



WHITE PAPER:
**Cboe[®] Validus[®] S&P 500[®]
Dynamic PutWriteSM Index**

Cboe Validus S&P 500 Dynamic PutWriteSM Index

The Cboe Validus S&P 500 Dynamic PutWrite Index tracks the value of an active rule-based investment strategy that provides a long exposure to the S&P 500 price index with superior risk-adjusted characteristics in the long-term.

An innovative and dynamic approach to put writing

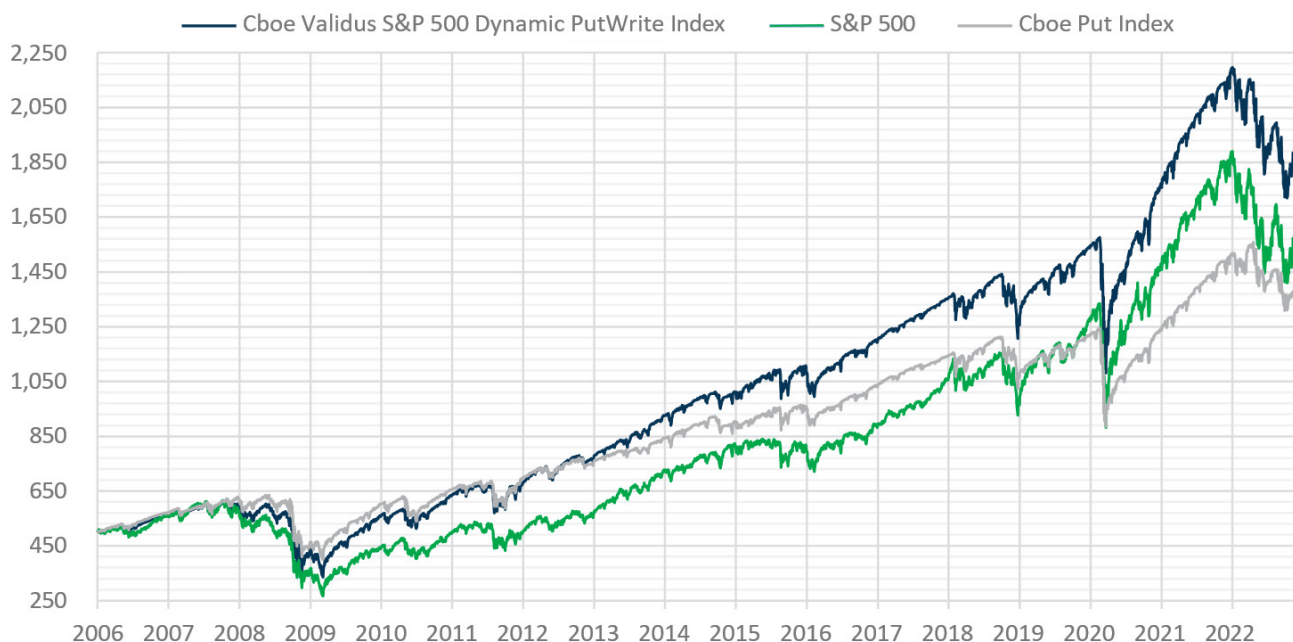
The strategy consists of a short position in an equity index put option, with the premium proceeds invested into short-term US Treasuries. While most PutWrite indices are passive in nature and will sell options at a fixed moneyness (usually at-the-money or slightly out-of-the-money), this Dynamic Put Strategy relies on dynamic option strike selection as a function of prevailing market volatility.

The strategy is a fully cash-secured short put strategy, but it is distinct from traditional collateralized or cash-secured put write strategies in that it does not view the sale of puts as simply a source of income but as a source of additional performance and an effective tool to reduce the volatility of a long exposure to the S&P 500 price index.

The strategy may be particularly well-suited to the current macro environment as it has historically outperformed the benchmark S&P 500 price index in bearish to slightly bullish markets and has the potential to exhibit a similar outperformance in similar market regimes going forward.

