

Topic 1: What are warrants?.....	3
The ASX Warrants market .....	3
Topic 2: Warrant features .....	4
Underlying .....	4
Exercise price (final payment).....	5
Expiry date.....	5
Conversion ratio.....	6
Topic 3: Warrant pricing .....	7
Time value .....	7
Time to expiry .....	8
Volatility .....	8
Interest rates.....	9
Delta .....	9
Topic 4: Warrant issuers.....	11
Approved warrant issuers .....	11
Role of warrant issuers .....	11
Market making obligations .....	12
Indicative pricing matrices.....	12
Disclosure documents.....	13
Warrant codes .....	13
Topic 5: Risks of warrants .....	15
Counterparty risk .....	15
Performance of the underlying asset.....	15
Leveraged losses.....	16
Liquidity risk.....	16
Early termination.....	17

Information provided is for educational purposes and does not constitute financial product advice. You should obtain independent advice from an Australian financial services licensee before making any financial decisions. Although ASX Limited ABN 98 008 624 691 and its related bodies corporate ("ASX") has made every effort to ensure the accuracy of the information as at the date of publication, ASX does not give any warranty or representation as to the accuracy, reliability or completeness of the information. To the extent permitted by law, ASX and its employees, officers and contractors shall not be liable for any loss or damage arising in any way (including by way of negligence) from or in connection with any information provided or omitted or from any one acting or refraining to act in reliance on this information.

**© Copyright 2010 ASX Limited ABN 98 008 624 691. All rights reserved 2010.**

All Ordinaries®, All Ords®, AllOrds®, ASX®, ASX100®, CHESS®, ITS® are registered trademarks of ASX Operations Pty Limited ABN 42 004 523 782 ("ASXO").

ASX20™, ASX50™, ASX200™, ASX300™ are trade marks of ASXO.

S&P™ is a trademark of Standard and Poor's, a division of The McGraw-Hill Companies Inc.

## Topic 1: What are warrants?

Warrants are financial instruments issued by banks, governments and other institutions and are traded on the ASX. They are broadly split into investment style products and trading style products.

Warrants are a form of derivative - that is, they derive their value from another 'thing' (underlying instrument). Some give holders the right to buy, or to sell the underlying instrument (e.g. a share) to the warrant issuer for a particular price according to the terms of issue.

Alternatively, others entitle holders to receive a cash payment relating to the value of the underlying instrument at a particular time (e.g. index warrants).

Warrants may be issued over securities (such as shares), a basket of different securities, a share price index, debt, currencies, or commodities.

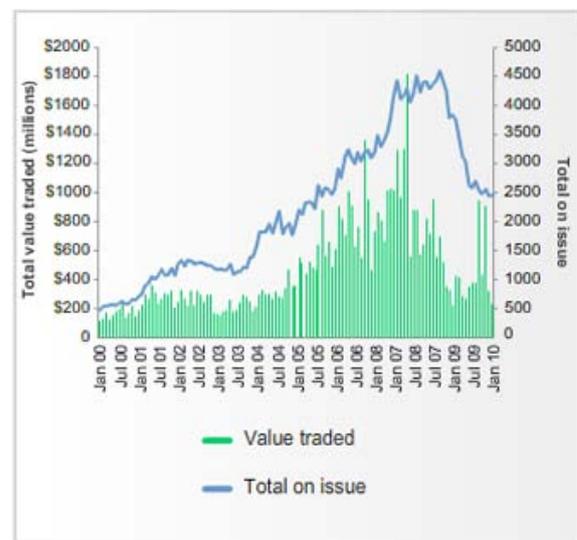
Some warrants have higher risk/return profiles than others that offer lower risk features such as capital guarantees.

### The ASX Warrants market

Warrants are traded in many key financial market of the world. ASX has operated a warrants market since 1991.

Warrants have become an increasingly popular investment alternative in recent years. The chart shows the increase in the number of warrants available.

The market began by trading equity call warrants only. Other types have been introduced over time. There are now a number of different warrants available for trading or investment including instalments, structured investment products, trading warrants, knock-out warrants, and commodity warrants.



