

Module 2: What are options?

Version 3 – March 2013

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Topic 1: What are options?

Let's consider the following option: XYZ June \$10.00
Call option @ \$0.42. This option gives you

- the right, but not the obligation
- to buy
- 1000 shares in company XYZ
- for \$10.00 per share
- at any time up until the option expiry date in June.

For this option, you pay a premium of \$0.42 per share.

XYZ June \$10.00 Call @ \$0.42

- Right to buy
- 1000 XYZ shares
- For \$10.00 per share
- At any time up until the expiry date in June
- The option premium is \$0.42 per share

ASX options

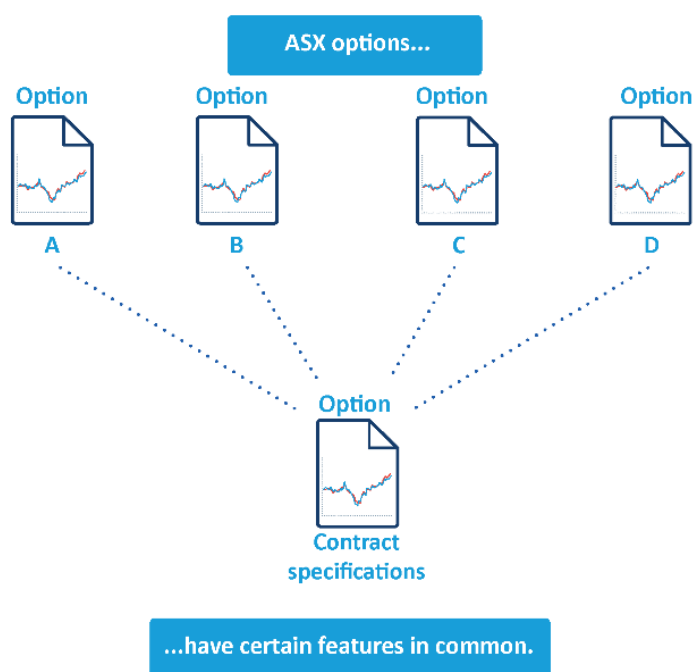
ASX options are standardised, meaning there are certain features common to all options traded on ASX.

Standardisation of option contracts enables you to assume certain things about an option's contract specifications without having to check every detail each time you want to trade.

It also makes it easier to trade into and out of option positions.

The most important elements of an option contract are:

- Option type
- Underlying asset
- Exercise price
- Expiry
- Exercise style
- Settlement method
- Premium



Except for the premium, all these features are set out in the contract specifications prescribed by ASX. The option premium is determined by market forces.

We explain these elements in detail in the next screens.

Sometimes it is necessary for ASX to adjust an option's contract specifications. In Topic 5 we will look at when and why this might happen.

Identify the option feature NOT specified by ASX

- Option type
- Underlying asset
- Exercise price
- Expiry
- Exercise style
- Settlement method
- Premium

Correct.
The option premium is the only element not specified by ASX.

Calls and puts

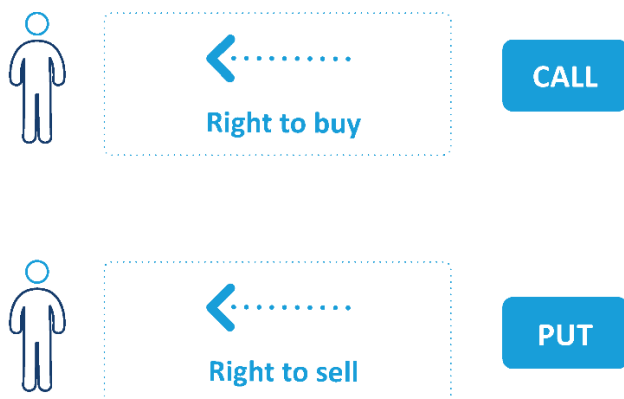
There are two types of options:

- Call options give you the right to buy the underlying.
- Put options give you the right to sell the underlying.

Traders generally buy calls when they expect the price of the underlying to rise, and puts when they expect the price to fall.

In topics 2 and 3, we use call options to illustrate the various features. In topic 4 we take a look at puts.

Most option features mean the same thing regardless of whether the option is a call or a put.



