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Volatility and Trend Following Strategies with Buxl Options

Eurex FIC ETD PD

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Executive Summary

Background

- A wide range of yield and volatility levels were observed since the launch of BUXL options in September 2020.
- The following back-tests show how investors benefited from challenging markets.

Scope of the Analysis

I. How can investors put volatility into perspective and explicitly trade it?
II. How did long/ short volatility strategies perform over the last year?
III. What is the optimal strike and expiry selection for a long Straddle?
IV. How can price trends be traded efficiently?
V. How did the Put-/ Call-Spread strategy perform cumulatively over the last year?
VI. How did the Long/ Short Put-Spread strategy perform cumulatively over the last year?

Key Findings

I. The IV-Ratio describes current market conditions and can be used as a signal to trade Straddles and derive P&L from volatility.
II. The long volatility strategy yielded a return of ca. 80%, while shorting volatility to capture options' premium returned a negative average payoff of -0.06 pts over the last year.
III. Trading longer-dated Delta hedged ATM Straddles was advantageous over other expiries and strikes due to their lower Theta exposure.
IV. Put- and Call-Spreads are premium efficient directional trades that capitalize on price trends.
V. The Put- and Call-Spreads traded generated a cumulative return of ca. 77 pts over the last year.
VI. The Momentum Long-/Short Put Spread Strategy generated a return of ca. 187 pts while improving the risk profile through the short leg.

Considerations

- Further back-tests for the optimal stoploss placement and other exit variables should be carried out.
- To highlight opportunities and risks, the back-test was optimized based on past data, which can lead to a look-ahead bias and over fitting.

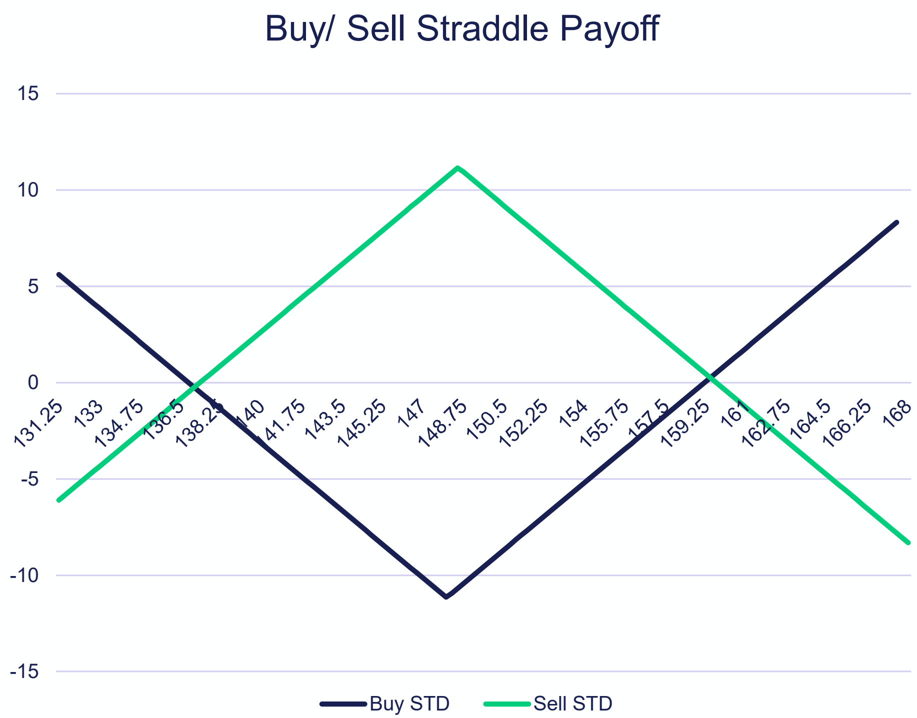
1 Volatility Strategy

The IV-Ratio puts current market conditions into perspective and can be used as a signal to trade non-directional strategies

Key Facts

- Non-directional trading strategies are positions on the volatility of the underlying asset.
  - The volatility ratio (IV-ratio) between implied (IV) and realized volatility (RV) is used to put current market conditions into perspective.
- IV-Ratio > 1:
  - In times of relatively *high* IV the goal is to capture the option premium by selling volatility.
- IV-Ratio < 1:
  - In times of relatively *low* IV, we profit from underpriced options by buying volatility.

