

Option Hedging Techniques

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- **What is a Hedge?**
 - Why Hedge?
 - Examples
- **Characteristics of Index Options**
 - European styled
 - Cash Settlement
 - AM Settlement
 - Tax Considerations
- **Options on S&P 500[®] Index**
 - SPX Options
 - Mini S&P 500 Index (XSPSM)
- **Trading Examples**
 - Hedging With SPX
 - Hedging With XSP



A Hedge is an asset that can protect your portfolio from uncertainty

- **Why use a Hedge?**
 - Decrease or Transfer Risk
- **Examples**
 - Buying stock in two competing companies
 - Buying one equity; Shorting an equity that does the same thing
 - Buying put options on a particular index against your equity portfolio

An Index is a measure or calculation of a group of securities

Note: No trading happens in the index itself

- **Why were index options listed?**
 - To make indices tradeable
- **Benefits**
 - Trade broad market segments in single transaction
 - Speculate on price direction of underlying index
 - Hedge portfolio that might closely correlate to a particular index

❖ Tradeable Indices

- ✓ DJIA
- ✓ Nasdaq
- ✓ S&P 500
- ✓ Cboe Volatility Index®

❖ Market Facts

- Cboe offers 50+ index options products (domestic, intl, sector, vol)
- S&P 500 measures performance of 500 large companies listed on stock exchanges
- SPX options are widely used by investors, speculators, hedgers

❖ Characteristics

Notional Value

N.V. = contract size -x- index level

Cash-settlement based

on value of index at expiration

Style: American vs. European

- Long option holder has right exercise option to buy/sell underlying
- Short option holder has obligation to option owner

	American	European
Products	All optionable Equity stocks and ETFs	Most index options
Exercise	Any time prior to or including Expiration <i>Note, Any option ITM by \$0.01 is auto-exercise</i>	Only at Expiration
Settlement Type	Physical delivery of shares	Cash
Settlement Value Determined	Friday afternoon*	Friday morning*
Last Trading Day	Friday afternoon*	Thursday before 3 rd Friday*
Additional Notes	Exercise before ex-dividend date to own shares and capture dividend payment	Weekly trade until 3pm (SPXW)

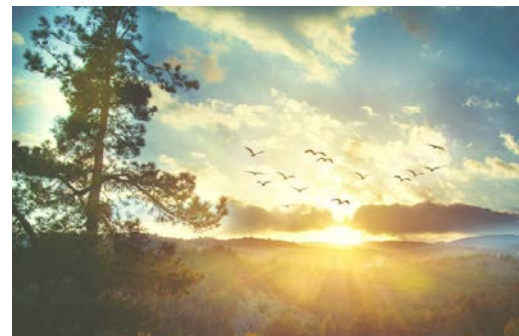
Do not confuse buying and selling an option with exercising an option!

Delivery of Shares vs. Cash Settle

	Delivery of Shares	Cash Settle
Mechanism	Shares of underlying are delivered on the expiration date of ITM option contract	No physical delivery of underlying asset or security required
Account	Shares are transferred from seller to buyer <ul style="list-style-type: none">• Call option holder exercises option to buy shares• Call seller must sell stock to buyer at strike price• Put option holder exercises option to sell shares• Put seller must buy stock from seller at strike price	Account is credited or debited the ITM value of the options <ul style="list-style-type: none">• Amount of payment is difference between underlying settlement value on expiration and strike price of the option
Portfolio Structure		No disruption of portfolio structure upon assignment
Costs		Reduce or eliminate costs associated with transportation, insurance and financing (commodities)
Additional Note	Options that deliver shares often use the American-style exercise	Cash-settled options typically use the European-style exercise

Settlement: AM vs. PM

	AM	PM
Expiry	Morning after the last trading day	Market close on the last trading day
Last Trading Day	Typically THURSDAY	Typically FRIDAY
Settlement Calculations	From Friday OPENING prices	From Friday CLOSING prices
Additional Note	Cash-settled options typically use the European-style exercise	Options that deliver shares often use the American-style exercise
Product Examples	SPX, DJX, RUT	Equity Stocks, ETFs, SPXW, XSP



Index Options

- Likely receive Section 1256 Tax treatment
- Profits and losses: *60% long term and 40% short term*
- Regardless of holding period
- Applies whether investor is long or short the option
- Positions marked-to-market at EOY and taxed as if closed

Equity and ETF Options

- Treated similar to equity stocks for tax purposes
- Equity/ETF options generally taxed as long-term or short-term trades
- Long-term have been held for over a year
- Short-term have been held for LESS than a year

Investors should consult with their tax advisors to determine how the profit and loss on any particular option strategy will be taxed. Tax laws and regulations change from time to time and may be subject to varying interpretations.

