYMES
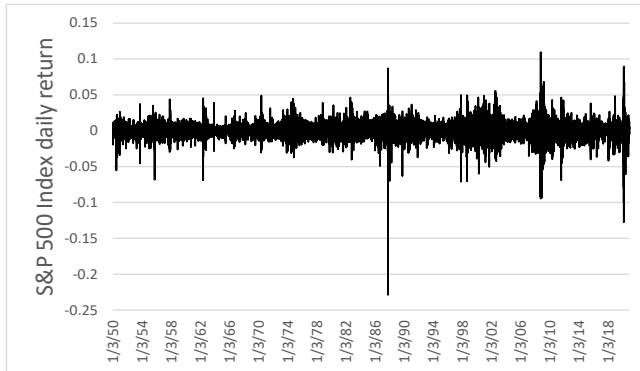
+ NON-NORMALITY
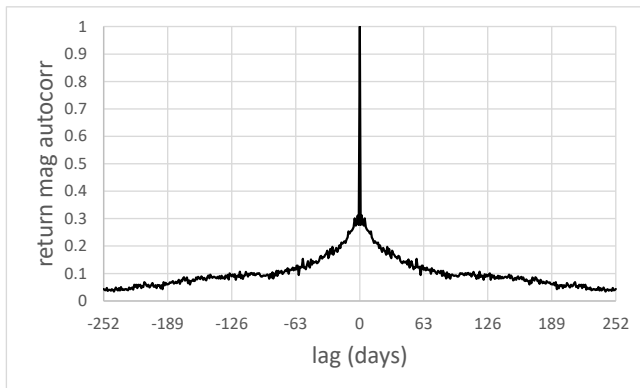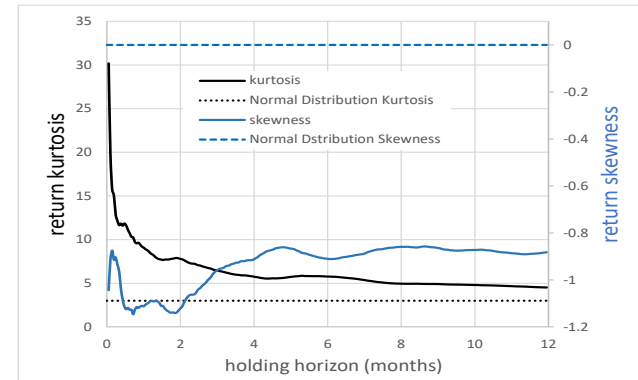
+ PERSISTENCE

+ ASYMMETRY

"**Molecules colliding** randomly under thermal agitations have **nothing in common** with the human enterprise of **risk-taking, trading,** and **price discovery**".

Anonymous 2000 AD

Source: Bloomberg, Volaris Capital Management, LLC.

VOLARIS
CAPITAL MANAGEMENT

Risk-Aware Approach

▶ Our tool to describe the asset is a **Real-World Stochastic Model:**

  ➕ We exploit observed persistence & lead-lag relationships between return magnitude and sign and other *conditioning variables* using a *vector auto-regressive* framework to realistically capture the first four moments of return term structure.

▶ Our tool for analyzing options is **Multi-Variate Variational Calculus:**

  ➕ The pair of *optimal functions* being sought are the hedge-ratio and expected attempted replication cost as a function of the underlying. The functional being minimized is the wealth change variance.

  ➕ An explicit articulation of the optimal hedging strategy at each time-step enables an *ex-ante* assessment of residual risks.

▶ We infer Option Risk Premiums by comparing price with Expected Costs of Attempted Replication.