## Topic 2: Warrant features

Warrants are not standardised. There is a wide range of warrant types, and the features of warrants offered by various issuers can vary widely. There can even be significant differences between different warrant series offered by the one issuer.

[The Product Disclosure Statement](#) (PDS) sets out the terms and conditions of the warrant in detail. When reading these documents, be aware that different issuers may not always use the same words to describe a given warrant feature. For example, the term 'loan amount', 'final payment' or 'exercise price' may be used interchangeably to refer to the final payment of an instalment.

The price (or first payment) of the warrant is not specified in the PDS, but is determined by the price of the underlying asset, and market conditions at the time.

### Underlying

Warrants are issued over a range of underlying assets, including: ASX-listed securities, shares listed on an overseas exchange, baskets of ASX-listed securities, share price indices, commodities and currencies.

### Call or put

A warrant is either a call or a put warrant.

A call gives you the right to buy the underlying asset from the warrant issuer. A put gives you the right to sell the underlying asset to the issuer.

### Settlement method

A warrant may be deliverable or cash settled.

Deliverable warrants are settled by a transfer of the underlying asset. If, for example, you exercise a call warrant over XYZ shares, the issuer transfers ownership of XYZ shares to you.

Cash settled warrants are settled by a cash payment from the warrant issuer to the holder. If the warrant is in-the-money, the difference between the warrant's exercise price and the price of the underlying asset is paid to the holder.

Features common to most warrants	Non standard features
Underlying	Barriers
Call or put	Caps
Settlement method	Covered
Exercise price (final payment)	
Expiry date	
Conversion ratio	

### Exercise price (final payment)

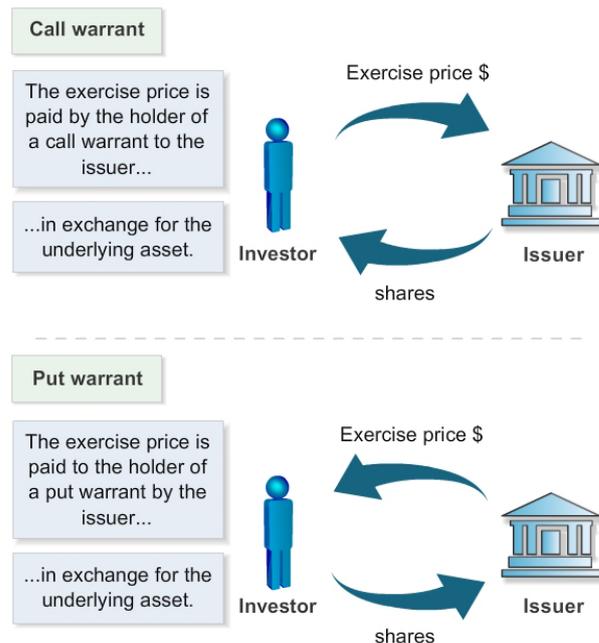
The exercise (or strike) price is the amount of money that must be paid on exercise of the warrant:

- by the warrant holder to the issuer, in the case of a call warrant, or
- by the issuer to the warrant holder, in the case of a put warrant.

The exercise price is generally fixed at the time the warrant is issued. However, in the case of some investment-style warrants, such as self-funding instalments and rolling instalments, the exercise price may be adjusted over time.

The exercise price may also be adjusted during the warrant's life if there is some corporate event that affects the value of the underlying asset, such as a share split or bonus issue. The PDS will explain how any such adjustments would be implemented.

For most warrants, the exercise price is denominated in Australian dollars. However the exercise price of index warrants is expressed in points, and some commodity and currency warrants may have an exercise price expressed in a foreign currency.



### Expiry date

The expiry date is the final date of the warrant's life. This is the last date on which the warrant may be exercised. At the end of this day, the warrant lapses, and the holder's right to exercise the warrant ceases.

If the warrant has been validly exercised, the issuer must deliver or take delivery of the underlying instrument, or make a cash payment according to the warrant's terms.

### Exercise style

A warrant is either American style exercise or European style exercise.

An American style instalment may be exercised at any time during the life of the warrant, while a European style warrant may be exercised only on the expiry date.

