

Topic 1: How to choose the right strategy.....	3
Takers and writers	3
Topic 2: Price	5
Which direction is the market headed?	5
Topic 3: Volatility	7
Topic 4: Time	9
Choosing the expiry month	10
Topic 5: Putting it together.....	11
Summary.....	12
Option prices used in this module	12

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Topic 1: How to choose the right strategy

There are important differences between investing in shares and trading in options.

The share investor has a limited choice, being able to buy, sell, or take no action.

The options trader has more possibilities. The trader can:

- take (buy) or write (sell) calls
- take or write puts
- trade a combination of taken and/or written calls and/or puts
- do any of the above in conjunction with the purchase or sale of the underlying shares.

With so many possibilities, how do you choose the right strategy?

Takers and writers

Whether a strategy involves taking options or writing options, the goal is the same - either to make a profit, or to limit a potential loss.

The option taker tries to buy options for as little as possible and then see the option rise in value, at which point they sell.

The option writer tries to sell options for as much as possible, and then see the option fall in value, at which point they close out the position, or the option expires worthless.

In both scenarios, the trader wants to pay as little premium when buying, and receive as much premium when selling, as possible.

Share investors typically make investment decisions based solely on their view of whether the stock price will rise or fall.



Option traders need to think about all the factors that make an option increase or decrease in value:

- share price movements
- time decay, and
- changes in volatility.

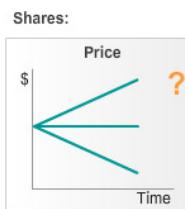
Module 3, 'Option Pricing', explains how volatility and time to expiry have a significant impact on an option's price.

Share price movements are of central importance.

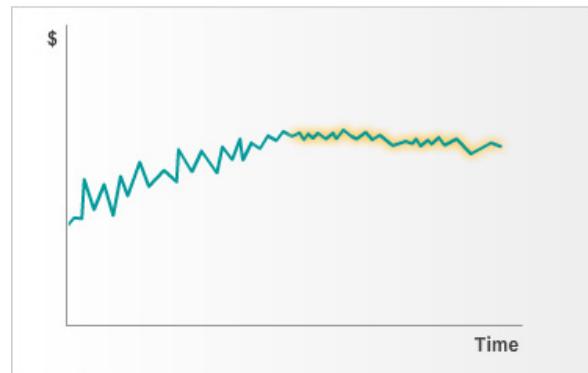
But even if the share price moves as you expect, time decay, or an unexpected change in volatility, can result in a loss.

Experienced traders consider the implications of time decay or changes in volatility in forming their option strategies.

In this module we will look at price, time and volatility, and explain how your view on each of them can guide your trading strategies.



A rising share price benefits call options.
 But a fall in volatility...
 ...and time decay...
 ...may still result in a loss.



Topic 2: Price

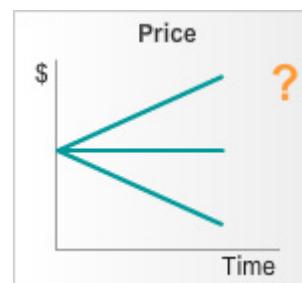
The success of your options strategy depends most of all on share price movements.

So your view on how the share price will move is a key consideration.

First, you need to decide whether you think the share price is going to:

- rise
- fall, or
- remain steady

Once you have determined your view, you can narrow down the number of suitable strategies.



Which direction is the market headed?

The way you reach your market view is usually the same, whether you are investing in shares or trading options - although your time frame may well be different.

Most investors use either fundamental analysis, or technical analysis, or an approach that combines the two.

Fundamental analysis involves the study of financial and other information about the company and the industry sector, as well as consideration of broad economic data.

Technical analysis is the study of a stock's previous price behaviour, in the belief that patterns repeat themselves and can be used to predict future price movements.

ASX offers online [courses on technical and fundamental analysis](#).

As a general rule, if you expect significant share price movements, strategies involving taken options might be suitable.

Traders expecting significant rises buy call options, while those expecting falls buy puts.



Significant movement in the expected direction lead to an increase in the option's intrinsic value, and should result in a profit when you sell the option.

If you decide to exercise the option, you will be buying (or selling) the shares at a better price than the prevailing market price.