Straddles enable investors to derive P&L from movement in the underlying regardless of market direction



Points of Interest

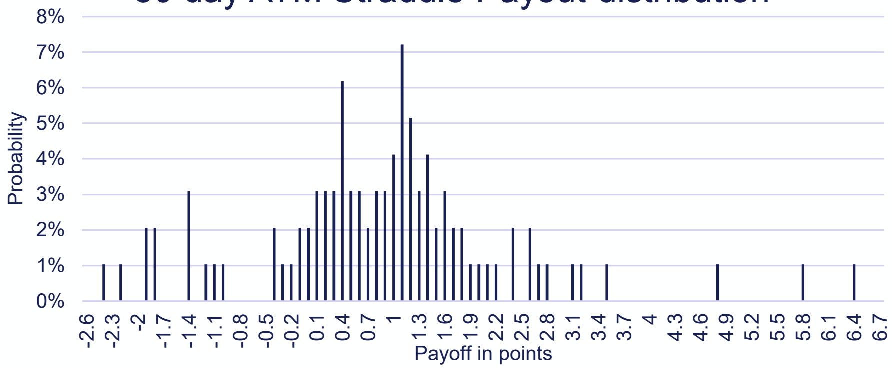
- A Straddle is a put and a call on the same underlying with the same expiry and strike.

- The long Straddle profits from price changes with increasing volatility and has a positive asymmetric payoff profile as gains are uncapped for a fixed premium.
  - Most of the P&L comes from Gamma, the rate of change of Delta.
  - The strategy is a race against time (Theta), as the premium decays towards expiry.

- Short Straddles generate returns from the options premium and mark-up over realized. In contrast to the profit potential, the loss is not limited.
  - Negative gamma affects profits as the underlying moves, while Theta generates P&L.

The long volatility strategy yielded a return of ca. 80% over the last year that was driven by high levels of uncertainty