Topic 2: Option features

Underlying asset

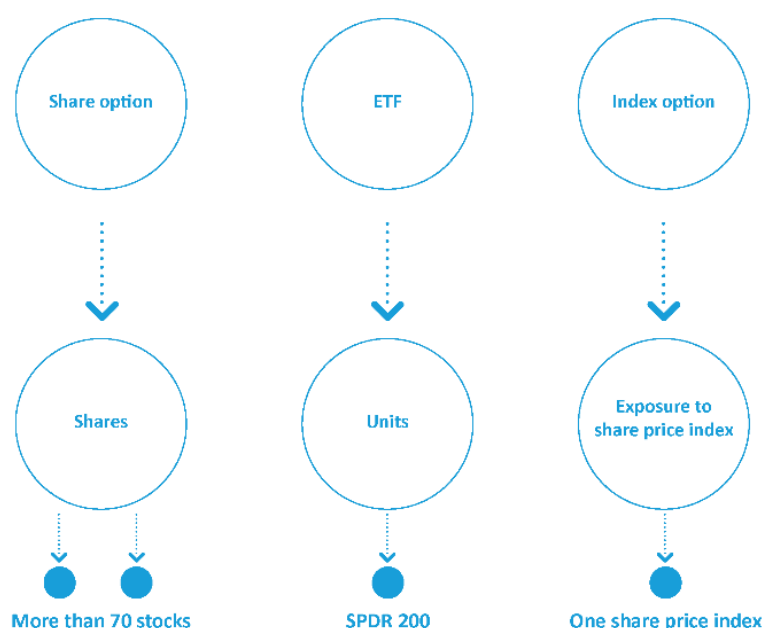
A call option gives you the right to buy some other thing - the option's underlying asset.

ASX lists options over securities of certain ASX-listed companies, Exchange Traded Funds, and the S&P/ASX 200 index.

Refer to the ASX website for a [current list of option stocks](#).

The underlying of most ASX share options is 1,000 shares.

Occasionally, ASX may adjust the terms of an option contract, so it's worth checking the contract size before you trade.



Index options

As well as share options, ASX lists options over share price indices.

Index options provide exposure to the market as a whole, or to a broad market sector. You can gain exposure to a wide range of shares in one transaction.

ASX currently lists options over:

- S&P/ASX 200 index (ASX code: XJO)

Let's look at why you might use index options.

Exercise price

The exercise price (or strike price) is the price you pay for the underlying if you exercise the option. The exercise price of a share option is expressed in dollars per share.

The exercise price of the XYZ June \$10.00 call option is \$10.00.

If you exercise this option, you pay \$10.00 per share, regardless of the share price at the time, in return for which you receive XYZ shares. Assuming the contract size is 1,000 shares, you pay \$10,000 to exercise one contract.



ASX sets option exercise prices.

For any expiry month, in the most actively traded options, there will be an exercise price close to the current share price, and at least two exercise prices above and two below the current share price.

As the share price moves, ASX may list additional exercise prices.

The interval between exercise prices depends partly on the price of the shares.

For example, exercise prices below \$2.00 are usually \$0.10 apart, while exercise prices between \$2.00 and \$10.00 are typically at \$0.25 intervals.

In later modules we will discuss how to choose between exercise prices when constructing an option strategy.

Instrument	Market			Trade information		
ID	OCfy	Bid	Ask	ACfy	Last	Settlement
BHP	1,872	3497.0	3499.0	496		
BHPOSAUG3300C SB7			330.0	3		287.5
BHPOSAUG3350C ZJ7	14	255.5	268.0	14		258.0
BHPOSAUG3400C 2B	16	223.0	232.5	16		226.0
BHPOSAUG3450C ZK7	35	193.0	201.0	17		196.0
BHPOSAUG3500C PB7	18	165.5	173.5	17	170.0	167.0
BHPOSAUG3550C ZC7	20	140.5	148.0	37	150.0	144.0
BHPOSAUG3600C SB7	20	117.5	125.0	37	121.0	123.0
BHPOSAUG3650C YQ7	20	97.5	104.5	17	100.0	102.0
BHPOSAUG3700C SC7	22	80.0	88.0	1	83.0	83.0
BHPOSAUG3800C SF7			57.0	1	56.0	56.0
BHPOSAUG3900C SG7	5	33.0			37.0	37.0
BHPOSAUG400C SJ7						24.0
BHPOSAUG4100C AS						14.0

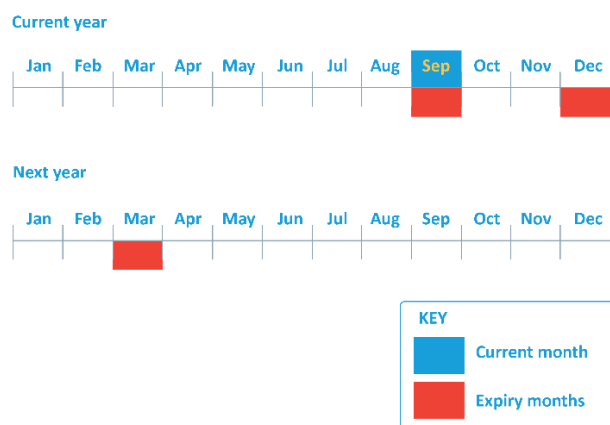
Topic 3: Option features (continued)

Expiry

An option has a limited life. It is a 'wasting asset'.