Exercise style	Able to exercise	
	Before expiry	At expiry
American	✓	✓
European	✗	✓

## Conversion ratio

The conversion ratio refers to the number of warrants that must be exercised in order to transfer the underlying instrument.

Some warrants convert on a 1:1 basis, while for others, the holder must exercise two or more warrants to buy/sell one underlying.

All else being equal, the higher the conversion ratio, the lower the price of the warrant. A warrant with a 2:1 conversion ratio should trade at roughly half the price of a warrant that converts 1:1.

You need to take into account the conversion ratio when comparing different warrants over the same underlying, and be sure to compare the warrants on a 'per share' basis.

First, check that the exercise price, expiry date and other important features of the warrants you are comparing are the same. Then, to compare on a per share basis, simply multiply each warrant's price by the warrant's conversion ratio.

Non-standard features a warrant may have include:

### Barriers

Some types of warrants, in particular knock-out warrants, have a barrier feature. If the price of the underlying breaches the specified barrier, an event occurs. For example, the issuer may have the power to terminate the warrant, or adjust the exercise price. The consequences of breaching a barrier are specified in the Disclosure Document.

### Caps

Some warrants have their upside potential capped at a certain level. A cap level is fixed by the issuer at the time of issue. If the value of the underlying is above the cap level on exercise or at expiry, settlement of the warrant is based on a return equal to the cap level.

As the profit potential is limited, a capped warrant should trade at a lower price than an uncapped warrant, all else being equal.

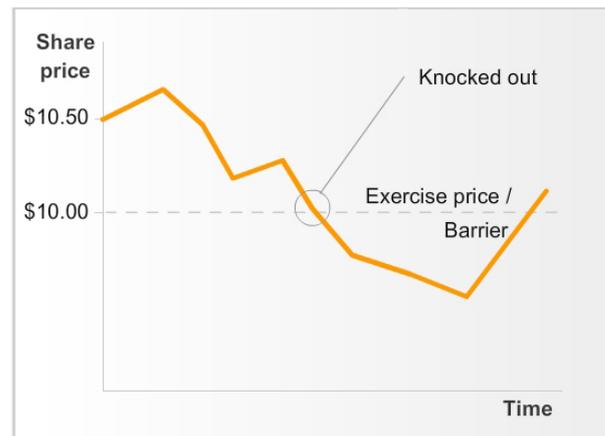
### Covered warrants

A warrant is 'covered' if the issuer places the underlying instrument in a trust or similar custodial arrangement on behalf of the holder. Most instalments are covered.

To compare the warrants on a per share basis, multiply each warrant's price by the conversion ratio.  
All else being equal, Warrant B represents the best value.

	Warrant 1	Warrant 2	Warrant 3
Exercise price	\$20.00	\$20.00	\$20.00
Conversion ratio	1:1	2:1	3:1
Warrant price	\$0.80	\$0.39	\$0.27
Warrant price (per share basis)	\$0.80	\$0.79	\$0.81

This call warrant has a barrier set at \$10.00. If the price of the underlying falls below the barrier, the warrant is terminated. This can mean that the holder misses potential future upside if the price recovers.



## Topic 3: Warrant pricing

How a warrant is priced depends partly on the type of warrant. In this topic we look at how trading warrants are priced.

Factors affecting the pricing of trading warrants are also relevant to the valuation of instalments, however the pricing of instalments must take into account additional variables such as dividend flows to the instalment holder.

The market value of a warrant can be divided into intrinsic value and time value.

### Intrinsic value

A warrant's intrinsic value is based on the difference between its exercise price and the current price of the underlying asset.

A call warrant has intrinsic value if the asset price is above the exercise price. A put warrant has intrinsic value if the asset price is below the exercise price.

A warrant with intrinsic value is 'in the money'. A warrant that is 'at the money' or 'out of the money' has no intrinsic value.

A warrant will invariably trade at no less than its intrinsic value.

### Time value

Time value is the remainder of the warrant's price above any intrinsic value.