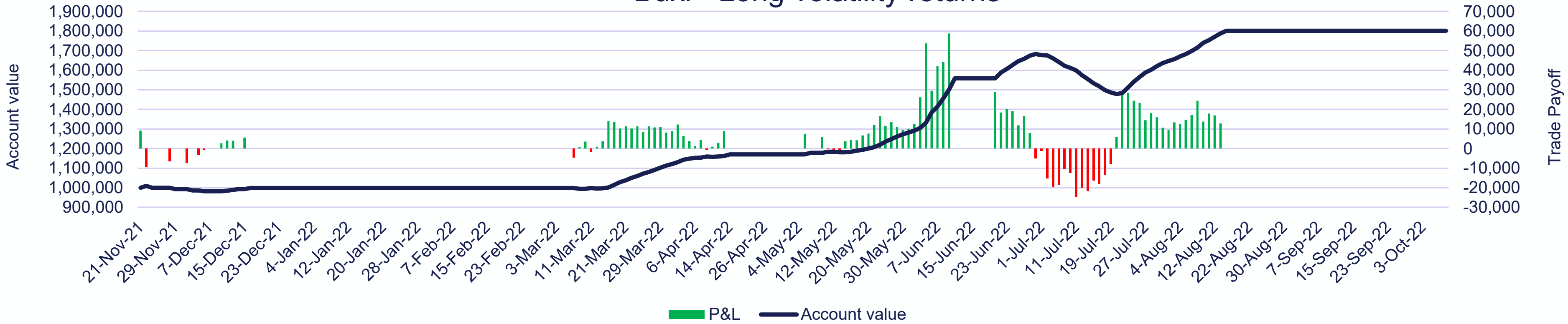
30 day ATM Straddle Payout distribution



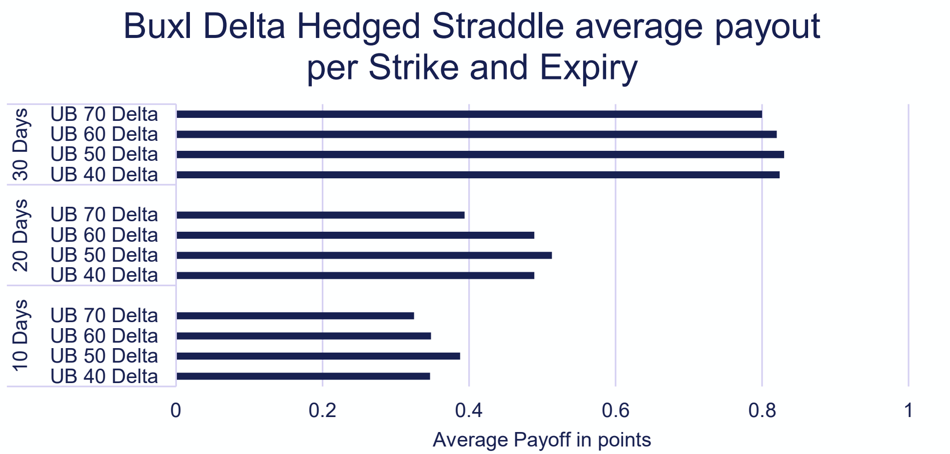
Strategy Breakdown & Performance

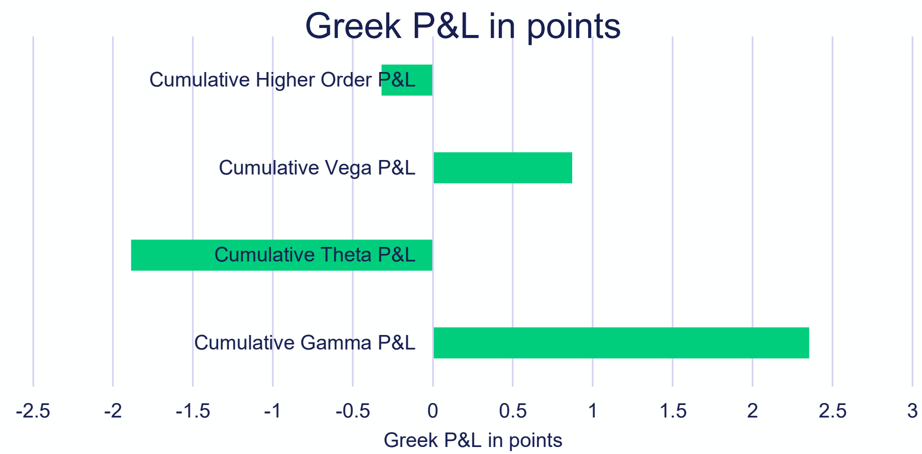
- A series of 30-day Straddles in 10 lots were purchased and Delta hedged when the IV-Ratio was < 1, returning 80% on an investment budget of 1mn €.
- Mean payoff was 0.8 points for the 101 trades done.
- The payout distribution shows that the maximum loss is limited to the options price, while upside is potentially unlimited.

BuxI - Long volatility returns



Trading longer-dated Delta hedged ATM Straddles was advantageous over other expiries and strikes due to their lower Theta exposure



