

Warrants

LEVERAGE PRODUCTS WITHOUT KNOCK-OUT

"Dinosaurs and evergreens – then and now, experienced market participants revert to warrants which qualify both as hedging instrument and to speculate on rising and falling markets."

Warrants enable investors with a high risk appetite to benefit above average and at little capital expenditure in rising or falling prices of the underlying.



A warrant enables investors with the right buy (call) oder sell (put) an underlying at the predetermined price during a definite period of time (American) oder a certain point in time (European).

- The **underlying** of a Warrant can be a share, an index or a commodity.
- The **multiplier** indicates the number of units of the underlying to which the certificate refers, e.g. in case of a subscription ratio of 0.01, 100 units of the certificate refer to 1 unit of the underlying.
- A **"call"** entitles the investor to purchase the underlying at a fixed price, whereas a **"put"** is the right to sell the underlying at a fixed price. Both bear above average profit opportunities as well as higher risk up to the risk to suffer a total loss.
- The **strike** is the price at which the buyer of the option can purchase or sell the underlying.
- The **type of exercise** indicates whether the Warrant can be exercised during the entire term (American) or only at the end of the term (European).
- The **price of the warrant** is composed of the intrinsic value and the time value and increases or decreases depending on various influencing factors, in particular volatility.



Certificates by



**Raiffeisen
CENTROBANK**

Warrants

Small outlay, big effect

The idea behind

Investors with clear-cut expectations of a share's, an index's, or a commodity's performance can make use of a leverage effect by means of warrants.

Compared to a direct investment, warrants enable investors to generate substantial profit at comparably low capital expenditure – however, at the risk that the warrant expires worthless if the underlying's performance does not meet the investor's expectations. With a call warrant, the investor expects the underlying's price to increase, with a put option the investor benefits from a decrease of the underlying's price. Thus, put warrants are suited to hedge securities positions.

Functionality

Every warrant is composed of five key elements: underlying, multiplier, strike, term and type of exercise.



When purchasing a warrant, the investor acquires the right (but not the obligation) to buy (call) or sell (put) the underlying at a fixed price (strike) at a fixed date at the end of the term (European) or at any time during the term (American).

The warrant's performance primarily depends on the underlying's performance, however, a number of other factors are also involved. Of particular importance is the expected volatility; in addition the remaining term, anticipated dividend payments and market interest rates also play a role.

Warrants are rarely exercised because of their tradability. They are usually sold on the secondary market. At the end of the term, i.e. upon expiry, the investor obtains the warrant's value ("cash settlement") or the warrant expires worthless, depending on whether the underlying quotes above or below the strike.

Warrants qualify for the subsequent market expectations of investors:



Excursus: volatility

Volatility is a statistical measure to determine the degree of variation of an underlying. Actual volatility can be precisely calculated only for a specified period in the past. However, as warrants consider a future period of time, the historical volatility does not apply and the issuer has to include volatilities expected to be seen in the days and months ahead (i.e. for the warrant's remaining term) into the warrant's price calculation- this is referred to as implied volatility. If implied volatility is high, the underlying is expected to vary substantially.

If the underlying's implied volatility increases, so does the price of the warrant. If the underlying's implied volatility decreases, so does the price of the warrant.

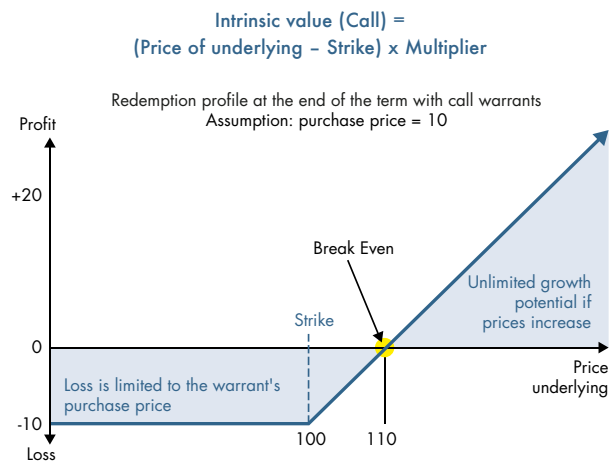
Product variants

▪ Call warrant (uncapped)

An investor who anticipates a rise of the underlying would purchase a call warrant which confers the right to "call" for the delivery of the underlying at a specific predetermined price.

Call warrants securitizes the holder the right to buy the underlying, e.g. a share, at a specific price (strike) on (European) or before (American) a specific date.

The warrant's price during the term is derived from the intrinsic value and the time value. At the end of the term, the time value comes to zero and the warrant's price equals the intrinsic value.



