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Options and Strategies

Preview

Full course: 120 page

Options and Strategies

- Introduction to the World of Options
- Option definitions
- Factors determining the option price
- Option Greeks
- Delta Hedging
- Option arbitrage
- Classification of strategies
- Strategy examples

Options in everyday life

An option is when one creates a situation for a future uncertain event to later have a chance to do something if it's necessary. Everyone uses option to make life better, safer, and to satisfy desires. Let's see a few examples.

The **Red** real estate owner sells his house for USD 50.000. **Blue** investor believes that the value of the real estate will increase, but has no money to buy it. What can the **Blue** investor do?

Options in everyday life

One year has passed and the real estate prices have increased by 20%.

January 2010
The value of the real estate is USD 50.000

December 2010
The value of the real estate is USD 60.000

I exercise my right to buy

Then the **Blue** buys the real estate for USD 50.000 and sells it for USD 60.000.

Investment: USD 55.000
Profit: USD 5.000

What should I do?

I sell the option

Then the **Blue** sells the contract (his right to buy) for USD 10.000.

Investment: USD 5.000
Profit: USD 5.000

Everyday options and financial options

	Everyday option	Financial option
Situation	Maybe it will rain, let's bring an umbrella	Maybe the share prices will fall, let's secure our positions with right to sell
Risk	It will rain	The price falls under a certain level
What to avoid	To get soaked	To sell the share below the price it was bought for
What to do now	Bring the umbrella	Make a contract to have the right to sell at a fixed price
Expense	The price of the umbrella	The price of the right
Using the option	Open the umbrella if it starts to rain	Sell the share at the prespecified price
When not to exercise the option	If it does not rain	If the price increases

Other courses

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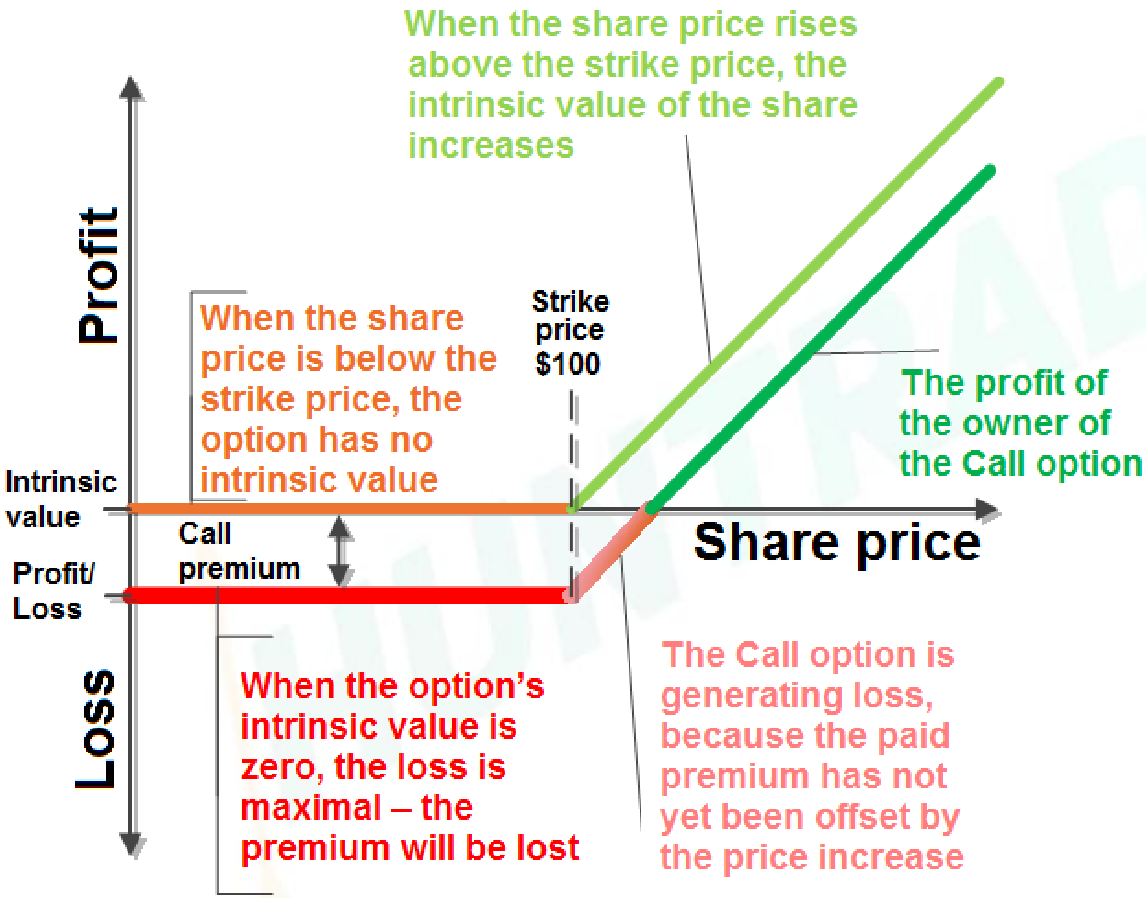
Long Call option