The return profile of the Cboe Validus S&P 500 Dynamic PutWrite Index is shown in figure 1 below, illustrating the improved annualized return, annualized volatility, and drawdown characteristics, as compared to the S&P 500 price index over a 15-year lookback period.

Figure 1: Cboe Validus S&P 500 Dynamic PutWrite Index Return Profile (2006 – 2022)



Source: Bloomberg & Validus Macro Strategies. From Jan 3rd, 2006 to Dec 19th, 2022.

Overall Statistics

	Annualized Returns	Annualized Volatility	Information Ratio	Max Drawdown
Cboe Validus S&P 500 Dynamic PutWrite Index	8.02%	16.60%	0.483	-45.03%
S&P 500	6.72%	20.17%	0.333	-56.78%
Cboe PUT Index	6.21%	14.28%	0.435	-37.09%

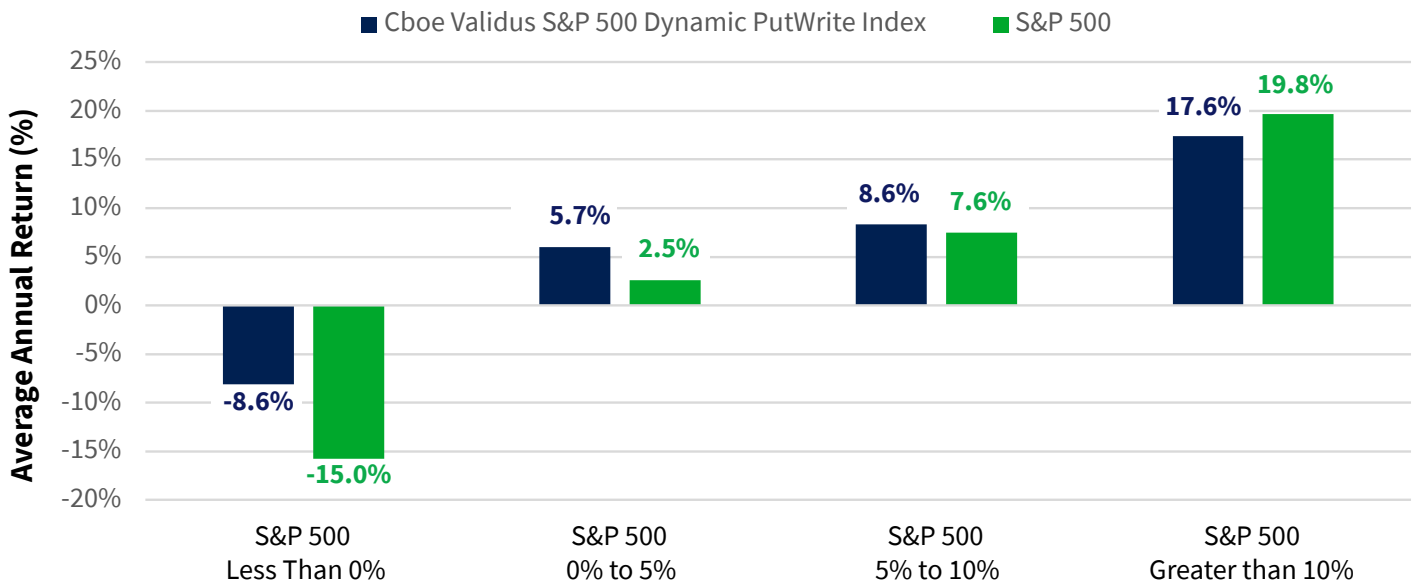
Source: Bloomberg & Validus Macro Strategies. From Jan 3rd, 2006 to Dec 19th, 2022.

A robust strategy through varying market regimes

The attractive risk-adjusted characteristics of the strategy stand out by focusing on different market regimes of the S&P 500, as they illustrate how the Dynamic PutWrite Strategy performs through different market conditions.