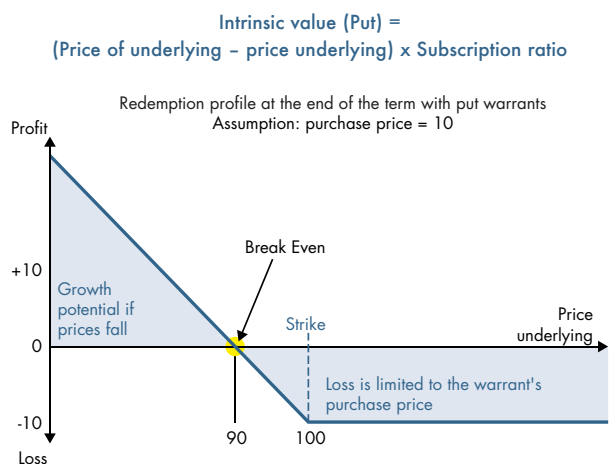
If the investor's market expectation does not come true and the underlying quotes below the strike at the end of the term, the warrant expires worthless

▪ Put warrant (uncapped)

An investor who anticipates a decrease of the underlying would purchase a put warrant which confers the right to "put" the underlying for sale at a specific predetermined price, i.e. the issuer is obliged to acquire the underlying at a specific price.

Put warrants securitize the holder the right to sell the underlying, e.g. a share, at a specific price (strike) on (European) or before (American) a specific date.

According to a call warrant, a put warrant's price during the term is derived from the intrinsic value and the time value. At the end of the term, the time value comes to zero and the warrant's price equals the intrinsic value.



If the investor's market expectation does not materialize and the underlying quotes at or above the strike at the end of the term, the warrant expires worthless.

EXAMPLE 1: Call warrants

The investor anticipates the YZ share to rise and buys the following call warrant:

Underlying	YZ share
Term	1 year
Share price	EUR 100
Strike	EUR 100
Multiplier	1
Warrants purchase price	EUR 9

At the end of the term, the YZ share has risen to EUR 120. At the expiration date, the warrant's price comes to EUR 20.

$$\begin{aligned}\text{Intrinsic value (Call)} &= \\ (\text{Price underlying} - \text{Strike}) \times \text{Multiplier} &= \\ (120 - 100) \times 1 &= 20\end{aligned}$$

The investor generates a profit of EUR 11 (price at the expiration date minus purchase price)

→ Hence, the investor benefits from the warrant's leverage effect: The share posts an increase of 20% and the profit - in relation to the warrant's purchase price - comes to 122.22%.

$$\text{Yield} = \left(\frac{\text{Profit}}{\text{Purchase price}} \right) \times 100 = \left(\frac{11}{9} \right) \times 100$$

A call warrant enables the investor to generate profit if the underlying's price exceeds the break even of EUR 109.

If the share quotes at EUR 100 or decreases, the warrant expires worthless.

EXAMPLE 2: Put warrants

The investor anticipates the YZ share to fall and buys the following put warrant:

Underlying	YZ share
Term	1 year
Share price	EUR 100
Strike	EUR 100
Multiplier	1
Warrants purchase price	EUR 9

At the end of the term, the YZ share has dropped to EUR 70. At the expiration date, the warrant's price comes to EUR 30.

$$\begin{aligned}\text{Intrinsic value (Put)} &= \\ (\text{Strike} - \text{Price underlying}) \times \text{Subscription ratio} &= \\ (100 - 70) \times 1 &= 30\end{aligned}$$

The investor generates a profit of EUR 21 (price at the expiration date minus purchase price)

→ Hence, the investor benefits from the warrant's leverage effect: The share posts a loss of 30% and the profit- in relation to the warrant's purchase price- comes to 233.33%.

$$\text{Yield} = \left(\frac{\text{Profit}}{\text{Purchase price}} \right) \times 100 = \left(\frac{21}{9} \right) \times 100$$

A put warrant enables the investor to generate profit if the underlying's price reaches or undercuts the break even of EUR 91. As the share cannot decrease below zero, the maximum profit comes to EUR 91.

If the share increases, the warrant expires worthless.

Key valuation factors

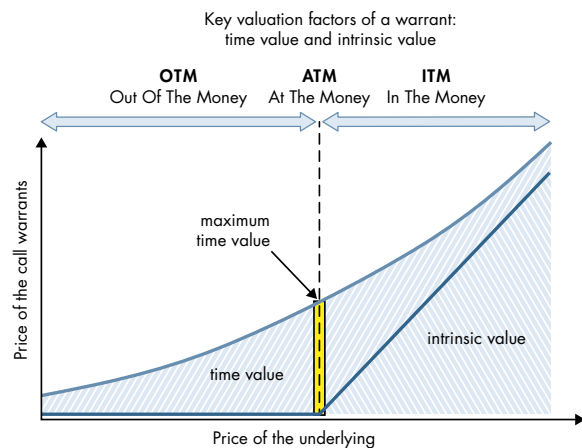
A warrant's price during the term is related to:

$$\text{Warrant price} = \text{Intrinsic value} + \text{time value}$$

- The **intrinsic value** is the difference between the underlying's current price and the warrant's strike. The intrinsic value and the time value make up the warrant's price during the term.
- The **time value** is the share of the warrant's price that is not covered by the intrinsic value. An option's time value is highest if the strike quotes at the same level as the underlying's price and decays to zero towards the end of the term. The warrant's price and the intrinsic value are approximating over time. Moreover, the time value is influenced by volatility, dividends and interest rates.