Bought call and put option strategies are covered in Modules 5, 6, 7 and 8.

If you expect a stock to remain within a limited price range, written option strategies may be appropriate. Written option strategies generally suit a 'neutral' market outlook.

If the stock remains around current levels, you can expect little change in intrinsic value, but time decay will mean the option falls in value. This should result in a profit when you close out your position by buying back the option.

Alternatively, if the option at expiry is out of the money, it will expire worthless, meaning you keep the entire premium as profit.

The written call option is covered in Module 8.



Topic 3: Volatility

The direction of the market is crucial to both share investors and option traders.

Volatility also matters to option traders, as there is a limited period for your market view to be realised. Volatility is not about whether the share price will rise or fall. It is about the extent of price fluctuations.

If you buy an option expecting significant price movement, the chances of that movement occurring before expiry will fall if the stock becomes less volatile.

Reduced volatility also means lower option premiums, as the stock's volatility is an important influence on time value.

It is therefore important that you form a view on stock volatility for the life of the option.

Forecasting a stock's volatility is no easier than forecasting stock price movements!

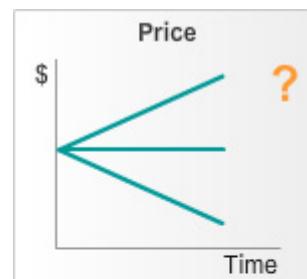
One approach is to use a stock's historical volatility, and assume the stock price will behave in the future as it has done in the past.

Typically you would look at the time to expiry of the option, and then at the stock's volatility over that period in the past. For example, if you are considering an option with three months to expiry, you would use the stock's three-month historical volatility.

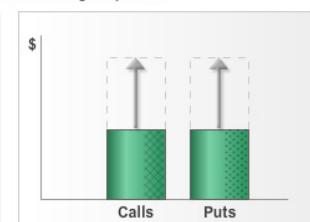
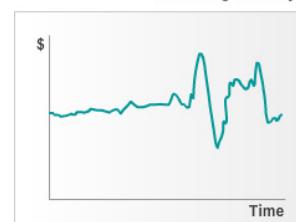
Or you may have another view on future volatility - you might think that after a period of low volatility, a stock is about to 'break out' with an accompanying increase in volatility.

Whatever method you use to forecast volatility, you should take your outlook into account when choosing your option strategy.

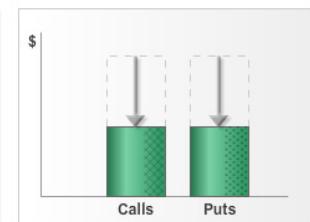
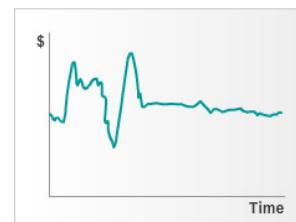
If you think volatility will increase, bought option strategies are more likely to be attractive. Increased volatility is consistent with the significant price movements option takers hope for, and also increases the time value component of the option.



Increasing volatility benefits bought options



Falling volatility benefits written options



If you think volatility is likely to fall, written option strategies may be more attractive. Decreased volatility is consistent with the neutral market view most writers hold, and also reduces the time value of the option.

You should also be aware of the effect an unexpected change in volatility can have on your strategy.

Even if the share price moves in the expected direction, an unfavourable change in volatility can damage your position.

If you buy call options and volatility falls, you can lose money, even if the share price rises. Similarly, an increase in volatility can hurt a written option strategy.

The table opposite looks at a \$10.00 call option, traded at \$0.42, with 52 days to expiry. Implied volatility at the time of purchase was 25%.

It shows various scenarios 15 days later, including:

- Stock price rising, falling or remaining steady, and
- Volatility rising, falling or remaining steady.

To see the impact of changes in volatility on option premiums, refer to the [ASX's Theoretical Option Price Calculator](#).

You can insert your own volatility figure into the model to see how the option price (and therefore the profitability of your strategy) would react to a rise or fall in volatility.

The [Strategy Modelling Tool](#) is another tool that shows you how changes in volatility can affect your strategy.

ASX's publishes [dividend and volatility estimates](#) for option stocks. The volatility figure is a weekly, weighted approximation of implied volatility on all option orders in that stock.