The expiry date is the last date you can exercise or trade the option. At the end of the expiry day, any unexercised options are cancelled.

The concept of the wasting asset is a crucial difference from share investing.



When you buy a share, there is no set date by which the share must perform as you expect it to. You may hold your investment indefinitely.

When you buy an option, the price movement you are looking for must take place by expiry - after expiry the option no longer exists.

You can choose from a range of expiry months.

Options stocks run on a quarterly cycle, with expiries in March, June, September and December.

The most actively traded options are listed with expiries in at least the next three months of the cycle.

For example, in May, a stock may have options listed with expiries in June, September and December. When the June series expire, ASX will list options expiring in March of the following year.

Many stocks also have spot (current) month and two-month expiries listed, so you can trade shorter term options.

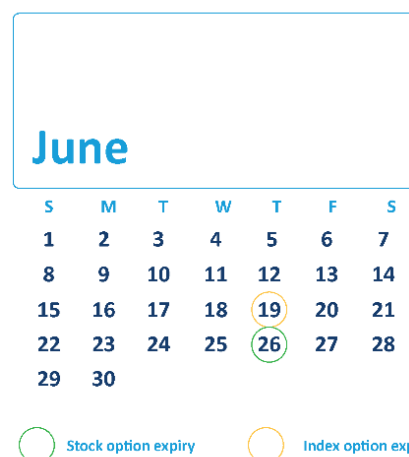
Long-dated contracts, with expiries of up to three years and sometimes longer, are also available over some stocks.

The expiry date for share options is usually the Thursday before the last business Friday of the expiry month. This is the last date you can either trade or exercise an option expiring that month.

Sometimes an expiry date does not fall on a Thursday, due for example to a public holiday.

Index options have a different expiry calendar to share options, and usually expire on the third Thursday of the month.

You can check [option expiry dates](#) on the ASX website.



Exercise style

An option is either American exercise or European exercise.

You can exercise an American style option at any time after you buy the option, up to and including the expiry date.

You can exercise a European style option only on the expiry date.

ASX stock options are usually American exercise, while index options are European exercise.

Options over Exchange Traded Funds (ETF) are European exercise.

	When?	What?
American exercise	At any time	ASX share options
European exercise	Only at expiry	ASX index options

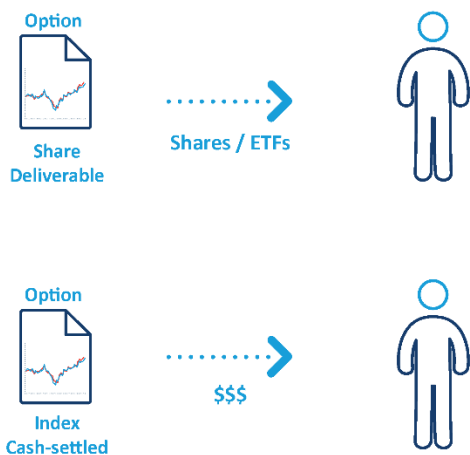
Settlement method

On exercise, an option is settled either by physical delivery, or by cash settlement.

ASX share options are deliverable. When you exercise a share call option, you receive the underlying shares.

ASX index options are cash-settled.

On exercise of a call option



When you exercise an index option, you cannot physically 'receive' the underlying index. Instead you receive a cash payment - which is the difference between the underlying index value and your exercise price.

Settlement of index options is covered in Module 9, 'Index options'.

Selecting the option
 Trader has selected to purchase a BHP August 3450 call. Once purchased they have the right but no obligation to purchase BHP for \$34.50 at anytime until expiry in August. The trader must now discover what price they will pay to purchase this option.