$$C = \underset{option\text{-}price}{\underbrace{C}} = \underset{expected\ replication\ cost}{\underbrace{\overline{G} - \overline{\Delta W^h}}} + \underset{risk-premium}{\underbrace{\overline{\Delta W}}}$$

$$G : option\ payoff \qquad \Delta W^h : hedge\ P\&L$$

Expected Replication Cost

VOLARIS
CAPITAL MANAGEMENT
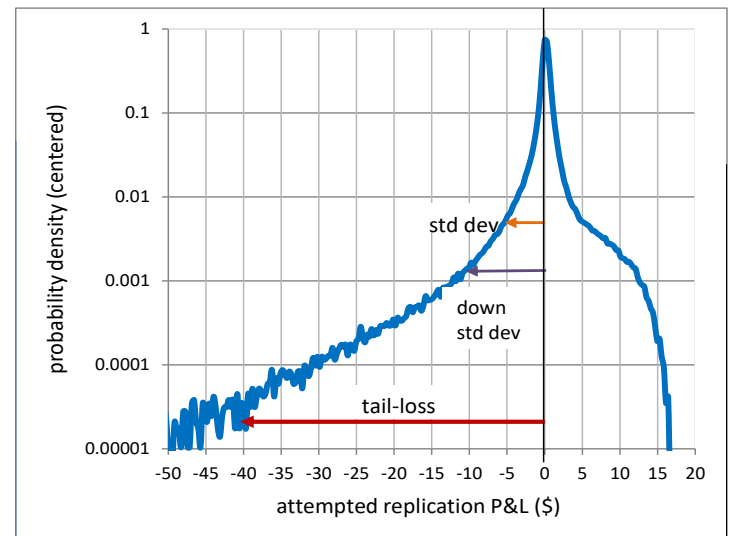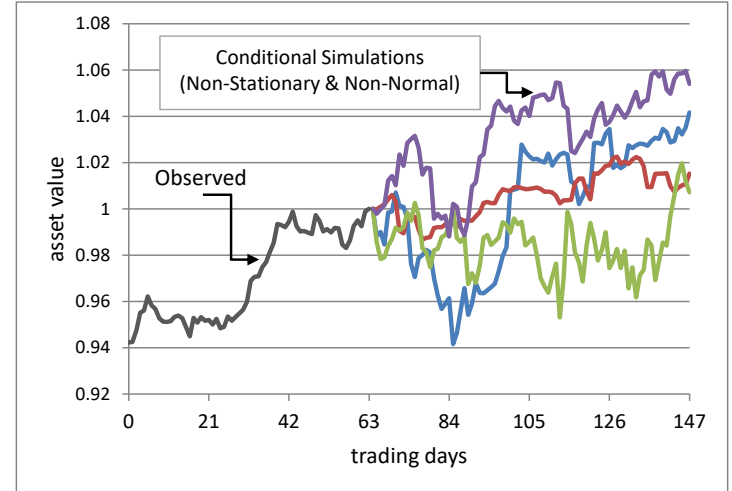
Asymmetry of Residual Risk