Hedging with SPX Options

SPX = 3000

Determine # of SPX contracts (based on portfolio size):

Portfolio \$Value to be Hedged

Value of Index x 100

$$\frac{\$500,000}{3000 \times 100} = 1.6 \text{ SPX Puts}$$

1 SPX Put protects \$300,000

Buy 2 SPX January 2021 3000 Put @ \$100 (Total \$20,000 – 4% of portfolio)



Hedging with SPX Options

\$500,000 portfolio

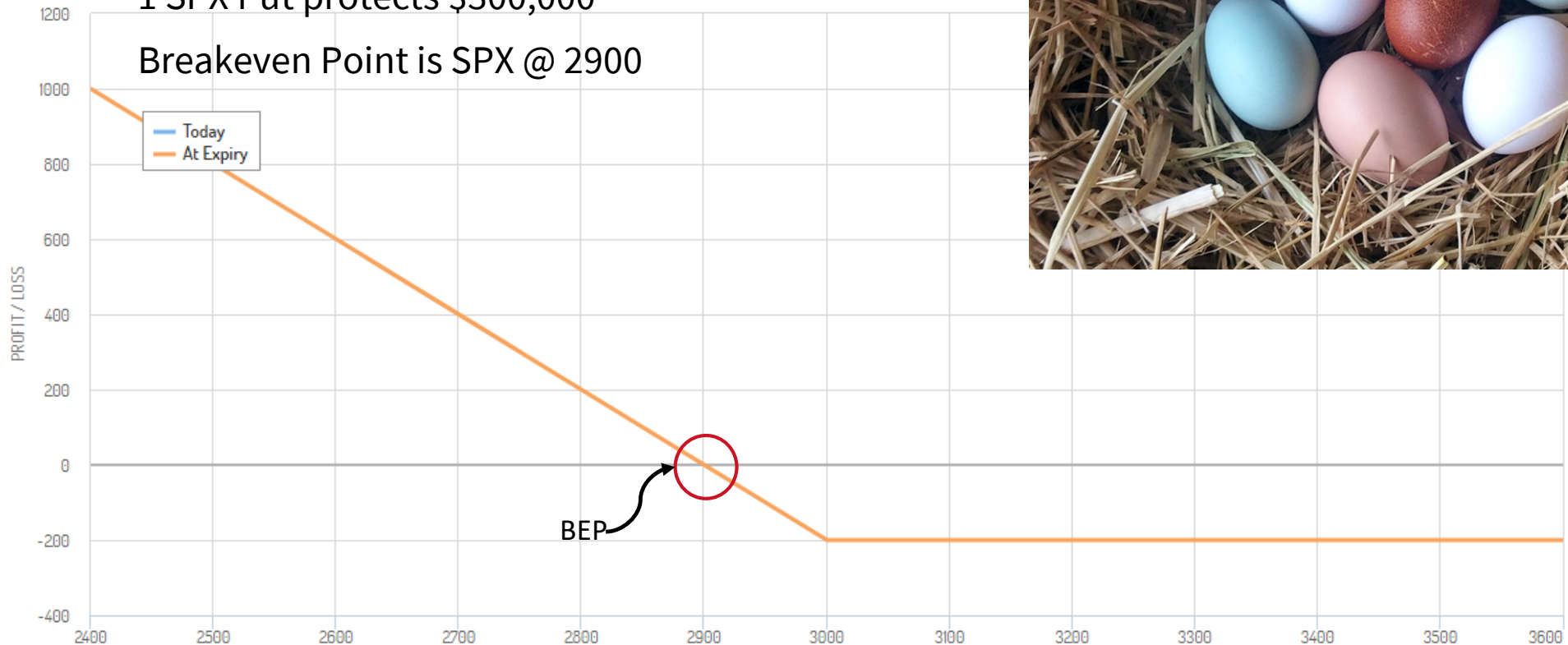
SPX @ 3,000

Buy 2 SPX January 2021 3000 Puts @ \$100

Cost = $\$100 \times 2 \times 100 = \$20,000$ (4% of portfolio)