Instrument	Market			Trade information			
	ID	BQty	Bid	Ask	AQty	Last	Settlement
BHP		1,872	3497.0	3499.0	496		
BHP09AUG3300C.SB7				300.0	3		287.0
BHP09AUG3350C.ZJ7		14	255.5	265.0	14		258.0
BHP09AUG3400C.2B		16	223.0	232.5	16		226.0
BHP09AUG3450C.ZK7		35	193.0	201.0	17		196.0
BHP09AUG3500C.PE7							167.0
BHP09AUG3550C.ZC7							144.0
BHP09AUG3600C.SB7							123.0
BHP09AUG3650C.YO7							102.0
BHP09AUG3700C.SC7							83.0

Premium

The premium is the market price of the option.

It is the only element of the option contract not specified by ASX. It is determined by supply and demand - just like the price of a share.

When the highest price bid meets the lowest price asked, the trade takes place.

ASX stock option premiums are expressed in cents per share. To calculate the cost of one contract, multiply the premium by the contract size (usually 1000 shares).

So one XYZ June \$10.00 call option @ \$0.42 costs \$420.

Premiums are affected by a range of factors. Option pricing is covered in Module 3.

The premium is not the same as the exercise price.

The premium is what you pay at the outset, to buy the option.



If you later exercise the call, you pay the exercise price, and receive the shares.

So if you buy the XYZ June \$10.00 call option @ \$0.42, and subsequently exercise the option, your total outlay is \$10.42:

- \$0.42 to buy the option
- \$10.00 to buy the share when you exercise the option.

Topic 4: Put options

Put options

There are two types of options - calls and puts. So far we have concentrated on calls, which give you the right to buy the underlying.

Put options give you the right to sell the underlying.

XYZ June \$10.00 Put @ \$0.34

- Right to sell
- 1000 XYZ shares
- For \$10.00 per share
- At any time up until the expiry date in June
- The option premium is \$0.34 per share

Let's consider the following option:

XYZ June \$10.00 Put option @ \$0.34

This option gives you:

- the right, but not the obligation
- to sell
- 1000 XYZ shares
- for \$10.00 per share
- at any time up until the option expiry date in June.

For this option, you pay a premium of \$0.34 per share.

Most option features are the same, regardless of whether the option is a call or a put.

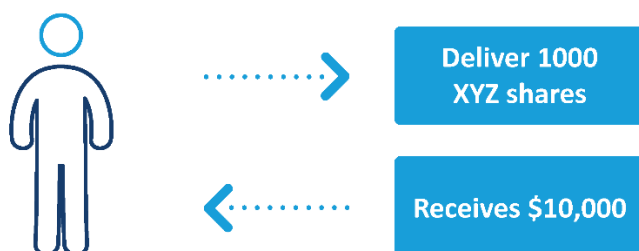
It is the transaction that results from exercising the option that is different.

If you exercise a call, you pay the exercise price, and receive the underlying shares.

If you exercise a put, you deliver the underlying shares, and receive the exercise price.

Clearly, you would not exercise a put option unless you own the underlying shares.

Exercising an XYZ \$10 put option



Buying a put generally reflects a bearish view of the market.

Put options have two main uses:





1. Protect your shares.

A put gives you the right to sell shares for a specified price. No matter how low the share price falls during the life of the option, your shares are protected at that level.

2. Gain leveraged exposure to a falling share price.

If the share price falls, the put option will generally rise in value, and you can sell it at a profit. If the share price rises, you will generally lose money.


Put option strategies are discussed in Module 6, 'Profit from a falling share price', and Module 7, 'Protect your shares'.

Share price	Put option
	
	

Topic 5: Contract adjustments

Sometimes it is necessary for ASX to adjust the terms of options contracts, to preserve the value of option positions.

These adjustments are necessary usually because there has been a corporate action that affects the value of the underlying securities. If no adjustment was made, your option position could be unfairly advantaged or disadvantaged.



ASX
CLEARING CORPORATION

ASX Clearing Corporation & ASX Market Notice

Date 27 October, 2010

Key topics
Ten Network Holdings Limited
5 Cents Special Dividend -
Adjusted ETOs

DERIVATIVES – EQUITY AND INDEX OPTIONS

TEN NETWORK HOLDINGS LIMITED 5 CENTS SPECIAL DIVIDEND - ADJUSTED ETOs

ASX Participants and ASX Clear Pty Limited (ASXCL) Participants were advised in Derivatives Notice No. 066 dated 22 October 2010 of the adjustment method that applied to ETOs over Ten Network Holdings Limited (ASX Code: TEN) on account of the 5 cents special dividend, paid together with a 6 cents ordinary dividend with the same ex-date.

For convenience, the adjustment method set out in the earlier notice is repeated below.