When a warrant is at-the-money or out-of-the-money it has no intrinsic value, and the entire price is therefore made up of time value. An in-the-money warrant has both intrinsic and time value.

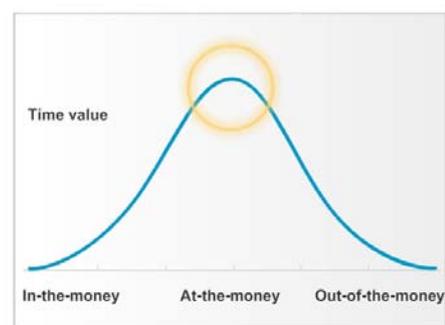
For example, assume XYZ shares are trading at \$20.50, and a call warrant with a \$20.00 exercise price is trading at \$0.80.

The intrinsic value of this warrant is \$0.50 (the share price of \$20.50 less the strike price of \$20.00). The remaining \$0.30 is the warrant's time value.

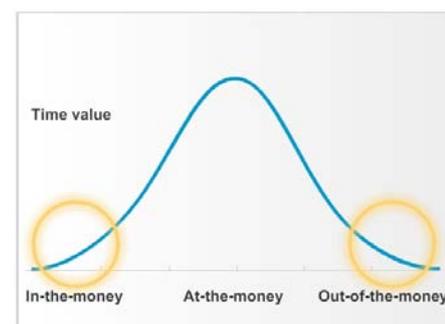
Time value declines over time in the process referred to as time decay. At expiry, the time value of the warrant is zero.

	Exercise price < asset price	Exercise price = asset price	Exercise price > asset price
Call warrant	In-the-money	At-the-money	Out-of-the-money
Put warrant	Out-of-the-money	At-the-money	In-the-money

The at-the-money warrant has the most time value



The further out of or into the money the warrant is, the less time value it has.



Not all warrants with the same time to expiry have the same amount of time value. The at-the-money warrant has the most time value, and the further the strike price is from the current stock price, the less time value the warrant has.

Time value is affected by several variables.

### Time to expiry

All else being equal, the greater the time to expiry, the higher the time value of the warrant.

As the buyer of a warrant, you want to see as large as possible a movement in the price of the underlying before expiry. The longer there is until expiry, the greater the possibility for such a movement - and therefore the more you will be prepared to pay for the warrant.

As time passes, time value decreases. Time decay is not constant, but accelerates as expiry approaches. As a rule of thumb, a warrant loses around one third of its time value during the first half of its remaining life, and two thirds during the second half of its life.

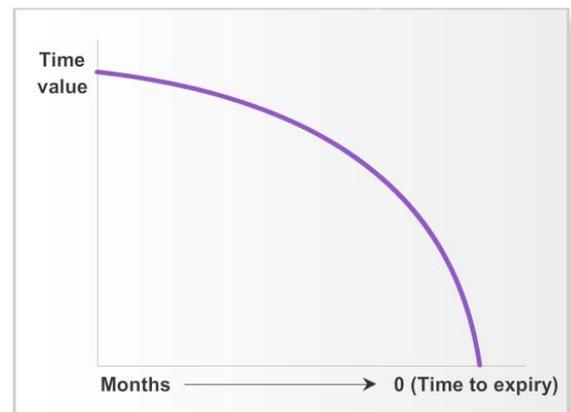
It is essential to understand that time decay always works against the warrant holder, and that a warrant is a wasting asset with a limited life.

### Volatility

The more volatile the underlying asset, the higher the price of the warrant will be, all else being equal.

Volatility refers to the way the price of the underlying asset behaves, specifically the size and frequency of price movements. If the price tends to move rapidly over a wide range, the asset is more volatile than an asset that usually shows less rapid movements over a narrower range.

Volatility varies widely among stocks traded on ASX. Historically, stocks, such as the major banks, have tended to trade with relatively low volatility, while others, such as many of the resource stocks, have tended to trade with relatively high volatility. Volatility can also vary significantly over time, both for individual stocks, and for the market as a whole.



Higher volatility leads to higher warrant prices, both call and put warrants. The more volatile a stock is, the greater the chance of a big movement in the stock price - and the larger your potential profits and losses.