As shown in figure 2, since 2006 the annual returns of the Dynamic Put Strategy always exceed those of the S&P 500 when the latter's returns are either negative or slightly positive (i.e., < 10% annual return). During strong bullish periods, the returns of the Dynamic Put Strategy were lower, however over a long holding period these characteristics resulted in attractive risk-adjusted performance for the Dynamic Put Strategy vs. the S&P 500 (markedly lower drawdown, lower volatility, slightly higher returns).

Figure 2: Dynamic Put Annual Rolling Returns vs. S&P 500 Index Return Regime (2006 – 2022)



Source: Bloomberg & Validus Macro Strategies. From Jan 3rd, 2006 to Dec 19th, 2022.

Why now might be the right time for the Cboe Validus S&P 500 Dynamic PutWrite?

Over the last decade US equity indices' bull run has been staggering and unique. As figure 3 shows, the S&P 500 price index has averaged a return of 0.96% per month over the last decade, which is 31 bps higher per month than its long time average since 1962. (i.e., 48% higher monthly returns than long term historical average).

The combination of successive quantitative easing by central banks globally and the advent and growth of new technology

Figure 3: S&P 500 5-year rolling average monthly returns over the risk-free rate (1967 – 2022)

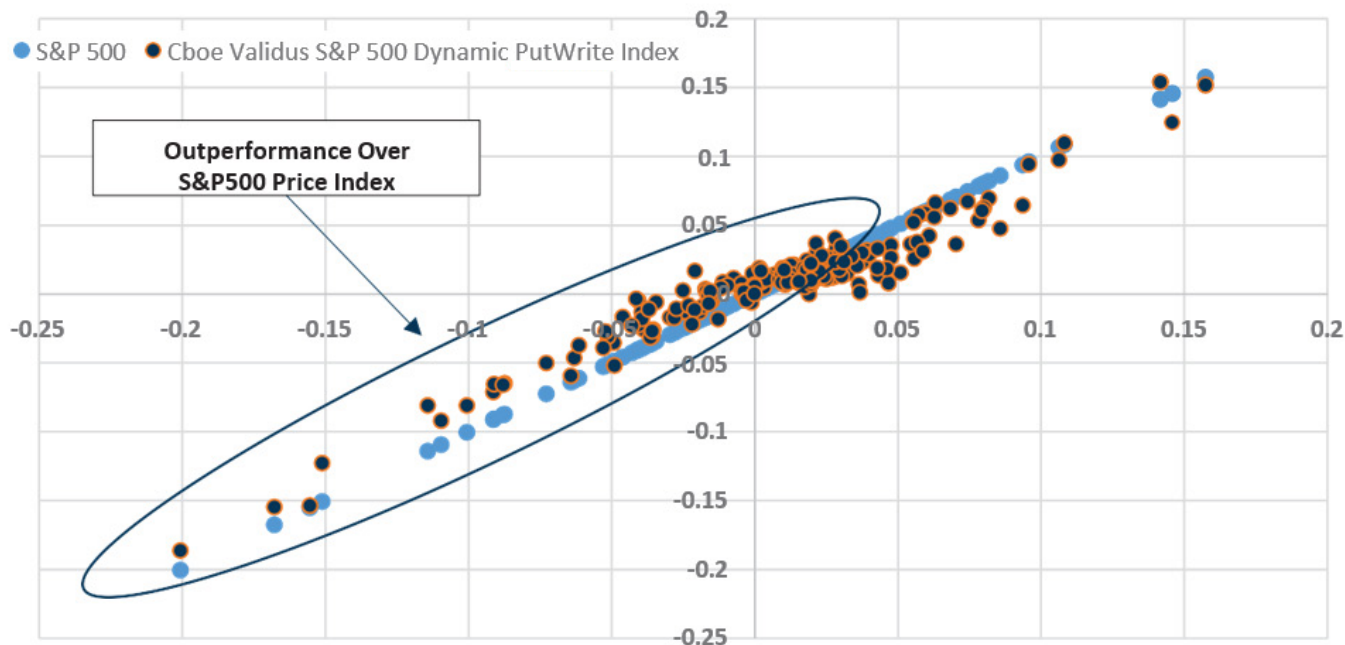


Source: Bloomberg & Validus Macro Strategies

However, given the recent shifts in the macro and geopolitical environment, combined with a general view of high valuation in certain sectors, it is likely that going forward the performance of major US indices would be more in line with their long-term history rather than the recent impressive bull run.

Considering the risks ahead – which might result in a range bound market and periods of sell off – and given the likely limited chances of a very strong performance for US equities, the Cboe Validus S&P 500 Dynamic PutWrite index offers a compelling alternative to an outright long exposure to the S&P 500 price index.

Figure 4: Cboe Validus S&P 500 Dynamic PutWrite Index Monthly Returns vs. S&P 500



Source: Bloomberg & Validus Macro Strategies. From Jan 3rd, 2006 to Dec 19th, 2022.

After a strong bullish market over the past several years, it may be more important now than ever to consider the impact that a range-bound or down market could have on one’s overall portfolio. The Dynamic PutWrite Strategy allows investors to maintain a long market exposure to the S&P 500, while potentially decreasing volatility and drawdown as compared to investing in the underlying index and may provide greater protection through downturns.