Opportunity: Own Positive Carry
Challenge: Adverse Negative Surprise

Challenge: Negative Carry Costs
Opportunity: Own Positive Surprise
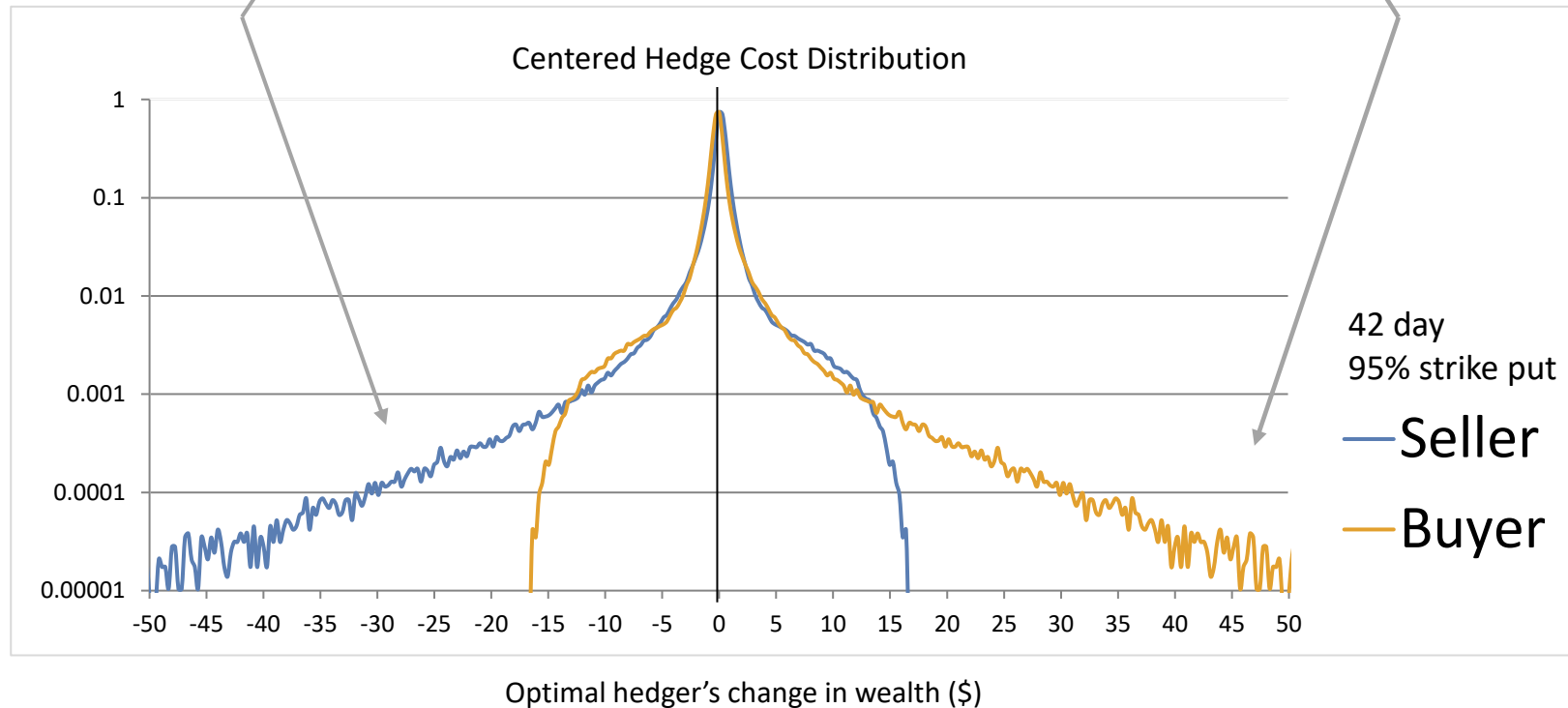
Centered Hedge Cost Distribution

42 day
95% strike put

Seller

Buyer

Optimal hedger's change in wealth ($)

VOLARIS
CAPITAL MANAGEMENT

Tail Risk vs. Body Risk

Returns associated with significant fear (downside) and euphoria (upside) in the market are Tail Risk.

