

## Video lecture

<https://youtu.be/aWXaoT760cs>

## Terminology

Would like to buy (**Call option**) my car? Price is \$5K (**Strike price**). What if it is not a good price? What if it is a great price? I can give you the option to think about it for one week (**Maturity date**). However, this will cost you \$100 (**Premium**). It is not a deposit. If you decide to buy the car, it is still \$5K.

## How to make money

You have no intention to buy my car. But, you paid \$100 and bought the option from me anyways. During the next few days, before maturity, my car was driven by a celebrity. This fact increased the value of the car. In fact, there are offers to buy the car for as high as \$10K. Now, you can (**exercise**) the call options and buy the car from me for \$5K. Then, sell my car for \$10K. As the writer of the call option, I am bound to sell it to you at \$5K.

**Your profit** =  $\$10K - \$5K - \$100 = \$4,900$

**Your risk** = \$100 (some refer to this risk as option exposure)

## How to lose money

You have no intention to buy my car. But, you paid \$100 and bought the option from me anyways. During the next few days, before maturity, you were hoping that my car would be driven by a celebrity. Never happens. It is a Toyota Corolla Value of the car never changes. In fact you find a better deal at EBay. You never use the option. Your premium is your **sunk cost**. You lost \$100.

## How to hedge

You want to buy my car. You want to look around for a better deal. You also do not want to miss my car since it is in such a good shape. It is a Toyota Corolla. You buy the option for \$100. You can look around knowing my car will be waiting for you for \$5K. You find a better deal, fine. Option is not binding for you.

## Example: IBM

IBM is currently trading for \$180 in the spot market. You buy a **call option** so that you can buy IBM at

\$180 at a later date. You pay a premium of \$1 per share.

Subsequently, IBM goes up to \$200. You **exercise** the option and buy IBM at \$180. Then, you sell the recently bought IBM shares at the market for \$200. Your profit =  $\$200 - \$180 - \$1 = \$19$  per share.

If on the other hand, IBM goes down to \$160. You do not have to exercise the option. You lose your premium of \$1.

## Example: FXE

FXE is an ETF. One share of FXE is worth Euro 100. FXE is currently selling for \$135. You buy a call option so that you can buy FXE at \$135. You pay a premium of \$1 per share.

Subsequently, FXE goes up to \$150 (i.e. \$ lost value). You exercise the option and buy FXE at \$135. Then, you sell the recently bought FXE shares at the market for \$150. Your profit =  $\$150 - \$135 - \$1 = \$14$  per share.

If on the other hand, FXE goes down to \$120. You do not have to exercise the option. You lose your premium of \$1.