- **Possible goal:**
  - realise profit from the underlying product's price increase
  - lock a good price to buy
- **Market opinion:**
  - very bullish
- **Maximum risk:**
  - premium paid
- **Potential profit:**
  - unlimited (theoretically)

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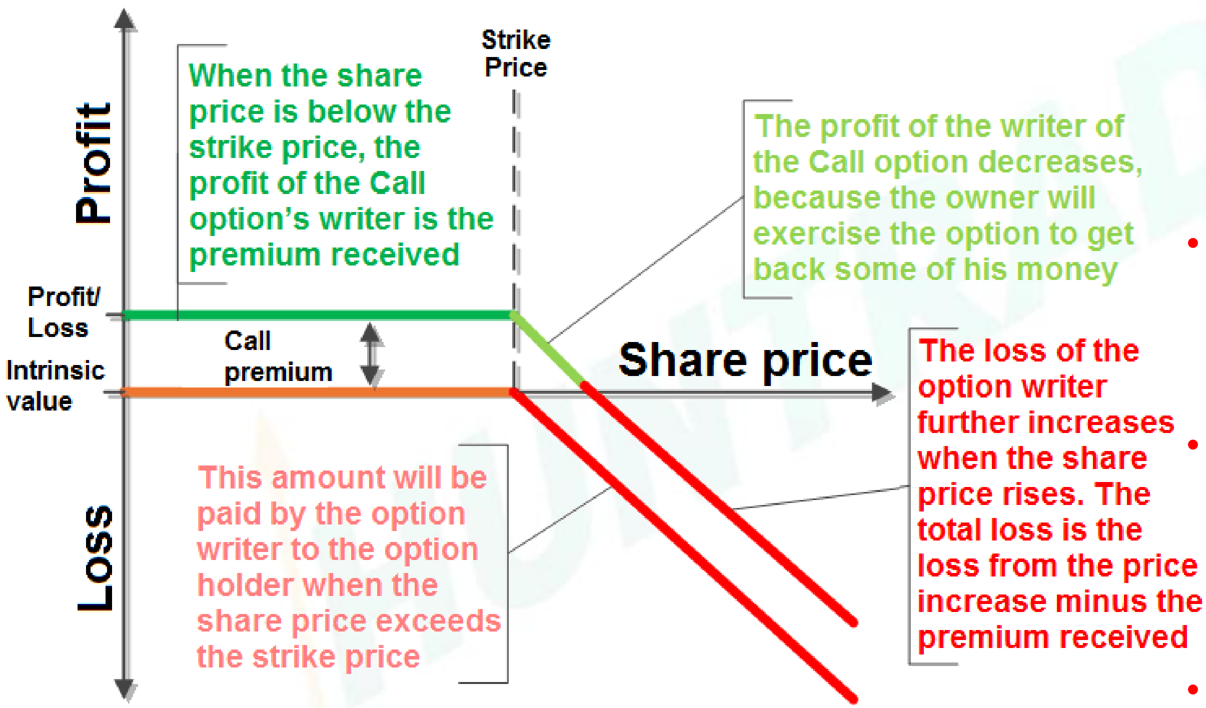
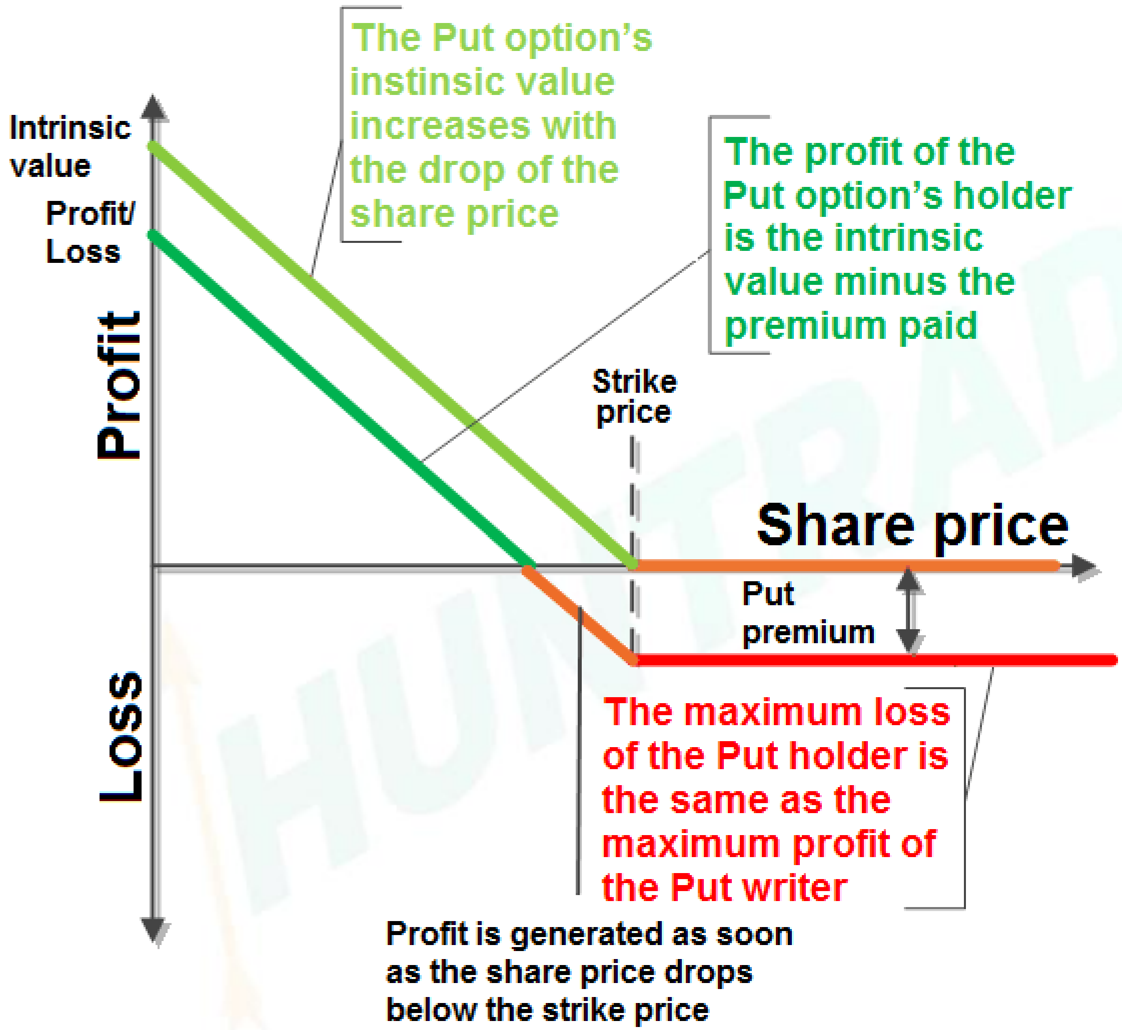
Short Call option