New Contract Size =

$$\text{Old Contract Size} + (\text{total special dividend paid per Old Contract Size}) / (S - \text{OD} - \text{SD})$$

Where

S = VWAP of the last cum-dividend share price
OD = amount of ordinary regular dividend per share, if any
SD = amount of special dividend per share

New Exercise Price = $\text{Old Exercise Price} \times \text{Old Contract Size} / \text{New Contract Size}$

When are adjustments made?

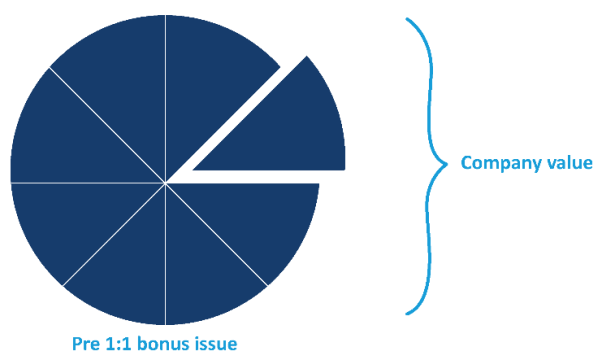
An adjustment will only be made if the corporate action affects shares in a 'pro rata' manner i.e. it affects shareholders in proportion to the number of shares they hold.

Such events include:

- Special dividends
- Bonus issues
- Share splits
- Rights issues
- Cash returns of capital

These events affect the value of the underlying shares, even though there may be no change to the total value of the shares on issue.

Bonus issue: more shares, lower per share value

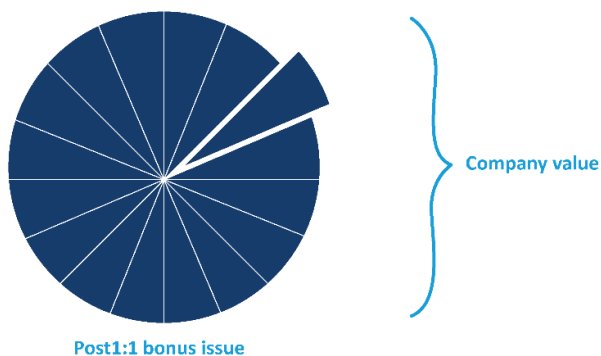


Example

A company has 1 million shares on issue, trading at \$10.00, and announces a 1 for 1 bonus issue.

Following the bonus issue there will be 2 million shares, trading at around \$5.00 – the share price has changed, though the company's value remains the same.

Bonus issue: more shares, lower per share value



How are adjustments made?

ASX's main aim is to preserve the exercise value of an option position. The exercise value is the product of:

- contract size
- number of contracts, and
- exercise price.

Pre-adjustment			
	Contracts	Contract size	Exercise price
	1	1000	\$10.00
Post-adjustment			
Corporate action	Contracts	Contract size	Exercise price
1:1 bonus issue	2	1000	\$5.00
3:1 bonus issue	4	1000	\$2.50
4:1 bonus issue	5	1000	\$2.00

If you hold one \$10.00 call, the exercise value is \$10,000 (1 contract x 1,000 shares x \$10.00).

For a 1 for 1 bonus issue, the likely adjustment would result in you holding 2 call options, each over 1,000 shares, with an exercise price of \$5.00.

The exercise value of your position is unchanged (\$10,000 = 2 contracts x 1,000 shares x \$5.00).

There are certain rules ASX follows for common corporate actions such as share splits and bonus issues.

Other events are considered case-by-case.

While adjustments are the exception rather than the rule, it's worth checking the details of any options you are considering trading.

If you are interested in learning more about adjustments to option contracts, refer to the document '[Explanatory Note for Options Adjustments](#)' (PDF 180KB).

Summary

Most elements of an option contract are standardised by ASX:

- Option type
- Underlying asset
- Exercise price
- Expiry
- Exercise style
- Settlement method

An option's premium is determined by market forces.

ASX may adjust the terms of option contracts when there is a corporate action that affects the underlying shares. Adjustments are made to ensure that holders of option positions are not unfairly advantaged or disadvantaged.

Option prices used in this module

- Practical examples of option strategies are given throughout this module.
- Option prices used in the examples were calculated using a binomial pricing model.
- Unless specified otherwise, prices are based on the following:
- Underlying stock price: \$10.00
- Volatility: 25%
- Risk free interest rate: 6%
- Days to expiry: 52
- The stock does not go ex-dividend during the life of the option

Keeping these assumptions constant in all examples should make it easier to compare the different strategies presented.