### Interest rates

An increase in interest rates will lead to more expensive call warrants and cheaper put warrants, all else being equal.

This is due to the funding cost/benefit built into the warrant position.

By buying a call warrant you can defer paying for the underlying until the warrant's expiry date, and invest the funds elsewhere during this period. The higher interest rates are, the more interest you can earn, and the more the call warrant is worth to you.

The effect of an interest rate rise is the opposite for puts, as you are deferring the receipt, rather than the expenditure of funds.

### Dividends

If the underlying stock goes ex-dividend during the warrant's life, the price of a call will be lower, and the price of a put higher, than if no dividend was payable.

This is due to the fall in the stock price that usually occurs on the ex-dividend date. The impact of dividend payments on instalments is different, as the holder usually receives the dividends paid.

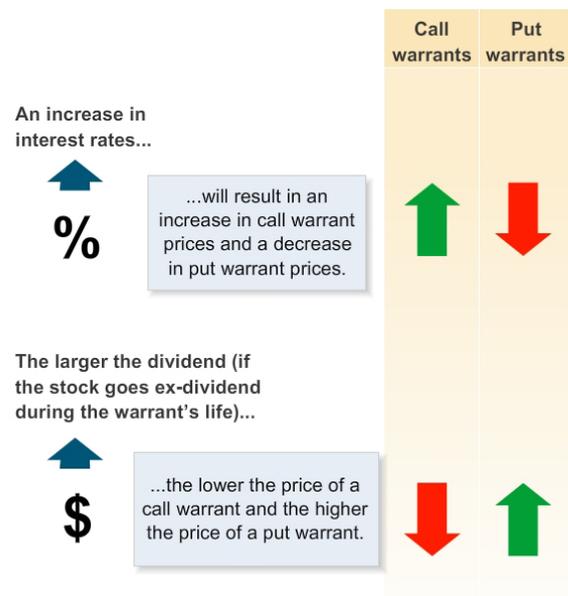
### Delta

Delta is a measure of how a warrant's price should change given a certain change in the price of the underlying.

A warrant's delta is between 0 and 1.

Call deltas are positive, indicating that the warrant's price moves in the same direction as the price of the underlying. Put deltas are negative, indicating that the warrant's price moves in the opposite direction to the price of the underlying.

At-the-money warrants usually have a delta of around 0.5, or 50%. A warrant's delta increases, the deeper into the money the warrant is, and decreases, the further out of the money the warrant is.



Given an increase in the underlying shares of \$0.50...



---

For example, if a call warrant has a delta of 0.7, or 70%, and the price of the underlying shares rises by \$0.10, you would expect the price of the warrant to rise by \$0.07.

If a put warrant has a delta of -0.3, and the price of the underlying shares rises by \$0.10, you would expect the price of the warrant to fall by \$0.03.

## Topic 4: Warrant issuers

### Approved warrant issuers

Warrants may only be issued by a bank or other financial institution approved by the Australian Securities Exchange (ASX) as a warrant issuer.

ASX Market Rules set out stringent criteria that an issuer must meet in order to be approved to issue warrants.

In brief, to be eligible to issue warrants, an institution must:

- Be regulated under the Banking Act 1959, or
- Hold an Australian Financial Services Licence, have an investment grade credit rating, and meet certain capital requirements, or
- Be a government, or
- Have a guarantor that meets at least one of the above criteria, or
- Propose to issue fully covered warrants.

The table opposite sets out the 13 approved warrant issuers as at June 2008, including the letter that identifies the issuer as part of a warrant code.