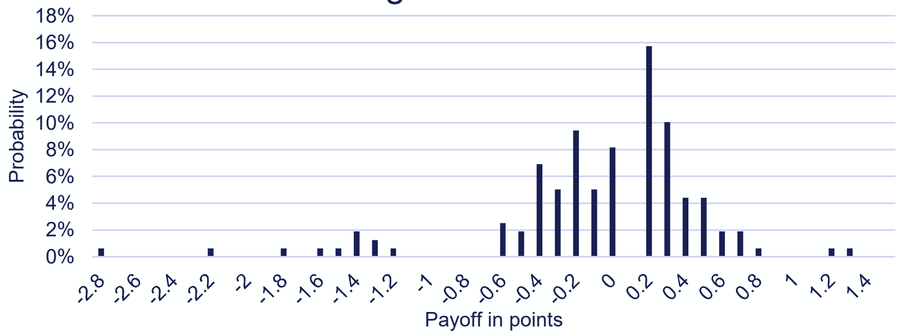


Key Facts

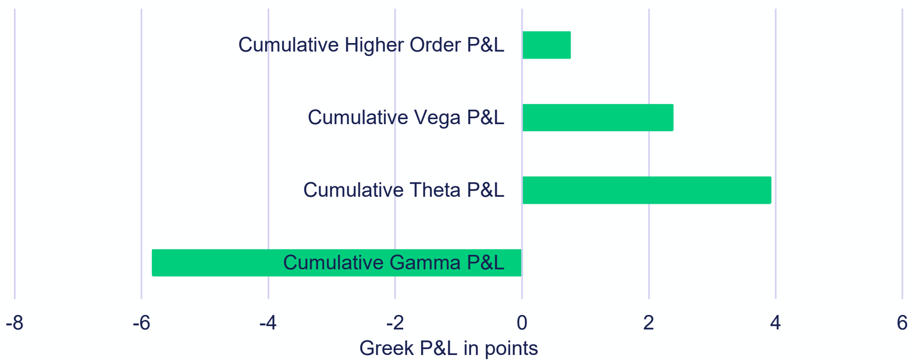
- Longer dated ATM options showed best average payoff in terms of strike and expiry selection.
- These options decay at a slower rate than shorter dated ones due to lower Theta, which is the main cost of this trading strategy.
- A 30-day Delta hedged ATM straddle traded on May 20th returns a profit of ca. 1 point. The positive P&L comes from the positive effects of Gamma and Vega while it was substantially lowered by Theta.

Selling Straddles to capture options’ premium based on the IV-Ratio returned a negative average payoff of -0.06 pts per trade in 2022

Payout distribution of Short 30 day atm delta hedged Straddle



Greek P&L in points - Sell STD 16.06.22



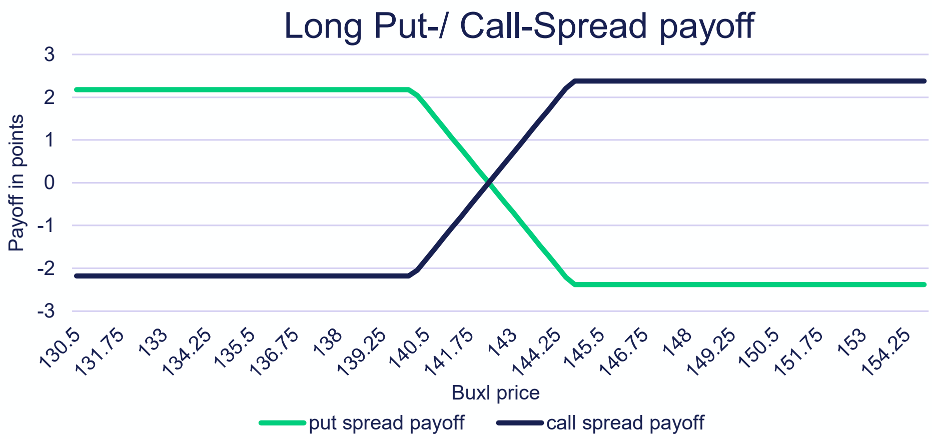
Strategy Breakdown & Performance

- Shorting volatility with Delta hedged 30-day Straddles when the IV-Ratio is > 1 returned an average payoff of -0.62 points.
  - Due to the unlimited downside risk, a stop loss of 2 points should be considered.
  - This adjustment increased the avg. payoff to -0.06 points for the 137 trades done.

- Picking a positive showcase, the short Straddle from June 16th, 2022 returned a profit of 1.2 points.
- The Greek P&L shows that positive returns are derived from time and volatility exposure. However, the overall profit is drastically reduced by Gamma.