- The band of uncertainty of returns increases with investment holding horizon (i.e., Term).
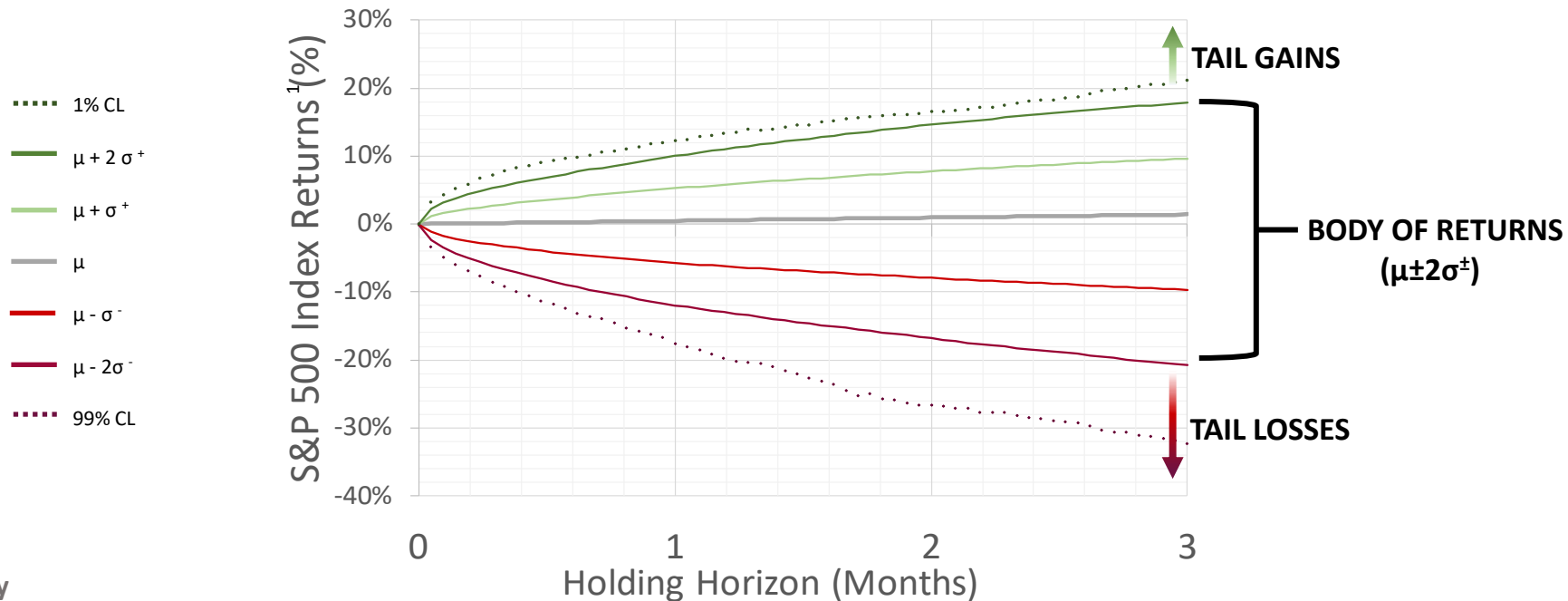
  At *one-month holding horizon,* the two-upside standard deviation return is **+10%** and the two-downside standard deviation return is **-12%**.
  At *two-month holding horizon*, the two-upside standard deviation return is **+14%** and the two-downside standard deviation return is **-17%.**

- Depicted below is the term structure of tail risks.

  At *one-month holding horizon,* the 1% confidence level of return is **+12%** and the 99% confidence level return is **-18%**.
  At *two-month holding horizon,* the 1% confidence level of return is **+16%** and the 99% confidence level return is **-27%**.

Legend:
- ······ 1% CL
- —— $\mu + 2\sigma^+$
- —— $\mu + \sigma^+$
- —— μ
- —— $\mu - \sigma^-$
- —— $\mu - 2\sigma^-$
- ······ 99% CL

