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:: What are Options? ::

A European **Call** option is a financial contract issued by one party to another, giving the buyer the right (but not obligation/requirement) to buy a security at a specified future date (expiry date) for a fixed agreed price (strike price). The seller or writer of a call option receives a **premium** upfront from the option buyer. At the expiry of the contract, if the value of the underlying security is greater than this price, the buyer will exercise his right. This will allow him to buy the security at the lower agreed price and sell it at its present value, resulting in a profit, less the premium paid to the option writer. The option is said to be **in the money**.

If the call is **out of the money** or **at the money**, i.e. the underlying security is below or at the striking price, the option buyer will choose not to exercise the option. The option position will be worthless and a loss equal to the premium paid to the option writer will be incurred.

By buying a call option, the buyer believes that the value of the underlying security will be higher at the time of exercise than today. A different speculator may believe otherwise. In this case he would buy a Put option.

A European **Put** option is a similar contract that gives the buyer the choice to sell the underlying at expiry at a pre-agreed value. If the underlying security has a lower value than the strike price at expiry, the buyer of the put option will exercise his option by buying the underlying at the present value and sell this at the strike price, again resulting in a profit, less the premium paid to buy the put option.

American call and put options differ from **European** options such that they do not specify an expiry date, but rather a period of time during which the buyer can exercise his rights.

The time in the future when the right can be exercised is called the Expiry or **Exercise date** (T). The price of the contract bought today but discounted to give the price at Expiry is called the **Strike** or **Exercise price**. Denoting the expiry date with T and the strike price by K. If the value of the underlying is S(t) at time t, then option payoffs (excluding premium paid) at expiry are:

Call option: $c = \text{Max}[0, S(T) - K]$

Put option: $p = \text{Max}[0, K - S(T)]$

What are Options for?

Advantages:

- By buying options on a security, a speculator can increase his exposure to the underlying price fluctuations.

:: Collaborations ::



- Buying an option for 100 shares of a certain security is a lot cheaper than buying the 100 shares. A cheaper way to expose yourself to **risk**.
- An investor can use options as part of a portfolio in order to gain a more neutral market position - a process known as **hedging**.

Disadvantages:

- As mentioned, options increase an investors exposure to market fluctuations. In particular selling options contracts can be very risky when the value of the underlying is very volatile.
- Dealing with options requires very good knowledge of the markets.

Reading the Options Table

Below is the equity options table of the Financial Times published on 10th May 2001, the data are sourced from Liffe. There are a few things to notice. For each option there are two strike prices on offer and three different maturity dates.

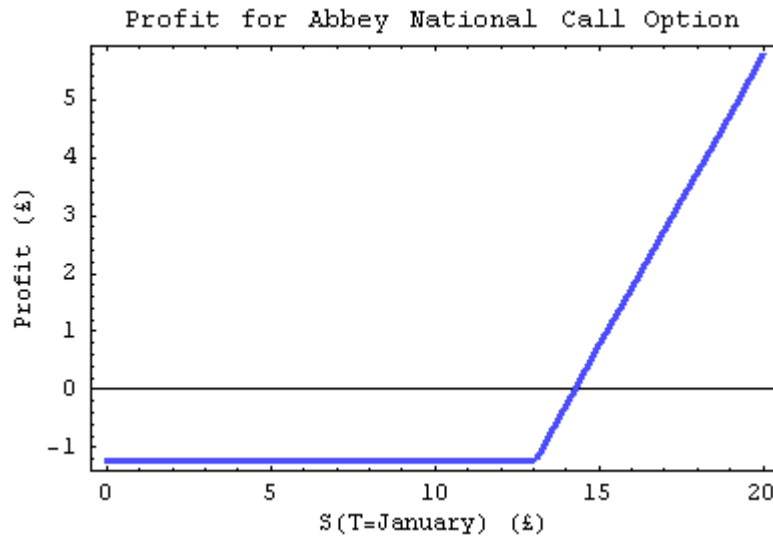
Previous Closing Price		Call/Put Expiry Dates					
		Calls			Puts		
		Jul	Oct	Jan	Jul	Oct	Jan
Option							
Abbey Natl	1250	85½	118	148	71	102½	120
(*1252)	1300	62	94½	124	98	129½	146
Ald Domecq	390	35	45½	51	8½	15½	19½
(*416)	420	17	29	34½	21½	29	33
AstraZeneca	3200	227	320½	403½	116	189	252½
(*3280)	3300	177	270½	353½	165	238	301½
BAA	600	24½	38½	49	20	30½	36½
(*608)	650	8½	18	27½	53½	61	65½
BAT	550	36	50	64	24	40	48
(*556½)	600	15	27½	43	54	67½	77