Implied volatility	52 days to expiry (strategy initiated)	37 days to expiry XYZ \$10.00 call price			
		XYZ @ \$10	XYZ @ \$9.75	XYZ @ \$10.00	XYZ @ \$10.25
15%		\$0.11	\$0.22	\$0.39	
25%	\$0.42	\$0.23	\$0.35	\$0.51	
35%		\$0.36	\$0.48	\$0.63	

Options calculators

- [Options Payout](#) plots the payoff diagrams for your options strategies.
- [Theoretical Option Price Calculator](#) for calculating an option's theoretical fair value.
- [Covered Call Calculator](#) for returns on covered call writing.
- [Margin Estimator](#) allows you to estimate the margin obligation of a particular option position.
- [Strategy Modelling Tool](#) enables you to calculate theoretical option prices, plot payoff diagrams, compare different strategies and pricing models, and more.
- [Fair value strategy based calculator](#) - buy write valuation, strategy comparisons, diagrams, time decay and volatility.

A number of ASX calculators are sourced from [Peter Headley](#).

Warrants calculators

- [Black-Scholes model without dividends](#) for Equity Call warrants (European and American-style) and European-style Equity Put warrants.
- [Black-Scholes model with dividends](#) calculates theoretical fair value prices of European warrants where the stock pays a dividend during the life of the warrant.
- [Binomial model](#) used to value American and European style warrants. However, this model does not provide you with a detailed analysis of the sensitivity coefficients.

CFD calculators

- [Contract Interest](#)
- [Open Interest Charge](#)
- [Dividend Yield Cashflow \(DYC\) - Equity and Index products](#)
- [Dividend Yield Cashflow \(DYC\) - FX products](#)

Listing fee calculator

The [ASX Equity Listing fee calculator](#) is designed to provide you with a guide to ASX Equity Listing Fees that apply as of 1 July 2009.

Topic 4: Time

Unlike a share, an option has a limited life. It is a wasting asset.

When you buy a share, the success of your investment does not usually depend on the share price rising by a certain date. When you buy an option, the price movement you are looking for must take place by expiry - after expiry the option no longer exists.

Consequently, you must form a view not only on the direction the stock price will move in, but also on the time frame of that movement.

Your view of the time frame will determine your choice of expiry month.

Selection of expiry month is a balancing act between the length of time you need for your strategy to succeed, and the option premium.

When you buy an option, the longer the time to expiry, the greater the opportunity for a significant move in the share price. However, the longer its life, the more the option will cost. The most you can lose when you buy an option is this option cost.

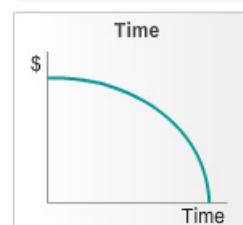
When you write an option, the longer the term, the greater the premium you receive. However, this comes at increased risk that a damaging move in the share price will expose you to heavy losses.

Whereas changes in volatility can work either for or against you, the effects of time decay are predictable - time decay works against the option taker, and in favour of the writer.

When you buy options, you must be aware that even if the share price doesn't move, the option will lose value due to time decay. At expiry the option will have no time value.

The share price must move far enough by expiry to cover the loss of time value.

The time you give yourself, and the cost of that time, are fundamental to the success of your strategy.

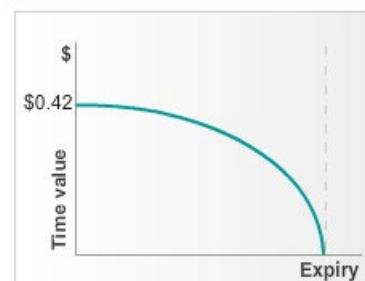


Time frame	Writer		Taker	
	Risk	Premium received / potential reward	Potential reward	Premium paid / capital at risk
Longer				
Shorter				

XYZ shares



XYZ \$10.00 call



Choosing the expiry month

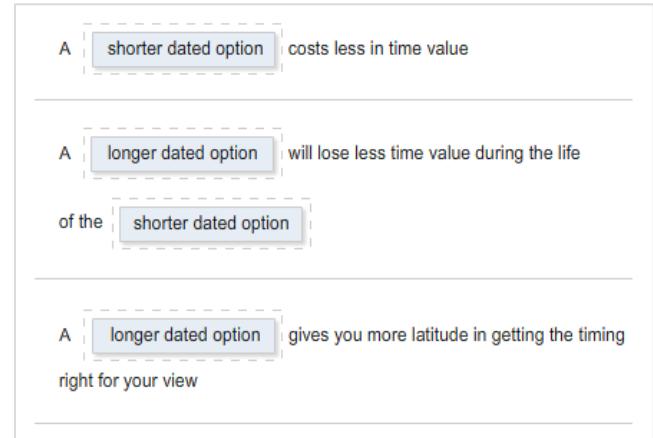
Suppose you have a 3 month view.