- **Possible goal:**
  - realise profit from the received premium, or
  - increase the net selling price of the underlying share
- **Market opinion:**
  - neutral/bearish,
  - can be bullish when writing a Covered Call
- **Maximum risk:**
  - unlimited when writing a Naked Call
  - limited when writing a Covered Call
- **Potential profit:**
  - limited to the amount of the premium received

Long Put option



- **Possible goal:**
  - realise profit from the underlying product's price decrease
  - hedge risk arising from a price decrease of the already possessed shares
- **Market opinion:**
  - bearish
- **Maximum risk:**
  - premium paid
- **Potential profit:**
  - limited but significant when the share price approaches 0

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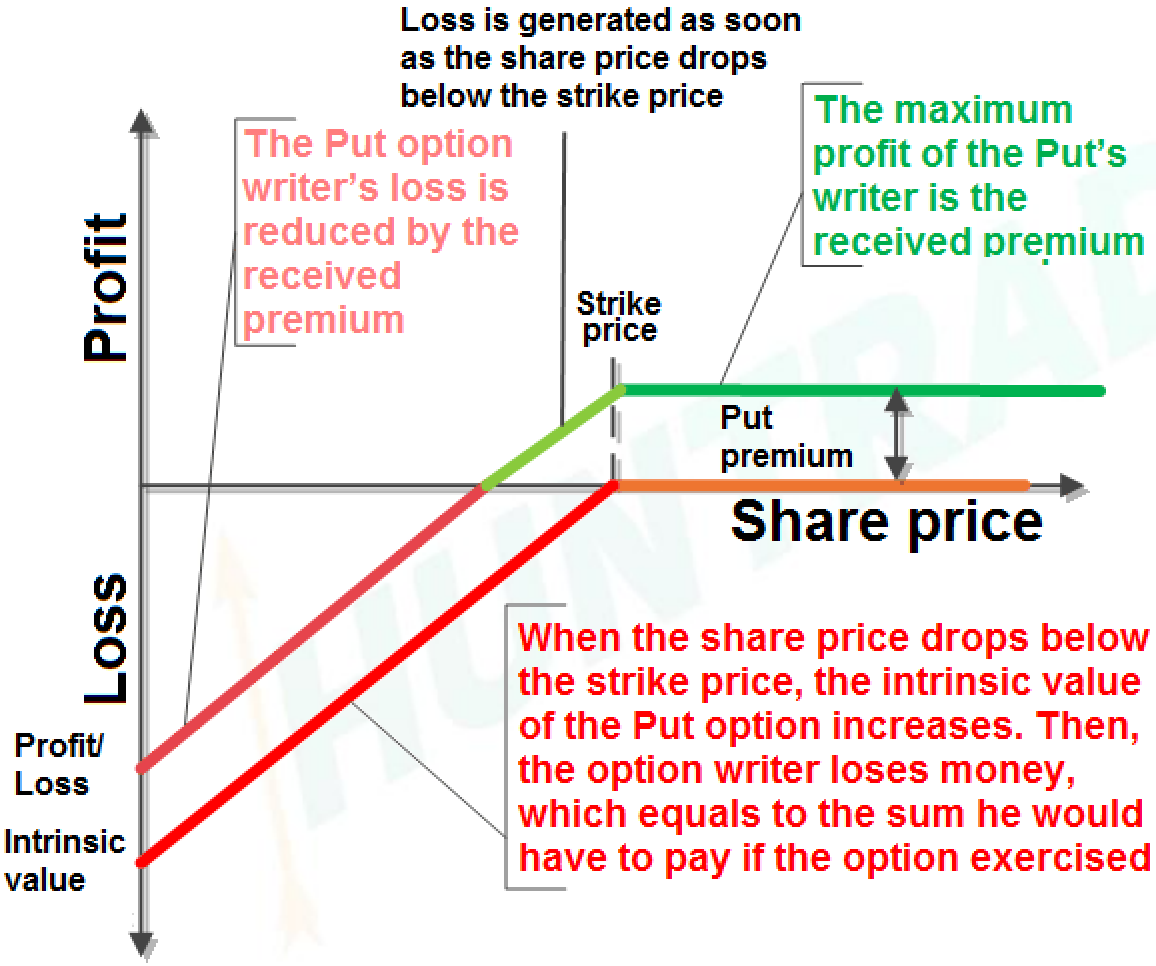
Short Put option