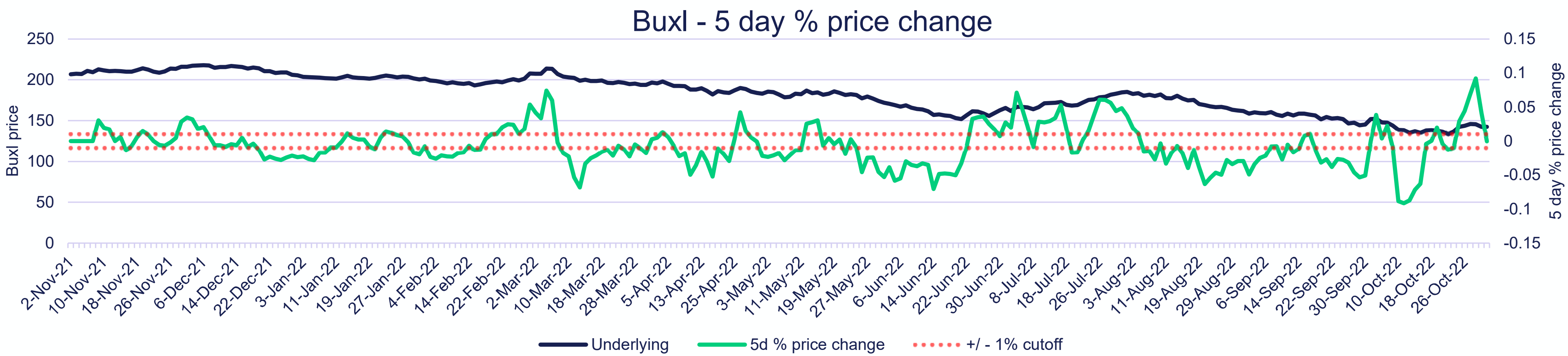
2 Trend Following Strategy

Put- and Call-Spreads offer a premium efficient directional trade to capitalize on price trends



Key Facts

- When trading a spread, selling a cheaper OTM option reduces the initial trading cost of the ITM option and limits the up- and down-side potential.
  - Long Put Spread (PS): Buy 55 Delta put sell 40 Delta put
  - Long Call Spread (CS): Buy 60 Delta call sell 45 Delta call
- The strategy buys a PS (CS) once the price change within the last 5 days falls below (exceeds) -1% (+1%) and exercises the options 30 days later.



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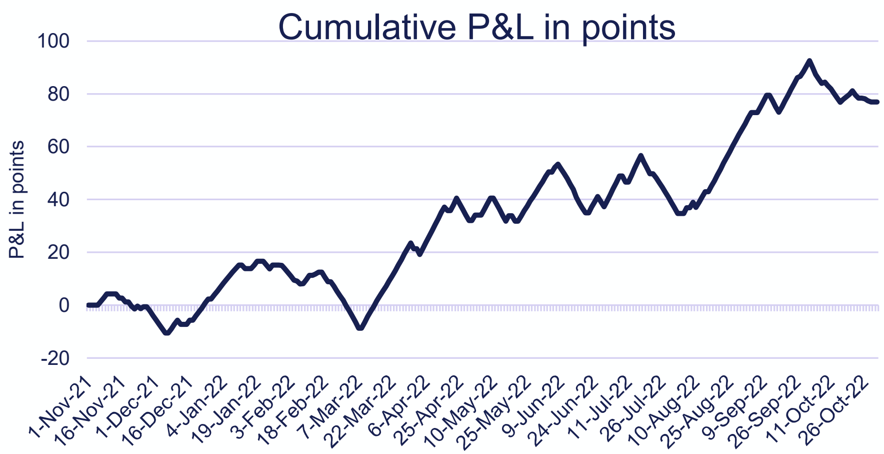
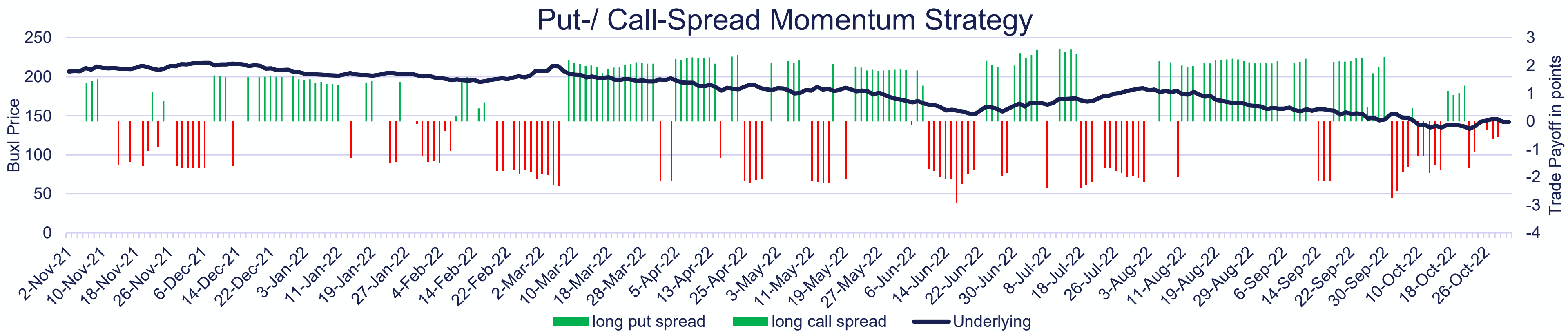
The Put- and Call-Spreads traded generated a cumulative return of ca. 77 points over the last year