Issuer letter	Warrant issuer	Issuer code
B	Gold Corporation (The Perth Mint)	GCB
C	Credit Suisse AG	CFB
E	Challenger Equities Ltd	CQL
J	Signum Blue Ltd (Arranger: Goldman Sachs JBWere Capital Markets Ltd)	SNB
M	Macquarie Bank Ltd	MBL
O	CitiWarrants (Citigroup Global Markets Australia Pty Ltd)	CTW
S	UBS AG	UBS
W	Westpac Banking Corporation Ltd	WBC
X	Merrill Lynch International and Co. CV	MER
Y	Commonwealth Bank of Australia Ltd	CBA
Z	Royal Bank of Scotland	ABM

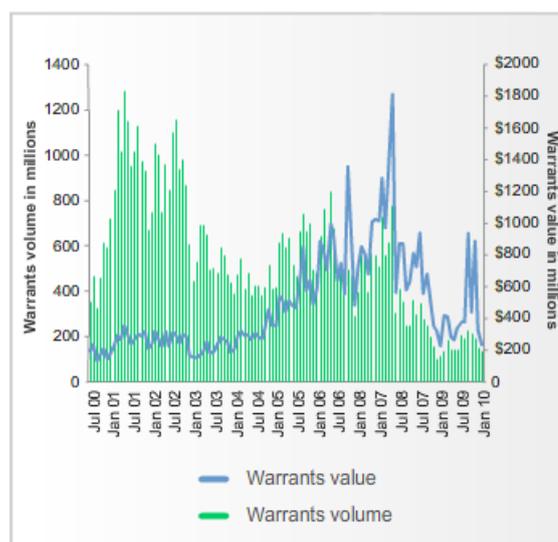
### Role of warrant issuers

Issuers have a central role in the warrants market.

Aside from issuing warrants, one of the most important functions of an issuer is to develop new products in response to investor demand. Over the years, warrant issuers have become very creative in structuring products to appeal to a wide range of investors. Because warrants are not a standardised product like exchange traded options, there is the flexibility to tailor products to suit specific investor needs.

Other responsibilities of the issuer include:

- Providing liquidity for warrant traders in the secondary market
- Meeting obligations under the terms and conditions contained in the warrant's PDS, and



- Providing information such as indicative pricing matrices and educational material.

### Market making obligations

Warrant issuers have certain obligations in the interests of promoting a liquid market in which warrant holders can sell their warrants.

Under ASX Market Rules, issuers have a choice.

They can ensure that the warrant series has an initial spread of holders that, in the opinion of ASX, is adequate and reasonable, or they can arrange for a market to be made in the warrant series on an ongoing basis. In practice, most issuers choose to meet their obligations by making a market.

'Making a market' means ensuring that a reasonable bid and volume is maintained in the market for a prescribed period of the trading day.

As a result, there should be a price quoted on the Integrated Trading System (ITS) at which warrant holders will be able to sell during most of the normal Trading Day. Warrant issuers will usually display an offer as well as a bid price.

For more details, please refer to [Warrants market making](#) on the ASX website.

### Indicative pricing matrices

Many warrant issuers publish an indicative pricing matrix for their warrants on a daily basis.

The matrix sets out various prices for the underlying for the day, and gives the issuer's expected bid/offer spread for the warrant for that underlying price.

These prices are not guaranteed, and should be used only as a guide. Changes in volatility or other price sensitive variables may mean that the issuer's buy/sell spread varies from that specified in the matrix.

You can find a warrant's indicative price matrix on the issuer's website. The issuer may also distribute the information via email.

ID	BQty	Bid	Ask	AQty	Last	High	Low	Open
BHPUMA	1,000	29.5	38.5	10,000	29.5	29.5	24.0	25.0
BHPUMB	1,000	38.5	45.0	3,000	39.0	40.0	33.0	33.0
BHPUMC	1,000	577.0	602.0	1,000	573.0	573.0	573.0	573.0
BHPUMD	1,000	357.0			353.0	353.0	309.0	312.0
BHPUME	1,000	19.5						
BHPUMF	1,000	14.5			14.5	14.5	14.0	14.0
BHPVMJ	1,000	0.1						

#### AGKIZR

Exercise Price:	\$5.75
Type:	Instalment
Expiry:	Dec 03, 2009
Conversion Ratio:	1
Delta:	0.9743

Stock Price:	Bid:	Offer:
1325	800.6	801.1
1330	805.5	806.0
1335	810.4	810.9
1340	815.3	815.8
1345	820.1	820.6
1350	825.0	825.5
1355	829.9	830.4

## Disclosure documents

Each time a warrant issuer issues a warrant, the terms and conditions of the warrant must be set out in a disclosure document, also known as a Product Disclosure Statement (PDS). The ASX Market Rules and the Corporations Act specify the information and terms that must be included in this document.