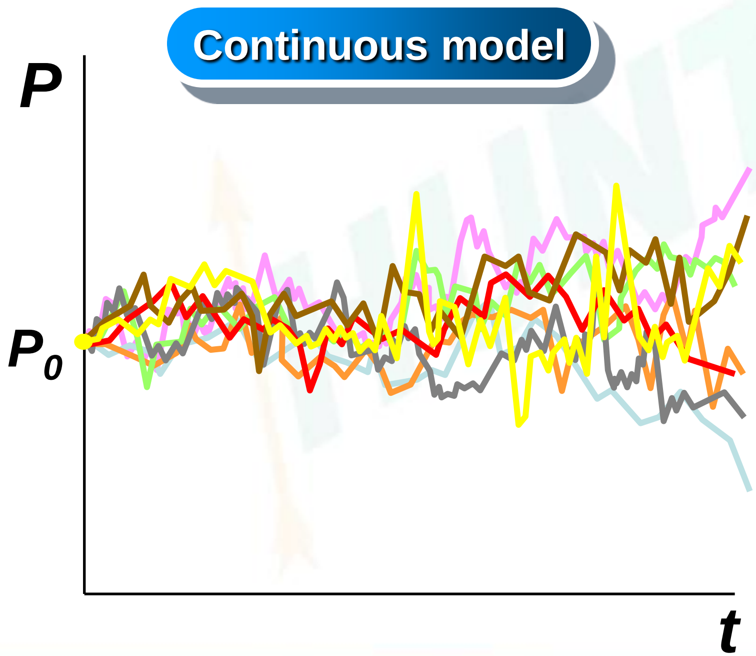


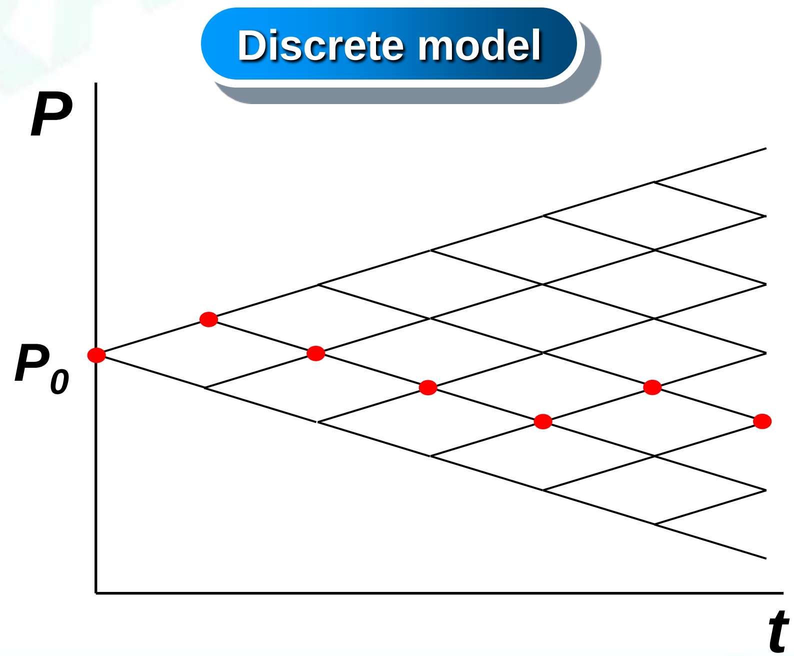
- **Possible goal:**
  - realise profit from the received premium, or
  - decrease the net buying price of the underlying share
- **Market opinion:**
  - neutral/bullish
- **Maximum risk:**
  - limited but significant when the share price approaches 0
- **Potential profit:**
  - limited to the amount of the premium received

Binomial Model

The **Binomial option pricing model** is usually used for American options. The model assumes that the underlying can take 2 different prices in after a given time: either increases by a given amount or decreases. The time until expiration is divided into such **discrete** intervals and the price of the underlying at expiration can be determined. The option's present value is determined by the possible prices of the underlying at expiration date.