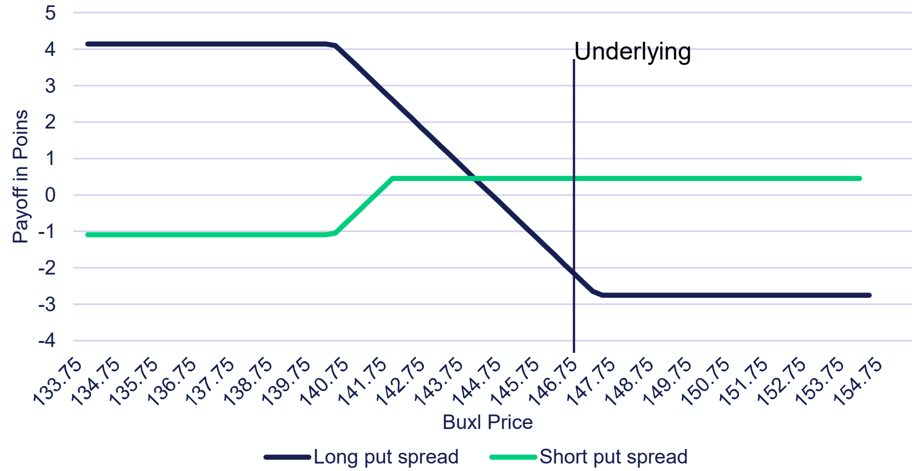
Key Facts

- Over the last year, this strategy returned ca. 77 points by following the market trend of the last 5 days.
- Spreads are promising when the risk of a directional position can be reduced, since the individual options have complementary Greeks.
  - E.g. the time value theta decreases for the purchased option and increases for the sold one.

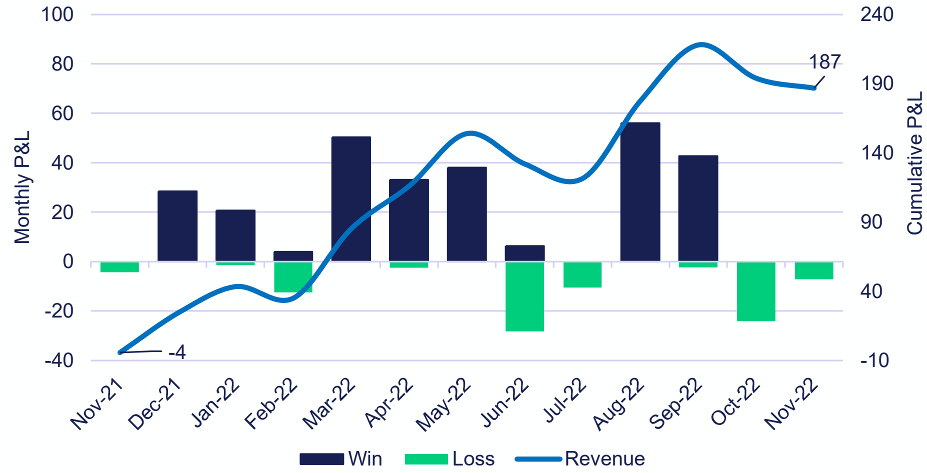


The Momentum Long-/Short Put Spread Strategy generated a return of ca. 187 pts while improving the risk profile through the short leg

Long-/ Short-leg payout diagram



Momentum Spread Strategy - P&L



Strategy Breakdown & Performance

- This strategy is suitable for moderately bearish markets. The combination of a Long Put Spread and an OTM Short Put Spread lets investors trade on falling prices at a discount through the short leg.
  - Long Leg/ Long Put Spread: Sell UB 30 day 25 Delta put buy UB 30 day 50 Delta put.
  - Short Leg/ Short Put Spread: Buy UB 30 day 25 Delta put sell UB 30 day 30 Delta put.
- Following the same entry signal (5d % change < -1%), this strategy yielded a return of ca. 187 points over the last year.