The disclosure document contains information to help you assess the benefits, risks, features, rights and obligations associated with a warrant, and the issuer's capacity to fulfil its obligations.

Because warrants are not standardised, there can be significant differences between warrants offered by the various issuers, and even between different warrant series offered by the one issuer. It is therefore essential to read the PDS for a warrant you are considering investing in, to ensure that it is appropriate for your financial situation and objectives.

A warrant's disclosure document is available from:

- the [warrant issuer](#) (either in electronic format or hard copy)
- your broker
- the ASX website through the [Warrant Price Search](#) function.

## Warrant codes

Each warrant has a six-character ASX code, to distinguish it from the thousands of other warrants on issue.

The individual letters of the code describe some of the main features of the warrant:

- the first three characters of the code identify the underlying instrument. For most equity and instalment warrants this is the same as the three-letter ASX code of the underlying company shares.
- the fourth character of the code identifies the type of warrant
- the fifth character of the code identifies the [warrant issuer](#)



The screenshot displays the ASX website interface. At the top, there is a navigation bar with the ASX logo and links for 'ASX Connect', 'Home', 'Contact Us', and 'Help'. Below this is a search bar and a 'Price search' section with a 'Search' button. The main content area features a 'What are Warrants?' section with a video player and text explaining that a warrant is a form of derivative that derives its value from an underlying instrument. It also includes a 'Why trade Warrants?' section and a 'More about Warrants' link. To the right, there is an 'Events' calendar and a 'What's new' section. At the bottom, there is a 'Types of Warrants' section with icons for 'Investment Warrants' and 'Trading Warrants', and a grid of resources including 'Trading strategies', 'Find a broker', 'Find a planner', 'Podcasts', 'Warrants video', 'Booklets & brochures', 'Calculators', 'Portfolio studies', 'Online courses', 'Trading info', 'Market info', 'Market update', and 'Do you know the rules?'. A 'Get a price' section is also visible on the right side.

- the sixth character of the code identifies the particular warrant series. For trading-style warrants the range A to O is used for call warrants, while the range P to Z is used for put warrants. In addition, the range 1 to 9 may be used for call and put warrants.

For a detailed explanation of warrant codes, please refer to [Understanding warrant codes](#).

**ANZIOG**

Underlying security - ANZ shares

**ANZIOG**

Warrant type - instalment

**ANZIOG**

Warrant issuer - CitiWarrants

**ANZIOG**

Warrant series - G

## Topic 5: Risks of warrants

### Counterparty risk

Since a warrant is a contract between the issuer and the warrant holder, you are exposed to the risk that the issuer will not perform its contractual obligations under the warrant. The ASX does not guarantee that the warrant issuer will perform its contractual obligations to you.

The National Guarantee Fund (NGF) covers the secondary trading of warrants on ITS, but not the issue of a warrant on the primary market, nor the settlement obligations of the issuer arising from exercise or expiry.

The stringent criteria an institution must meet to be accepted as a warrant issuer are designed to minimise the credit risk of dealing with the issuer. To date, no warrant issuer on ASX has defaulted on its obligations to settle upon exercise of a warrant.

To help you evaluate the ability of the issuer to meet its obligations, the warrant's disclosure document contains information on the financial situation of the issuer. An issuer may also be rated by a credit rating agency such as Moody's or Standard & Poor's.

### Performance of the underlying asset

The success of an investment in a warrant depends above all else on the performance of the underlying asset during the instalment's life.

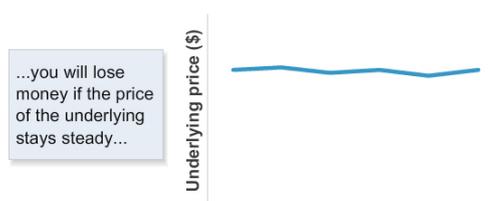
In the case of a warrant that gives you the right to buy the underlying asset (such as an instalment, or an equity call warrant), if the value of the underlying does not rise, you will not make a profit on your investment.