Comparative Annual Returns 2006 - 2022									
	2006	2007	2008	2009	2010	2011	2012	2013	2014
Cboe Validus S&P 500 Dynamic Put Index	13.01%	4.93%	-26.15%	28.33%	13.21%	6.80%	14.50%	18.83%	8.93%
S&P 500	11.65%	2.16%	-35.61%	21.59%	12.26%	0.41%	14.51%	25.27%	12.35%
Cboe PUT Index	13.92%	8.65%	-25.25%	30.41%	8.83%	6.37%	8.76%	10.86%	6.73%

	2015	2016	2017	2018	2019	2020	2021	2022	All
Cboe Validus S&P 500 Dynamic Put Index	7.00%	11.36%	12.93%	-5.32%	20.48%	13.75%	24.89%	-15.80%	269.72%
S&P 500	-2.21%	12.18%	19.40%	-6.89%	29.79%	13.59%	29.61%	-20.41%	200.89%
Cboe PUT Index	5.56%	9.07%	10.54%	-5.80%	13.46%	1.20%	22.67%	-8.60%	177.47%

Source: Bloomberg & Validus Macro Strategies. From Jan 3rd, 2006 to Dec 19th, 2022.

Disclaimer

General

The information provided is for general education and information purposes only. No statement provided should be construed as a recommendation to buy or sell a security, future, option on a future, security future, digital asset, financial instrument, investment fund, or other investment product (collectively, a “financial product”), or to provide investment advice. In particular, the inclusion of a security or other instrument within an index is not a recommendation to buy, sell, or hold that security or any other instrument, nor should it be considered investment advice.

Other than the references below to options on futures, references below to options are to securities options, such as options on the stocks of individual corporations, options on securities indices, and options on exchange-traded products, such as exchange-traded funds and exchange-traded notes.

Options

Options involve risk and are not suitable for all market participants. Prior to buying or selling an option, a person should review the [Characteristics and Risks of Standardized Options \(ODD\)](#), which is required to be provided to all such persons. Copies of the ODD are available from your broker or from The Options Clearing Corporation, 125 S. Franklin Street, Suite 1200, Chicago, IL 60606.

Trading FLEX options may not be suitable for all options-qualified market participants. FLEX options strategies only should be considered by those with extensive prior options trading experience.

