

**What?**

Bear put spread includes two option positions:

- Long put
- Short put

The purpose is to generate income when we are bearish. Bear put spread is a speculative position with limited loss and limited profit.

**Example**

Currently, AAPL is trading at \$200. We have a bearish expectation on AAPL. A put option with a strike price of \$200 and maturity date of January 18<sup>th</sup> on AAPL is trading at \$2 per share. Another put option with a strike price of \$180 and maturity date of January 18<sup>th</sup> on AAPL is trading at \$1 per share.

Bear put spread will include:

- Long put with strike price of \$200 and pay \$2 per share
- Short put with strike price of \$180 and collect \$1 per share

**Our initial cash flow:**

- Long put  $\Rightarrow -\$2 \times 100 \text{ shares} = -\$200$
- Short put  $\Rightarrow \$1 \times 100 \text{ shares} = \$100$
- Net cash flow  $= -\$200 + \$100 = -\$100$

**Possible outcomes:**

- AAPL stock price increases to \$250
  - Long put: We have a right to sell AAPL at \$200 per share. We do not sell AAPL shares at \$200. Outcome = \$0 profit/loss.
  - Short put: Some trader, who bought our put option, has a right to sell AAPL to us at \$180 a share. S/he does not sell AAPL to us at \$180. Outcome = \$0 profit/loss.
  - We paid: \$100
  - **Overall outcome**  $\Rightarrow$  Long put (\$0 profit/loss) + Short put (\$0 profit/loss) + initial payment (\$100) = **\$100 loss**.
- AAPL stock price stays the same at \$200
  - Long put: We have a right to sell AAPL at \$200 per share. We do not sell AAPL shares at \$200. Outcome = \$0 profit/loss.
  - Short put: Some trader, who bought our put option, has a right to sell AAPL to us at \$180 a share. S/he does not sell AAPL to us at \$180. Outcome = \$0 profit/loss.

- We paid: \$100
- **Overall outcome**  $\Rightarrow$  Long put (\$0 profit/loss) + Short put (\$0 profit/loss) + initial payment (\$100) = **\$100 loss**.
- AAPL stock price decreases to \$150
  - Long put: We have a right to sell AAPL at \$200 per share. We sell AAPL shares at \$200. Outcome =  $\$200 - \$150 = \$50$  per share profit  $\times 100 \text{ shares} = \$5,000$  profit.
  - Short put: Some trader, who bought our put option, has a right to sell AAPL to us at \$180 a share. S/he sells AAPL shares to us at \$180. Outcome =  $\$150 - \$180 = \$30$  per share loss  $\times 100 \text{ shares} = \$3,000$  loss.
  - We paid: \$100
  - **Overall outcome**  $\Rightarrow$  Long put (\$5,000 profit) + Short put (\$3,000 loss) + initial payment (\$100) = **\$1,900 profit**.

**Possible outcome**

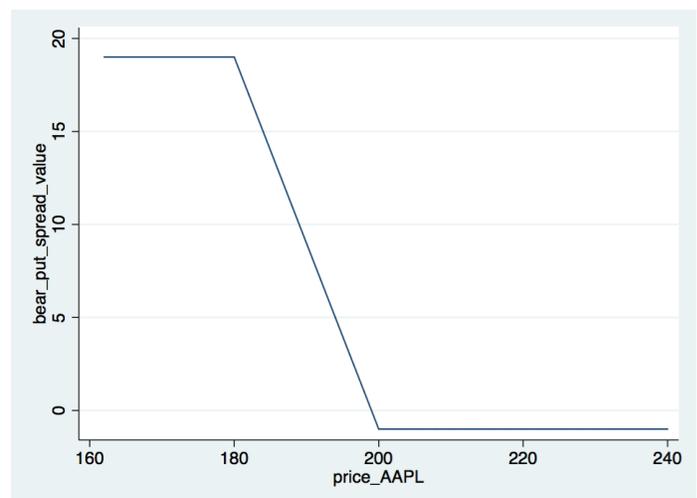
We will now evaluate possible outcomes of bear put spread strategy in our previous example. Note that, since it is hard to determine the premium, our exercise is based on exercise value.

```
set obs 40
gen price_AAPL = 160 + (_n*2)

* Long put with strike price of $200 and pay $2 per share
gen long_put_price = 2
gen long_strike = 200
gen long_put_value = max(long_strike-price_AAPL,0) - long_put_price

* Short put with strike price of $180 and collect $1 per share
gen short_put_price = 1
gen short_strike = 180
gen short_put_value = -(max(short_strike-price_AAPL,0) - short_put_price)

* Combined bear put spread strategy
gen bear_put_spread_value = long_put_value + short_put_value
twoway (line bear_put_spread_value price)
```



The horizontal axis is the possible AAPL share price in the market. The vertical axis is the option strategy outcome based on possible AAPL share prices. Note that the this specific example has a maximum possible loss of \$100 and maximum possible gain of \$1,900.