1 SPX Put protects \$300,000

Breakeven Point is SPX @ 2900



Hedging with SPX Options

Assume SPX at 2,700

Market is -10% so Portfolio is -10%

\$480,000 stock portfolio (500k – 20k options) is now \$432,000

But since we hedged:

SPX trading 2,700 → Jan 2021 3000 puts are now worth \$300

Value of 3000 strike Puts: $\$300 \times 2 \times 100 = \$60,000$

Portfolio: Value of Equities + Value of 3000 strike puts

Portfolio Value @ SPX 2700: $\$432,000 + \$60,000 = \$492,000$

Due to hedging:

Market -10% but Portfolio ONLY -1.6%

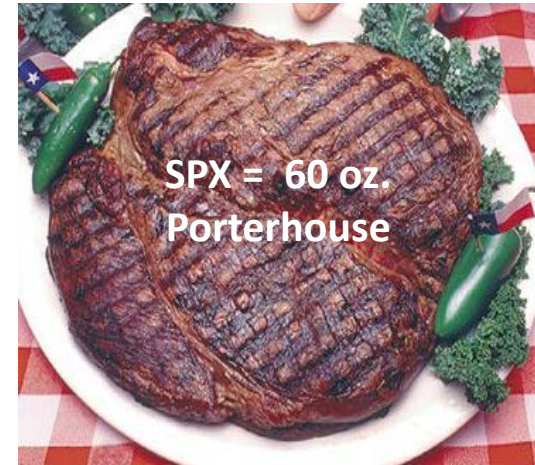


- SPX – Flagship Cboe product (\$300k notional/contract)
 - ADV in 2019 ~1.45 million (\$435 BN Daily Notional)
- XSP is the ticker for Cboe’s Mini S&P 500[®] Index Options
 - Notionally equivalent to SPY options with meaningful potential benefits
- SPY options ADV ~ 2.9 million (\$87 BN Daily Notional)
 - Clear Institutional & Retail demand for Index optionality on Mini S&P 500 product
- XSP affords end users the same exposure with benefits NOT typically associated with ETF options
 - 1256 Contract*: XSP (Yes); SPY (Generally, NO)
 - European Style (Eliminates early assignment risk)
 - Cash Settled (No portfolio disruption)

*Section 1256 of United States Tax Code. Investors should consult with their tax advisors to determine how the profit and loss on any particular option strategy will be taxed. Tax laws and regulations change from time to time and may be subject to varying interpretations.

Cboe Mini-SPX Index Options (XSP)

- Tracks underlying S&P 500 index
- XSP options = 1/10th the size of SPX options
 - ✓ SPX = \$3,000; contract value = \$300,000
 - ✓ XSP = \$300; contract value = \$30,000
- Smaller size allows for flexibility
- European style options
- Cash settlement



XSPSM vs. SPY



	Mini SPX Index (XSP)	SPDR ETF (SPY)
Notional Value (SPX @ 3000)	\$30,000	\$30,000
Settlement AM or PM	PM-Settled	PM-Settled
Expirations	Mon., Wed., Fri., EOM, EOQ	Mon., Wed., Fri., EOM, EOQ
Settlement Type	Cash	Physical Shares of ETF
Exercise Style	European	American

*EOM – End of Month

*EOQ – End of Quarter

Hedging With XSP Options

Investor owns shares in several S&P 500 stocks

Notional value of positions = \$150,000

- SPX measuring \$3,000
- XSP measuring \$300

Market is in a good state

Investor **Concerns**

- COVID-19
- U.S.-China Trade War
- 2020 Election

Investor **Wants**

- To remain long Equities
- To protect gains if the market falls, but looking for the broad market to continue rallying