Uncovered option writing is suitable only for the knowledgeable market participant who understands the risks, has the financial capacity and willingness to incur potentially substantial losses, and has sufficient liquid assets to meet applicable margin requirements. In this regard, if the value of the underlying instrument moves against an uncovered writer's options position, the writer may incur large losses in that options position and the participant's broker may require significant additional margin payments. If a market participant does not make those margin payments, the broker may liquidate positions in the market participant's account with little or no prior notice in accordance with the market participant's margin agreement.

Futures

Trading in futures and options on futures is not suitable for all market participants and involves the risk of loss, which can be substantial and can exceed the amount of money deposited for a futures or options on futures position. You should, therefore, carefully consider whether trading in futures and options on futures is suitable for you in light of your circumstances and financial resources. You should put at risk only funds that you can afford to lose without affecting your lifestyle.

For additional information regarding the risks associated with trading futures and options on futures and with trading security futures, see respectively the [Risk Disclosure Statement Referenced in CFTC Letter 16-82](#) and the [Risk Disclosure Statement for Security Futures Contracts](#).

ErisX Licenses and Registrations

Digital asset futures are offered through Eris Exchange, LLC (“Eris Exchange”) and Eris Clearing, LLC (“Eris Clearing”) (collectively, “ErisX”), which are both Cboe companies. Eris Exchange is registered with the Commodity Futures Trading Commission (“CFTC”) as a Designated Contract Market (“DCM”) and Eris Clearing is registered with the CFTC as a Derivatives Clearing Organization (“DCO”).

Digital asset spot markets, like ErisX, are not licensed, approved, registered, or regulated by the CFTC, and transactions on the ErisX spot market are not subject to CFTC rules, regulations, or regulatory oversight.

The ErisX spot market may be subject to certain state licensing requirements and operates in New York pursuant to Eris Clearing's license to engage in digital asset business activity by the New York State Department of Financial Services.

The ErisX spot market has or is in the process of obtaining a money-transmitter license or similar license application with various states.

Digital Assets

Digital asset trading is not suitable for all market participants and involves the risk of loss, which can equal a total loss of funds you deposit for the purposes of trading digital assets. You should, therefore, carefully consider whether digital asset trading is suitable for you in light of your circumstances and financial resources. You should put at risk only funds that you can afford to lose without affecting your lifestyle.

The volatility and unpredictability of the price of digital assets relative to fiat currency may result in significant loss over a short period of time. Certain digital assets have experienced daily price volatility of more than 20%.

Digital assets are not legal tender, are not backed by the U.S. government, and accounts and value balances are not subject to Federal Deposit Insurance Corporation or Securities Investor Protection Corporation protections.

Legislative and regulatory changes or actions at the state, federal, or international level may adversely affect the use, transfer, exchange, and value of digital assets.

Transactions in digital assets may be irreversible, and, accordingly, losses due to fraudulent or accidental transactions may not be recoverable.

Some digital asset transactions shall be deemed to be made when recorded on a public ledger, which is not necessarily the date or time that the market participant initiates the transaction.

The value of digital assets may be derived from the continued willingness of market participants to exchange fiat currency for digital assets, which may result in the potential for permanent and total loss of value of a particular digital asset should the market for that digital asset diminish or disappear.

There is no assurance that a person who accepts a digital asset as payment today will continue to do so in the future.

The nature of digital assets may lead to an increased risk of fraud or a cybersecurity event. A cybersecurity event could result in a substantial, immediate, and irreversible loss for market participants that trade digital assets. Even a minor cybersecurity event in a digital asset is likely to result in downward price pressure on that product and potentially other digital assets.

The ability to participate in forks could also have implications. For example, if you hold digital asset positions through ErisX you may be adversely impacted if ErisX does not participate in a fork that creates a new digital asset.

The nature of digital assets means that any technological difficulties experienced by ErisX may prevent the access or use of a market participant's digital assets.

Any bond or trust account maintained by ErisX for the benefit of its market participants may not be sufficient to cover all losses incurred by market participants.