TAIL GAINS

BODY OF RETURNS ($\mu \pm 2\sigma^{\pm}$)
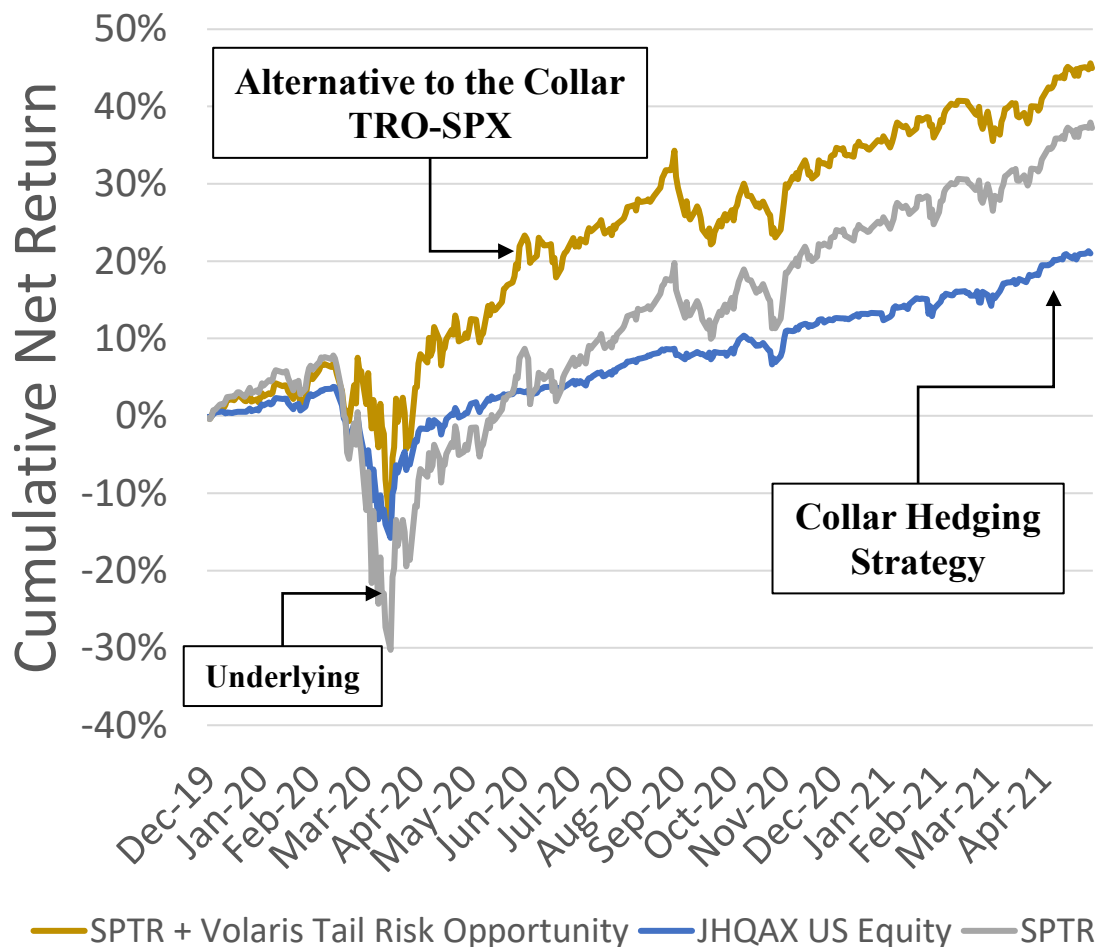
TAIL LOSSES

Glossary

- μ Mean
- σ^+ Upside Standard Deviation
- σ^- Downside Standard Deviation
- CL   Confidence Level

[1]Return statistics are based on daily rolling returns over multiple holding horizons.
Source: Bloomberg, Jan 1928 –Jan 2020

VOLARIS
CAPITAL MANAGEMENT

Tail Risk Opportunity Framework compared to a Collar Hedging Program

Chart: Cumulative Net Return (y-axis, from -40% to 50%) vs. time (x-axis, Dec-19 to Apr-21).

Labels on chart:
- **Alternative to the Collar TRO-SPX**
- **Underlying**
- **Collar Hedging Strategy**

Legend:
— SPTR + Volaris Tail Risk Opportunity — JHQAX US Equity — SPTR

*Source: Volaris Capital Management LLC ("Volaris"), Bloomberg . Past performance does not guarantee or indicate future results. More information is available upon request. All images are for illustrative purposes only. The Tail Risk Opportunity strategy is a composite performance which consists of the performance of number of individual accounts. Net returns account for management and performance fee. These materials do not constitute an offer to sell or an offer to buy securities.

JHQAX US Equity: JP Morgan Hedged Equity fund is an open-end fund that seeks capital appreciation. The Fund participates in the broad equity markets while hedging overall market exposure relative to traditional long-only equity strategies. The Fund uses an enhanced index strategy to invest in these equities, which consist of common stocks of large capitalization U.S. companies.
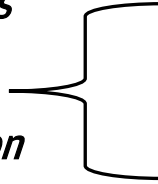
SPTR Index: Total return of S&P 500 Index.

VOLARIS
CAPITAL MANAGEMENT

Self-Financed Tail Positive Convexity

Excess Kurtosis of Asset Returns

$\Downarrow$

Distribution of P&L of Hedged Option

- Option <u>sell</u> positions exhibit <u>adverse</u> asymmetry.
- Option <u>buy</u> position exhibit <u>favorable</u> asymmetry.