A 3 month option minimises the time value you pay. But time decay accelerates as expiry approaches. This option will lose time value rapidly in its last few weeks.

There is also a risk your view is right but the stock moves after your option has expired?

A 6 month option will cost more due to the extra time value. But time decay will be much less over the first 3 months - the time period of your view.

A longer dated option gives some latitude should your view be right but the timing is out. Also the position can be sold before expiry with time value as well as any intrinsic value.



Topic 5: Putting it together

It should be clear by now that your choice of option strategy depends on more than just which way you think the share price will move. Volatility and time must also be considered.

Thinking this way may be unfamiliar if you have only invested in shares. Your investment decisions up to now may have been based solely on your view of whether the stock price will rise or fall.

Your market outlook remains the most important consideration, but if you also understand the dynamics of volatility and time decay, you will be better equipped to trade options successfully.

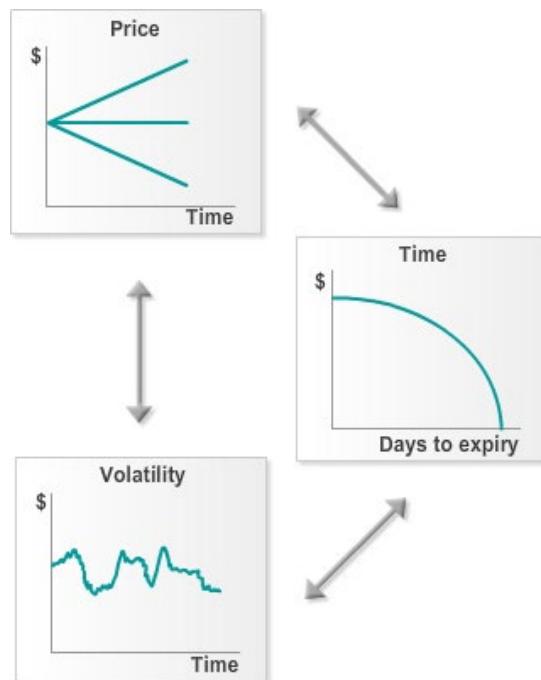
Taking into account price, time and volatility may seem daunting, but in practice the three are related.

In determining your time frame, a stock's volatility is relevant.

If you are buying options, the more volatile you expect the stock to be, the shorter the term of the option you might consider. Even with a short time to expiry, the stock may move far enough for you to make a significant profit.

There is also a relationship between price and volatility.

If you expect a significant price movement in a stock, this implies you think volatility will remain high, or increase. Your views on price and volatility are consistent with an option buying strategy.



Price movements...

...are related to volatility

...and the time frame you are looking at.

Volatility also influences

...the time frame you consider.

Summary

When trading options, you need to take into account:

- price (the direction the share price will move in)
- volatility (the extent of price fluctuations), and
- time (when will it happen?).

Share price movements are the most important influence on option prices. Do you think the share price will:

- rise
- fall, or
- remain steady?

Changes in volatility can have a significant impact on the success of your option strategy. Do you think volatility is likely to increase or decrease?

Your timeframe is important. The timeframe of your expected share price movement will guide your choice of expiry month.

Time decay works against you when you buy an option, and in your favour when you write an option.

You should now have an understanding of the factors to take into account when deciding on an option strategy.

It's important also to have a sound knowledge of the strategies available.

Option strategies can be constructed to reflect any market or volatility outlook. Strategies range from a bought or written call or put, to positions comprising multiple option and stock 'legs'.

Before considering complex strategies, you should become familiar with the basic strategies. Four common strategies are covered in other ASX online options modules.

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.