In the case of a warrant that gives you the right to sell the underlying asset (such as an equity put warrant), you will not make money on the warrant unless the price of the underlying asset falls.

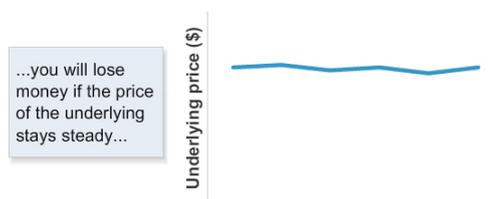
In both cases, even if the price of the underlying shares stays steady, you will lose money on the warrant due to time decay.

	Covered by NGF
Secondary trading on ASX	✓
Issue of warrant on primary market	✗
Issuer's obligations on exercise or expiry	✗

If your warrant gives you the right to **BUY** the underlying...



If your warrant gives you the right to **SELL** the underlying...



The risk of an unfavourable movement in the price of the underlying asset is also referred to as 'market risk'.

### Leveraged losses

Market risk of course also applies to an investment in shares - a loss will result if the share price moves unfavourably.

However, the leverage that almost all warrants offer magnifies losses in percentage terms. The more highly geared the warrant is, the more damaging this effect.

For a given movement in the price of the underlying asset, you get a larger movement, in percentage terms, in the price of the warrant. So if you have bought a call warrant, and the price of the underlying shares falls, your percentage losses from the warrant will be greater than if you held the share itself.

For example, the table opposite compares an investment in BIG shares at \$10.00 with the purchase of call warrants over BIG shares with an exercise price of \$10.00.

A 10% fall in the value of shares by expiry of the warrant results in a loss of 100% on the investment in warrants.

...this represents a loss of 100% on the warrants, compared to a loss of 10% on the shares.

Asset	BIG Shares	BIG 1000 Call warrant
Purchase price	\$10.00	\$0.53
Price at expiry	\$9.00	\$0.00
Loss	\$1.00	\$0.53
Return	-10%	-100%

### Liquidity risk

Liquidity risk is the risk that you may be unable to sell your warrants for a reasonable price in the market. There may be insufficient orders to buy the warrants, or the price being offered may be too low. Sometimes a lack of liquidity in a warrant series may be due to a lack of liquidity in the underlying shares.

Under ASX Market Rules, issuers have certain obligations that are intended to promote a liquid market. Issuers generally meet these obligations by making markets in their warrants.

However, in times of extreme volatility, the ability of market makers to maintain a market may be put under stress. The presence of suitable quotes in the market at such times cannot be assured.

### Currency risk

Some warrants, for example currency warrants, or warrants over overseas indices, may be denominated in a foreign currency. An investment in such warrants exposes you to the risk of an unfavourable movement in

This is an example of low liquidity.

ID	BQty	Bid	Ask	AQty	Last	High	Low	Open
BHPJZT	1	647.0						
BHPJZU	1	228.0						
BHPJZZ	1	433.0						

This is an example of adequate liquidity.

ID	BQty	Bid	Ask	AQty	Last	High	Low	Open
BHPUMA	1,000	29.5	38.5	10,000	29.5	29.5	24.0	25.0
BHPUMB	1,000	38.5	45.0	3,000	39.0	40.0	33.0	33.0
BHPUMC	1,000	577.0	602.0	1,000	573.0	573.0	573.0	573.0

the exchange rate of the relevant currency against the Australian dollar.

### Early termination

In certain circumstances an issuer may terminate a warrant before the expiry date.

Issuers often reserve the right to nominate certain extraordinary events which may result in the early expiry of a warrant series. The warrant's disclosure document will set out the types of events which may be nominated as extraordinary, and the consequences of an extraordinary event occurring.

Examples of extraordinary events include:

- the suspension of trading in the underlying security
- the delisting of the underlying company
- a takeover of the underlying company.
- Possible consequences of an extraordinary event occurring include:
  - the warrant's expiry date may be brought forward
  - the exercise price may be adjusted, or
  - the warrant may lapse with a payment to the holder.