Five Cardinal Characteristics of SPX Index Options
1. *Disparity Between Out of the Money Puts and Calls*
2. *Asymmetry Between Buyer and Seller*
3. *Exploding Asymmetry at Expiry*
4. *Exploding Asymmetry with Out-of-the-Moneyness*
5. *Elements of Timing (recognizing Volatility environment)*

Challenges of Indexation in S&P 500 Index Volatility Investment Strategies

https://ssrn.com/abstract=3427350

❯ Volaris portfolio composition systematically seeks portfolio configurations with **controlled expected costs** and **favorable asymmetry.**

[1]For more on the research approach visit www.volariscapital.com/research

VOLARIS
CAPITAL MANAGEMENT

Self-Financed Tail Positive Convexity
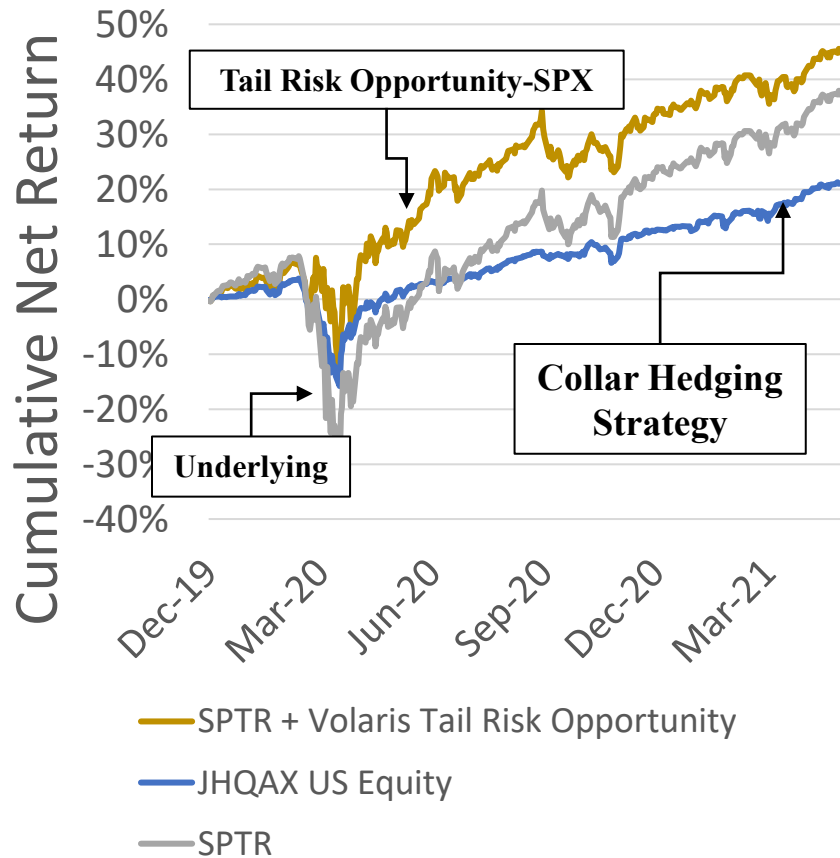
Tail ETF Features:
- Tail ETF purchases OTM SPX Index options and is invested in Treasury Bonds.
- Buying expensive puts is unsustainable.

Volaris **Tail Risk Opportunity** Features:
- Self-Financed, Carry-controlled Positive Surprise