On the other hand, the **Black-Scholes Model** shows a **continuous** distribution and is applied for European options.

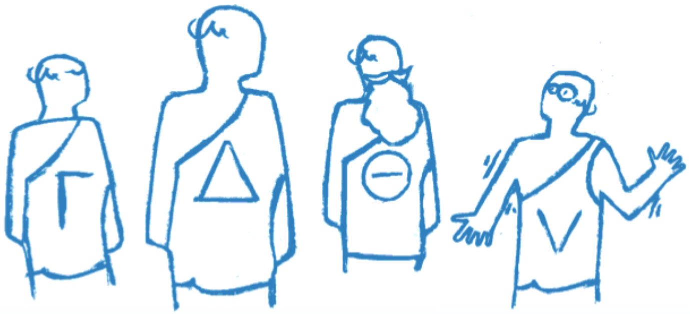




Factors’ effect on the premium

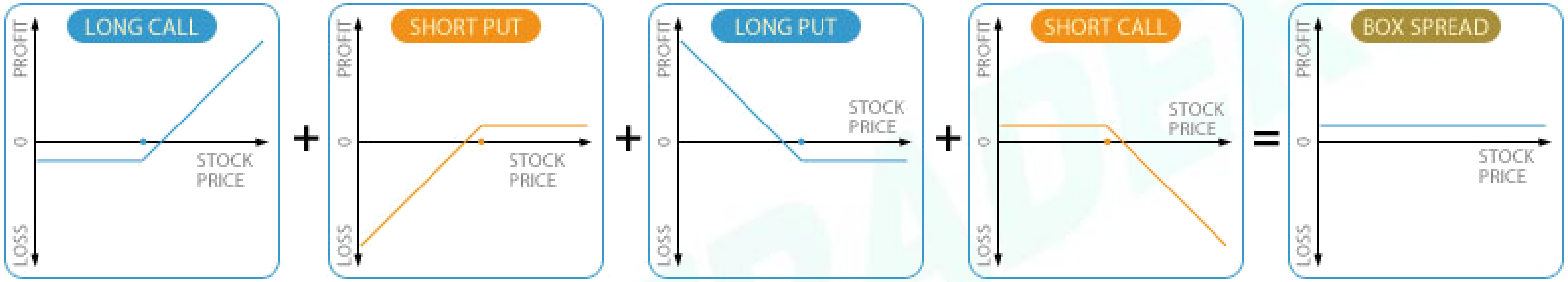
Factors’ effect on the option premium		
Factor	**Call option’s price**	**Put option’s price**
Share price increases	Increasing	Decreasing
Share price decreases	Decreasing	Increasing
Time until expiration decreases	Decreasing	Decreasing
Dividend increases	Decreasing	Increasing
Dividend decreases	Increasing	Decreasing
Volatility increases	Increasing	Increasing
Volatility decreases	Decreasing	Decreasing
Interest rate increases	Increasing	Decreasing
Interest rate decreases	Decreasing	Increasing

The amount of increase and decrease is measured by the Option Greeks.

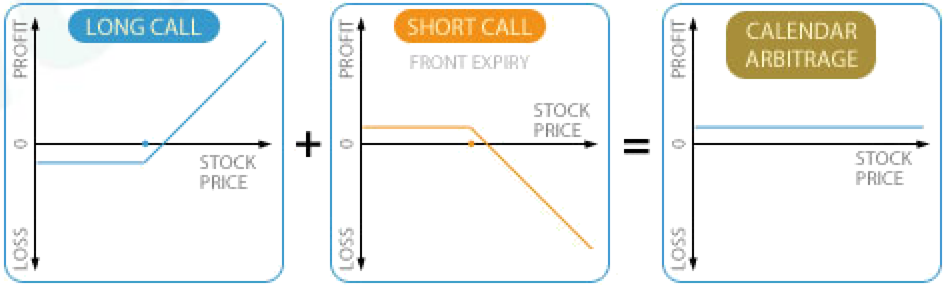


Arbitrage techniques

Box Arbitrage: an option arbitrage strategy where the spread between Call and Put options with different strike prices are closed into a **"box"**. The strategy has 4 legs.