VIX® Index and VIX® Index Products

The Cboe Volatility Index® (known as the VIX Index) is calculated and administered by Cboe Global Indices, LLC. The VIX Index is a financial benchmark designed to be a market estimate of expected volatility of the S&P 500® Index, and is calculated using the midpoint of quotes of certain S&P 500 Index options as further described in the methodology, rules and other information [here](#).

VIX futures, Mini VIX futures, and options on VIX futures traded on Cboe Futures Exchange, LLC and VIX options traded on Cboe Options Exchange, Inc. (collectively, “VIX® Index Products”) are based on the VIX Index. VIX Index Products are complicated financial products only suitable for sophisticated market participants.

Transacting in VIX Index Products involves the risk of loss, which can be substantial and can exceed the amount of money deposited for a VIX Index Product position (except when buying options on VIX Index Products, in which case the potential loss is limited to the purchase price of the options).

Market participants should put at risk only funds that they can afford to lose without affecting their lifestyles.

Before transacting in VIX Index Products, market participants should fully inform themselves about the VIX Index and the characteristics and risks of VIX Index Products, including those described here. Market participants also should make sure they understand the product specifications for VIX Index Products ([VIX futures](#), [Mini VIX futures](#) and [VIX options](#)) and the methodologies for calculating the underlying VIX Index and the settlement values for VIX Index Products. Answers to questions frequently asked about VIX Index products and how they are settled is available [here](#).

Not Buy and Hold Investment: *VIX Index Products are not suitable to buy and hold because:*

- On their settlement date, VIX futures, Mini VIX futures, and VIX options convert into a right to receive or an obligation to pay cash. Options on VIX futures convert into a right to receive VIX futures on their settlement date.
- The VIX Index generally tends to revert to or near its long-term average, rather than increase or decrease over the long term.

Volatility: The VIX Index is subject to greater percentage swings in a short period of time than is typical for stocks or stock indices, including the S&P 500 Index.

Expected Relationships: Expected relationships with other financial indicators or financial products may not hold. In particular:

- Although the VIX Index generally tends to be negatively correlated with the S&P 500 Index – such that one tends to move upward when the other moves downward and vice versa – that relationship is not always maintained.
- The prices for the nearest expiration of a VIX Index Product generally tend to move in relationship with movements in the VIX Index. However, this relationship may be undercut, depending on, for example, the amount of time to expiration for the VIX Index Product and on supply and demand in the market for that product.
- Mini VIX futures contracts trade separately from regular-sized VIX futures, so the prices and quotations for Mini VIX futures and regular-sized VIX futures may differ because of, for example, possible differences in the liquidity of those markets.

Final Settlement Value: The method for calculating the final settlement value or exercise settlement value of a VIX Index Product is different from the method for calculating the VIX Index at times other than settlement, so there can be a divergence between the final settlement value or exercise settlement value of a VIX Index Product and the VIX Index value immediately before or after settlement. (See the SOQ Auction Information section [here](#) for additional information.)

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Cboe does not endorse or sell any ETP or other financial product, including those investment products that are or may be based on a Cboe index or methodology or on a non-Cboe index that is based on investment products trading on a Cboe Company exchange (e.g., VIX futures); and Cboe makes no representations regarding the advisability of investing in such products. An investor should consider the investment objectives, risks, charges, and expenses of these products carefully before investing. Investors also should carefully review the information provided in the prospectuses for these products.

Investments in ETPs involve risk, including the possible loss of principal, and are not appropriate for all investors. Non-traditional ETPs, including leveraged and inverse ETPs, pose additional risks and can result in magnified gains or losses in an investment. Specific risks relating to investment in an ETP are outlined in the fund prospectus and may include concentration risk, correlation risk, counterparty risk, credit risk, market risk, interest rate risk, volatility risk, tracking error risk, among others. Investors should consult with their tax advisors to determine how the profit and loss on any particular investment strategy will be taxed.