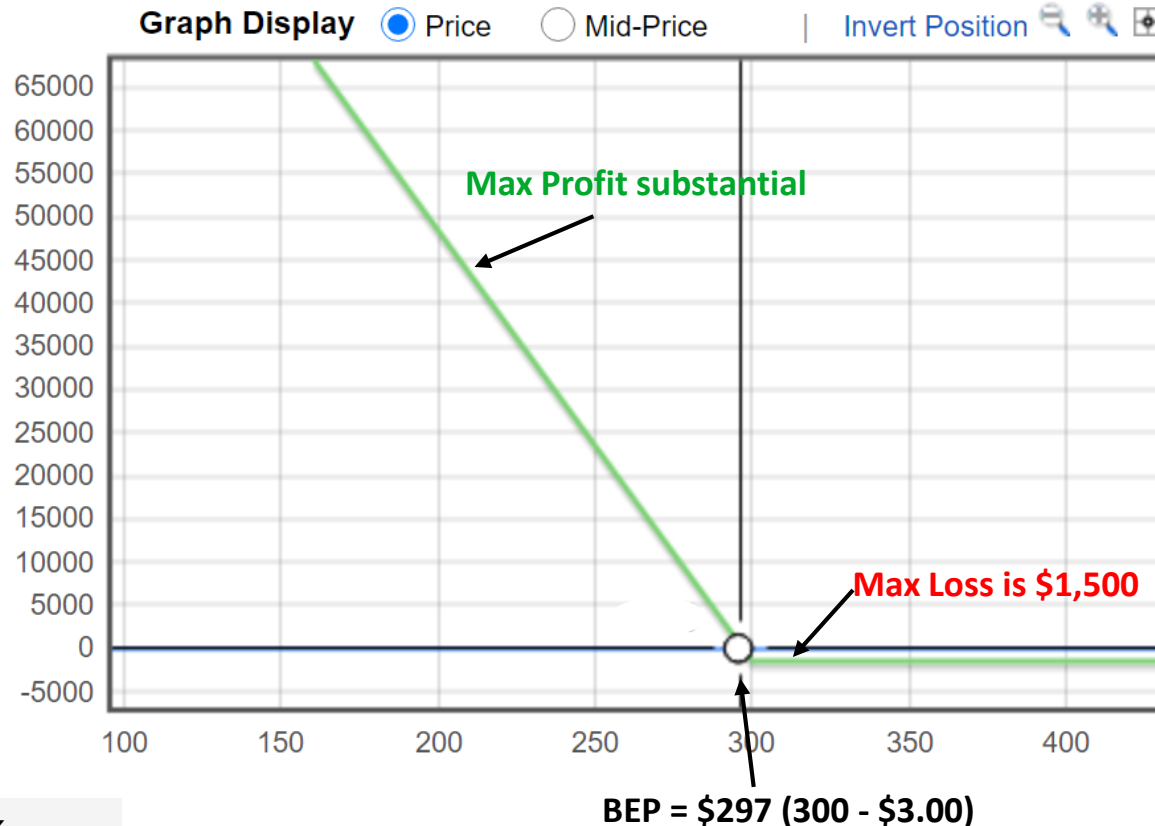


BUY 5 XSP Dec 300 puts @ 3.00 per contract

Hedging with XSP Options

- BUY 5 Dec 300 puts @ 3.00 each
- Total Hedge Outlay = \$1,500 (5 x \$3.00 x 100)

Price Points	P/L
100.00	\$98,500.00
150.00	\$73,500.00
200.00	\$48,500.00
250.00	\$23,500.00
297.00	\$0.00
300.00	-\$1,434.72
300.18	-\$1,500.00
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XSP	Equity Positions Value
100	\$50,000
150	\$75,000
200	\$100,000
250	\$125,000
297	\$148,500
300	\$150,000

5-Lot of XSP is 150K
Notional (5 x 300 x 100)

**Illustration for educational purposes*

Option Hedging Techniques

- **What is a Hedge?**
 - Protects portfolio from uncertainty
 - Allows for transfer of risk
- **How do Index options differ from equity options?**
 - European styled
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