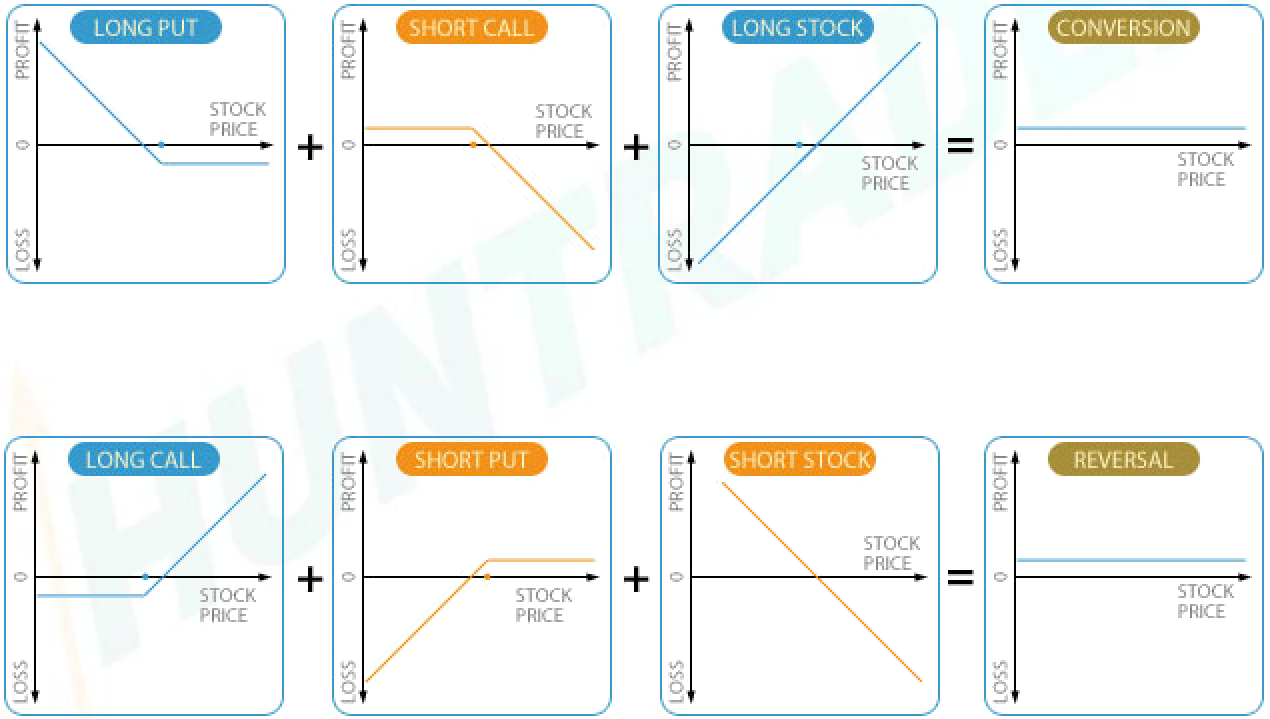


Calendar Arbitrage: takes advantage of the spread of an option's abnormally high extrinsic value (with closer expiration) and an option with farther expiration and similar strike price. This kind of arbitrage is really uncommon.



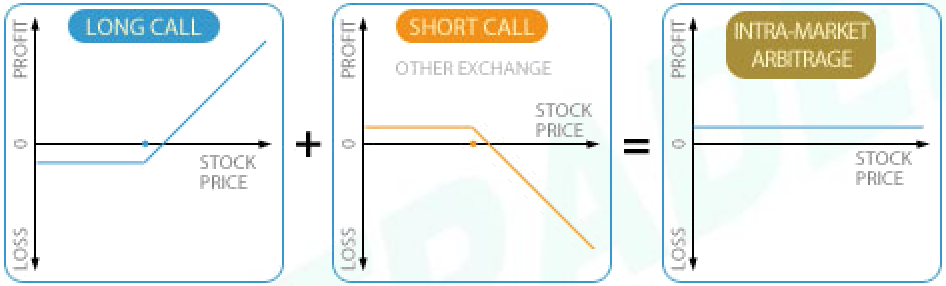
Arbitrage techniques

Conversion / Reversal Arbitrage: exists if there is a difference between the share price and its synthetic option's price. Risk-free profit: buying the underpriced one and selling the overpriced one.

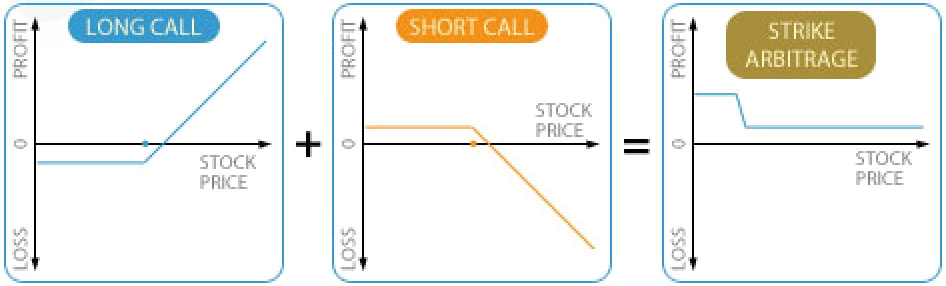


Arbitrage techniques

Intra-market Arbitrage: similar to share arbitrage. The strategy exploits price differences of homogenous options on different stock markets. The cheaper option is purchased and the more expensive option is sold.



Strike Arbitrage: the option with the extremely high time value is bought and opening a short position for the same underlying with different strike price but the same expiration date. If the difference of the two extrinsic values exceed the difference between the strike prices, the risk-free position is possible to create.