VOLARIS
CAPITAL MANAGEMENT

What are the **Risk/Reward** Implications of a **Concentrated** Equity Position?
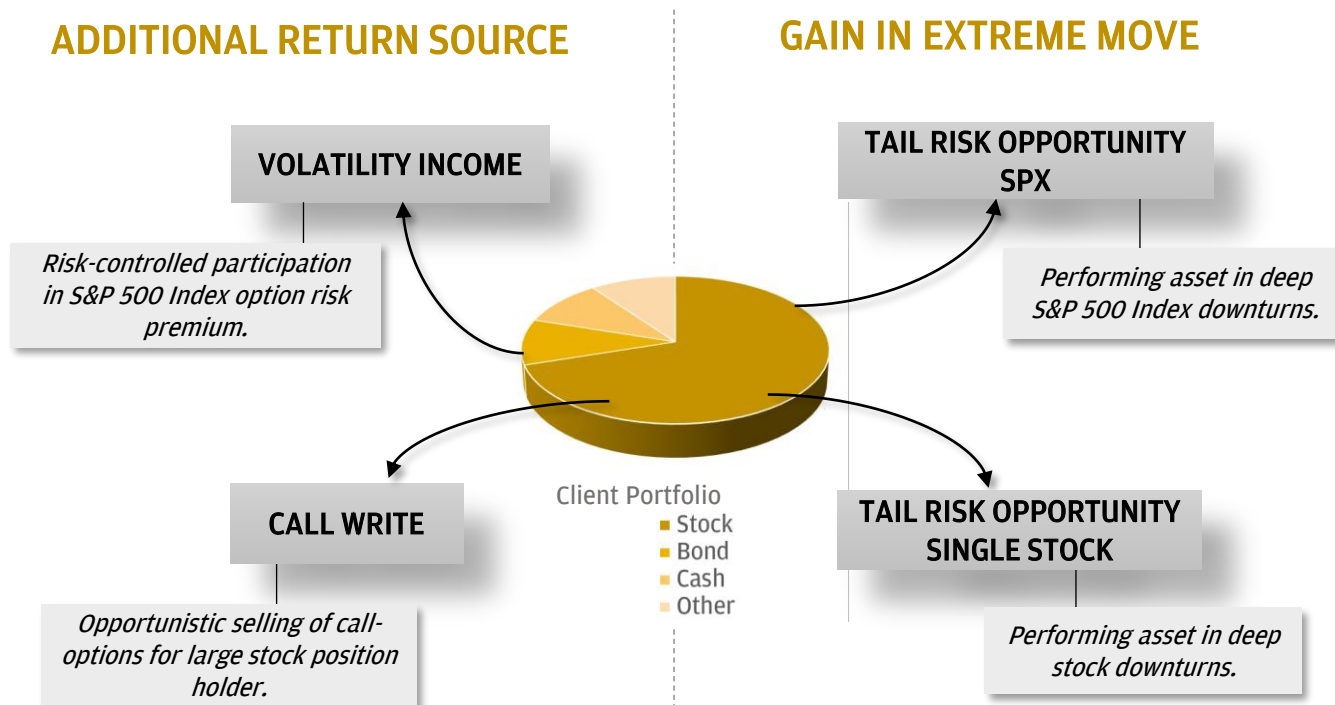
❯ Potential to participate in price appreciation.

❯ Significant concentration risk.

❯ Lack of diversified portfolio.

❯ Potential lack of yield/return source.

What are the Potential Considerations of **Selling** Large Equity Positions?

❯ Liquidity of underlying shares.

❯ Tax implications of selling shares.

❯ Potential restrictions on sale of stock.

VOLARIS OVERLAY SOLUTIONS
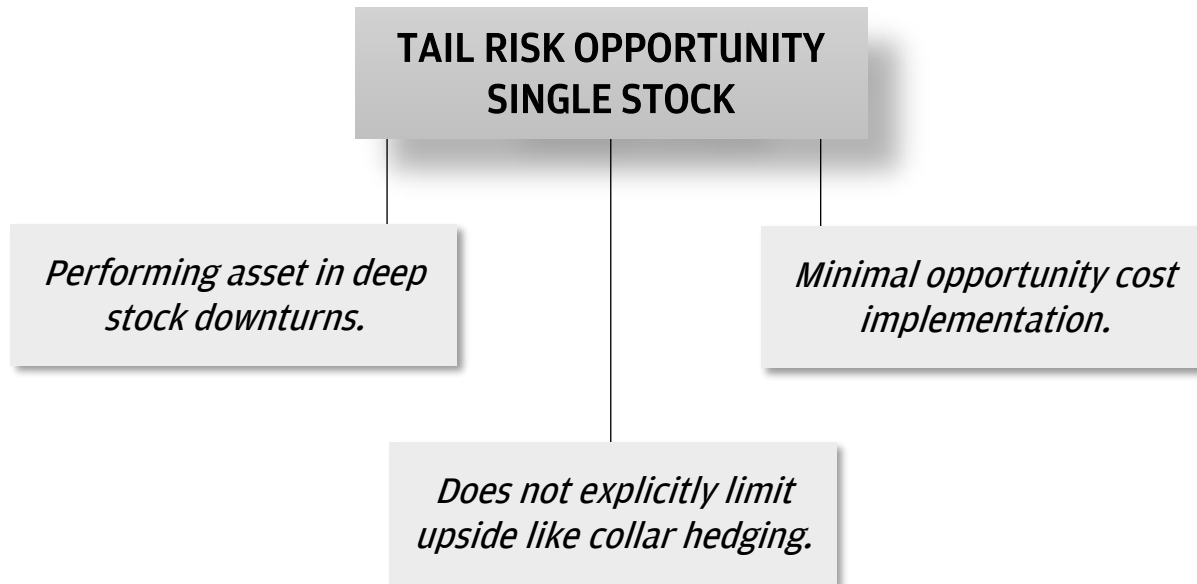
VOLARIS
CAPITAL MANAGEMENT