Strike Price Value of Call

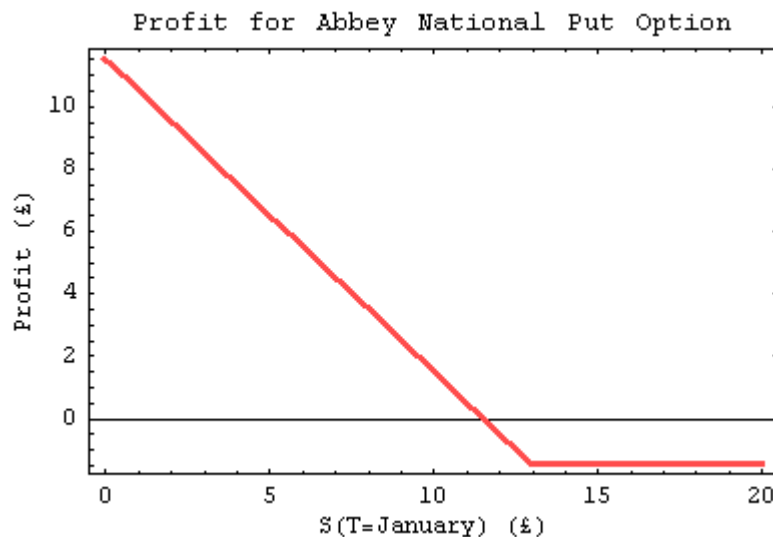
The value of call options becomes more expensive the lower the strike price. This is because the lower the strike price the more likely you are to exercise the option. The opposite is true for put options. Also the longer time to maturity, the higher the option price. This is because deviations of the security price from its present value are likely to be bigger the longer one waits.

Example of Buying Call and Put Options

Lets consider buying a call option on Abbey National. There are two strike prices to choose from: £12.50 and £13.00. Also we can choose between three expiry dates: July, October or January. If we decided to buy the call option with £13.00 strike price expiring in January 2002, we will pay £1.24.



If in January 2002, the value of one Abbey National share is at least £14.24 ($=£13.00 + £1.24$), we will choose to exercise the option to make a profit. If the value is less than this but above £13.00, we still exercise to reduce our losses. So say its value is £15.00, we will then make a profit of £0.76 ($= £15.00 - £14.24$). That's a profit margin of 61%!



Likewise, consider buying a put option on Abbey National with strike price of £13.00 expiring in January 2002, we will pay £1.46. As long as the value of one Abbey National share is below £11.54 ($£13.00 - £1.46$), we will choose to exercise the option to make a profit. If the value is greater than this but below £13.00, we still exercise to reduce our losses. If the share value drops to £11.00 in January 2002, we will then stand to make a profit of £0.54, i.e. $£11.54 - £11.00$. The profit margin in this case is around 37%.

If, however, the value of Abbey National share stays above £11.54, then we will not exercise the option, hence our losses will limit to the premium paid, which in this case is £14.60.

Table below summarises options in a qualitative manner:

Buy	Strike Price (SP) vs Market Price (MP)	Outcome
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Call Option	In the money ($SP < MP$)	Unlimited profit
Call Option	At the money or Out of the money	Limited loss
Put Option	In the money ($SP > MP$)	Unlimited profit
Put Option	At the money or Out of the money	Limited loss

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