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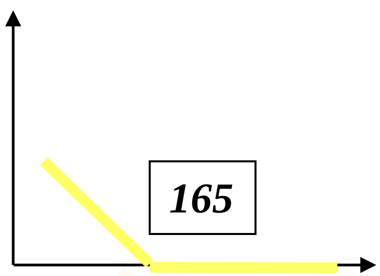
Vertical spread example

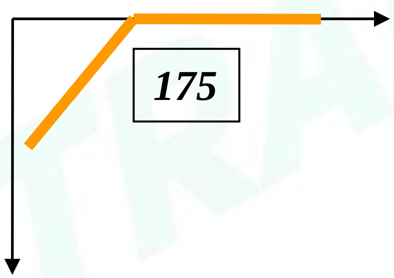
John believes that the Apple share will not drop from the current USD 206 level below USD 175 in the next month.

Buying the right to sell (165):
USD 55 expense
Selling the right to sell (175):
USD 126 income

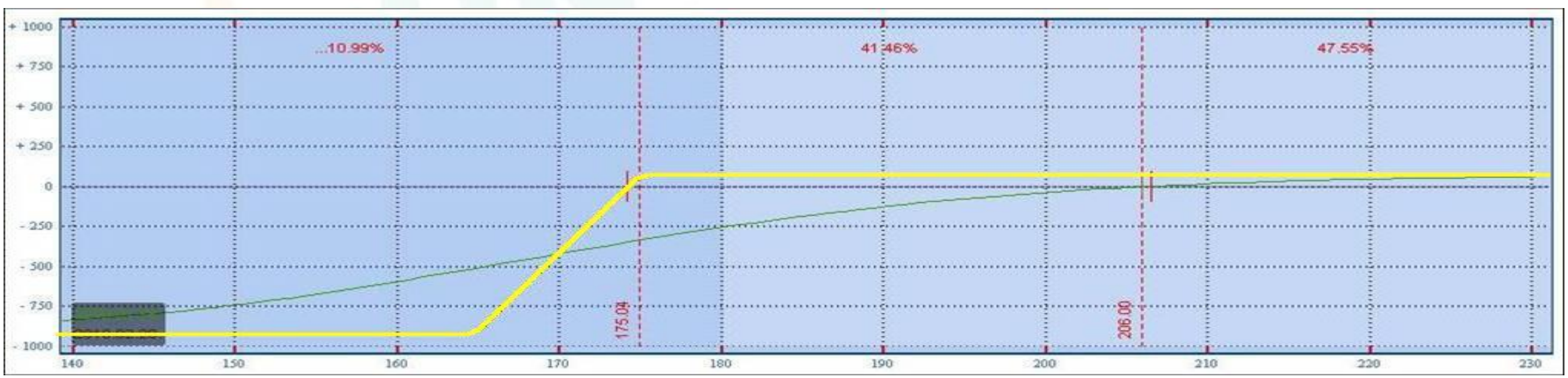
Right to sell



Obligation to buy



Maximum profit:
126 – 55 = **USD 71**
Maximum loss:
100 x (175 – 165) – 71 = **USD 929**
Investment:
100 x (175 – 165) – 71 = **USD 1,000**
Probability:
89%

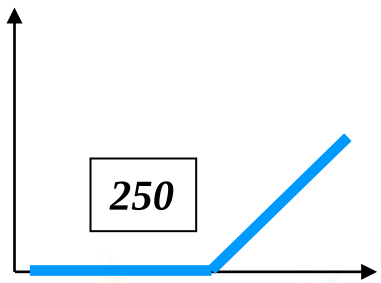


Vertical spread example

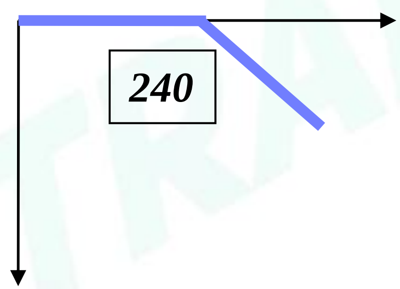
Vertical spread example

John believes that the Apple share will not rise from the current USD 206 level above USD 240 in the next month.