Cboe Strategy Benchmark Indices

Cboe Strategy Benchmark Indices are calculated and administered by Cboe Global Indices, LLC as described in the methodologies, rules and other information available [here](#) using information believed to be reliable, including market data from exchanges owned and operated by other Cboe Companies.

Strategy Benchmark Indices are designed to measure the performance of hypothetical portfolios comprised of one or more derivative instruments and other assets used as collateral. Past performance is not indicative of future results. Strategy Benchmark Indices are not financial products that can be invested in directly, but can be used as the basis for financial products or managing portfolios.

The actual performance of financial products such as mutual funds or managed accounts can differ significantly from the performance of the underlying index due to execution timing, market disruptions, lack of liquidity, brokerage expenses, transaction costs, tax consequences and other considerations that may not be applicable to the subject index.

Index and Benchmark Values Prior to Launch Date

Index and benchmark values for the period prior to an index's launch date are calculated by a theoretical approach involving back-testing historical data in accordance with the methodology in place on the launch date (unless otherwise stated). A limitation of back-testing is that it reflects the theoretical application of the index or benchmark methodology and selection of the index's constituents in hindsight. Back-testing may not result in performance commensurate with prospective application of a methodology, especially during periods of high economic stress in which adjustments might be made. No back-tested approach can completely account for the impact of decisions that might have been made if calculations were made at the same time as the underlying market conditions occurred. There are numerous factors related to markets that cannot be, and have not been, accounted for in the preparation of back-tested index and benchmark information.

Anti-Money Laundering

To help the government fight the funding of terrorism and money laundering, ErisX must obtain, verify and record information that identifies each person who opens and maintains an account. When you establish an account, we will ask for your name, address, date of birth, and other information to allow us to identify you. We may also ask for a copy of government issued identification, such as a driver's license, passport, or other identification. ErisX takes seriously its commitment to implement a robust anti-money laundering program, and ErisX reserves the right to require you to provide us with additional information and/or require you to undergo a background check prior to being authorized to use or access ErisX systems, or at any point thereafter, in accordance with any applicable law and regulation.

When you establish standard settlement instructions as to fiat accounts or digital asset wallets you may not be able to fund or withdraw assets from such accounts or digital wallets while ErisX conducts an investigation of the origin of such accounts or digital wallets.

You agree, represent, and warrant that all funds, whether fiat or digital, that are now or in the future in your account, submitted or otherwise exchanged on or through ErisX, are not the direct or indirect proceeds of any criminal, fraudulent, or terrorist activity. ErisX reserves the right to investigate the source of any funds, fiat or digital, in your account and determine, in our sole discretion, whether to accept or reject or otherwise dispose of such funds in accordance with any applicable law and regulation, which may include sending such funds to a proper governmental authority.

Under relevant economic sanctions programs, including the U.S. Department of Treasury's Office of Foreign Assets Control (“OFAC”), ErisX is prohibited from providing services or otherwise entering into relationships with certain individuals and institutions. If ErisX is required to block funds associated with your account in accordance with a sanctions program, or other similar government sanctions programs, ErisX may be required to, among other things, take one of the following actions: (i) suspend your account; (ii) terminate your account; (iii) return funds to the destination of their origin or to an account specified by relevant authorities; or (iv) require you withdraw funds from your account within a certain period of time. ErisX is not responsible for any losses, whether direct or indirect, that you may incur as a result of our complying with any applicable law and regulations, the direction of any governmental or regulatory authority, or any legally binding order.

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Under section 1256 of the Tax Code, profit and loss on transactions in certain exchange-traded options and futures are entitled to be taxed at a rate equal to 60% long-term and 40% short-term capital gain or loss, provided that the market participants involved and the strategy employed satisfy the criteria of the Tax Code. Market participants should consult with their tax advisors to determine how the profit and loss on any particular option or futures strategy will be taxed. Tax laws and regulations change from time to time and may be subject to varying interpretations.

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