- Clients may use existing portfolio holdings (stocks, bonds, etc.) as collateral to employ Volaris strategies.
    - **Minimal opportunity cost** implementation employing listed options in Separately Managed Account.
        - Defined risk strategies with **transparency** and daily **liquidity**.

ADDITIONAL RETURN SOURCE

GAIN IN EXTREME MOVE

VOLATILITY INCOME

Risk-controlled participation in S&P 500 Index option risk premium.

TAIL RISK OPPORTUNITY SPX

Performing asset in deep S&P 500 Index downturns.

Client Portfolio
- Stock
- Bond
- Cash
- Other

CALL WRITE

Opportunistic selling of call-options for large stock position holder.

TAIL RISK OPPORTUNITY SINGLE STOCK

Performing asset in deep stock downturns.

TAIL RISK OPPORTUNITY SINGLE STOCK

Performing asset in deep stock downturns.

Minimal opportunity cost implementation.

Does not explicitly limit upside like collar hedging.

What are the benefits of the Volaris **Tail Risk Opportunity** framework for a **Concentrated** Equity Position?

❯ Decrease concentration risk by managing downside risk.

❯ Maintain upside participation.

❯ Avoid tax bill.

Sustainable Yield and Tail Risk Opportunities

- We provide investors access to yield and tail-risk opportunities in the options market.

- Our insights, based on experience and active research, are applied to pursue client's goals.

❯ Vivek Kapoor, CEO/CIO

+ vivek.kapoor@volariscapital.com

❯ Margaret Sundberg, Portfolio Manager

+ margaret.sundberg@volariscapital.com

VOLARIS
CAPITAL MANAGEMENT

Important Legal Information and Disclosures

Volaris Capital Management, LLC is not affiliated with Interactive Brokers LLC, or any other FINRA broker-dealer

This material has been prepared by Volaris Capital Management LLC ("Volaris") on the basis of publicly available information, internally developed data and other third-party sources believed to be reliable. Volaris has not sought to independently verify information obtained from public and third-party sources and makes no representations or warranties as to accuracy, completeness or reliability of such information. All opinions and views constitute judgments as of the date of writing without regard to the date on which the reader may receive or access the information, and are subject to change at any time without notice and with no obligation to update. This material is for informational and illustrative purposes only and is intended solely for the information of those to whom it is distributed by Volaris. No part of this material may be reproduced or retransmitted in any manner without the prior written permission of Volaris. Volaris does not represent, warrant or guarantee that this information is suitable for any investment purpose and it should not be used as a basis for investment decisions. This material does not purport to contain all of the information that a prospective investor may wish to consider. This material is not to be relied upon as such or used in substitution for the exercise of independent judgment. Past performance does not guarantee or indicate future results.

This material should not be viewed as a current or past recommendation or a solicitation of an offer to buy or sell any securities or investment products or to adopt any investment strategy. The investment views and market opinions/analyses expressed herein may not reflect those of Volaris as a whole and different views may be expressed based on different investment styles, objectives, views or philosophies. To the extent that these materials contain statements about the future, such statements are forward looking and subject to a number of risks and uncertainties. All images are for illustrative purposes only.

VOLARIS
CAPITAL MANAGEMENT