Right to buy



Obligation to sell



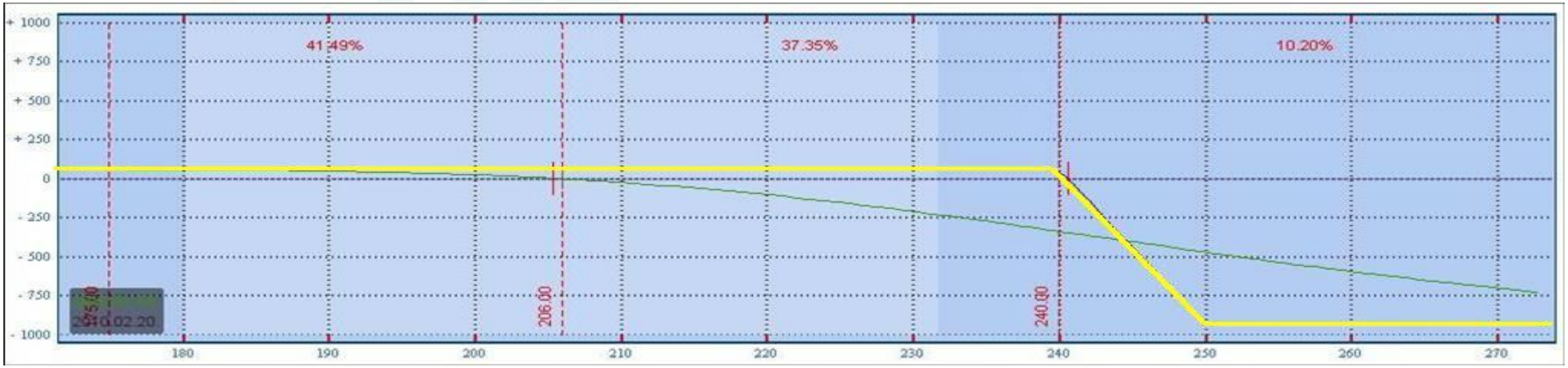
Buying the right to buy (250):
USD 66 expense
Selling the right to buy (240):
USD 128 income

Maximum profit:
128 – 66 = **USD 62**

Maximum loss:
100 x (250 – 240) – 62 = **USD 938**

Investment:
100 x (250 – 240) – 71 = **USD 1,000**

Probability:
88%



Vertical spread example

Vertical spread example

According to John's calculations, he can earn on one position USD 71 by investing USD 1,000. And he can earn USD 62 on the other position by investing another USD 1,000. All this within one month. John would like to exploit both opportunities, but he has no USD 2,000 to invest.

Vertical Spread (PUT) – USD 71

Vertical Spread (CALL) – USD 62

Iron Condor Option strategy

In a parallel investment, the returns of the two vertical spreads are summed, resulting another vertical strategy.

13.3%

Vertical spread example

Profit

The maximum profit is the sum of the profit of the two strategies.

USD 133

Loss

The maximum loss is the difference between the strike prices and the credit paid.

USD 867

Investment

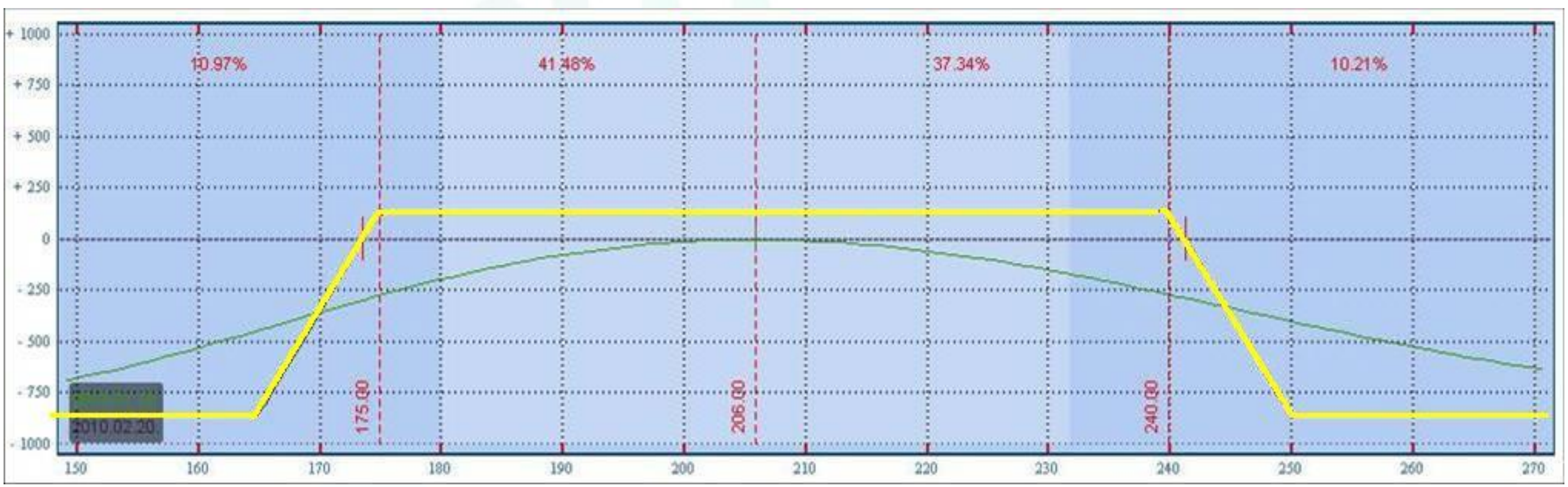
The investment is the difference of the strike prices.

USD 1000

Risk

Risk is the probability of the price to move outside of a given zone.

21%



Vertical spread example

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If you would like to learn the basics of trading on the Stock Exchange and trade like a professional quickly, then the e-learning program by ***Huntraders*** including more than 550 lessons was written for you!

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