The intrinsic value and the time value are both subject to the above influencing factors. If any of the subsequent variables rises or decreases, the warrant's price changes.

Price underlying ↑ Call ↑ / Put ↓ (intrinsic value) the higher the more expensive gets the call, the cheaper gets the put	Basispreis ↑ Call ↓ / Put ↑ (intrinsic value) the higher, the cheaper gets the call the more expensive gets the put	Remaining term ↓ Call ↓ / Put ↓ (time value) the shorter, the cheaper
Dividend ↑ Call ↓ / Put ↑ (time value) the higher, the cheaper gets the call, the more expensive gets the put	Implied volatility ↑ Call ↑ / Put ↑ (time value) the higher, the cheaper	Interest rate ↑ Call ↑ / Put ↓ (time value) the higher, the more expensive gets the call, the cheaper gets the put



In the money, at the money, out of the money – potential scenarios of call and put warrants

Depending on the warrant's strike in relation to the underlying's price, a warrant is at, in or out of the money. The types of moneyness enable the investor to estimate the warrant's performance in relation to changing market situations.

- If the warrant has an intrinsic value, it quotes "in the money".
- If the warrant has no intrinsic value, it quotes "out of the money".

	Call	Put
Price underlying > strike	in the money	out of the money
Price underlying = strike	at the money	at the money
Price underlying < strike	out of the money	in the money

Portfolio hedging with warrants

To put it short: If an investor wishes to hedge e.g. a share position against falling prices, put warrants on this share are required given a warrant's multiplier of 0.1 per share.

If the share drops, the put rises – acquisition costs (purchase price) similar to an insurance premium against falling prices must be kept in mind. Different strikes provide for different hedging levels.

EXAMPLE 3: Portfolio hedging

The investor owns 1 XY share at EUR 43 and intends to look at the portfolio only in one year's time. Nevertheless, the investor wishes to be protected against major losses of the XY share during that year.

The investor is prepared to accept losses of up to 10%, i.e. EUR 4 or a share price of EUR 39. The following put can serve as a hedge:

Underlying	XY-share
Share price	EUR 43
Term of the warrant	1 year
Strike	EUR 39
Warrants purchase price	EUR 0.45

At multiplier of 0.1 requires 10 warrants per share. A warrant costs EUR 0.45, i.e. 10 warrants are EUR 4.50. The "hedging premium" is thus at roughly 10.5% of the share's price.

$$\text{"hedging premium"} = (\text{acquisition costs} / \text{share price}) \times 100$$

After one year, one of the following four scenarios will apply:

- 1. Share quotes above the EUR 43
→ Investor benefits from price increase, the hedging premium diminishes the profit.
- 2. Share still quotes at EUR 43
→ Investor neither generated profit nor loss. However, the investor bears the costs of the hedging premium.
- 3. Share quotes between EUR 39 and EUR 43
→ Put warrant did not get into the money. The investor suffers a loss (risk tolerance). The hedging premium increases the loss.
- 4. Share quotes below EUR 39
→ The warrant is in the money and the hedging premium applies: The rise of the put warrant at the expiration date cushions off the loss generated by the share.
Please see the following examples:

Share price	Share loss	Price 10 puts	Loss with puts
EUR 35	EUR 8 (-18.6%)	EUR 4 (39-35)	EUR 4 (-9.3%)
EUR 30	EUR 13 (-30.2%)	EUR 9 (39-30)	EUR 4 (-9.3%)
EUR 21	EUR 22 (-51.2%)	EUR 18 (39-21)	EUR 4 (-9.3%)

Scenario 4 shows the break even, i.e. the point in time when the hedging strategy pays off taking purchases cost of EUR 4.50 at EUR 34.50 into account.

In the scenarios 1, 2 and 3 the hedging premium did not pay off. Equal to a "common insurance", the investor paid the hedging premium in vain.

▫ **What should you bear in mind for all types of certificates?**

Certificates bear an "issuer risk" and the possibility of a "bail-in".

As bearer bonds, certificates are not covered by the deposit insurance scheme. The certificate holder is exposed to the risk that the issuer might be unable to fulfil its obligations in respect of the certificate, such as in the event of insolvency (inability to pay/over-indebtedness). Such risk is referred to as "issuer risk" or "credit risk". In addition, the Austrian Act on Recovery and Resolution ("BASAG") applies which governs procedures to resolve and recover banks. Holders of certificates might be affected by such supervisory measures ("bail-in") as regards their claims. In all types of certificates a loss of the total or substantial part of the capital invested is possible.

More detailed information is available at www.rcb.at/en/customerinformation



Warrants – details you should be aware of:

- **Leverage, leverage effect:** Due to the Warrant's leverage effect price fluctuations of the underlying have an above average impact on the Warrant's price. Yet a minor, unfavourable performance of the underlying can result in a major loss even a total loss of the invested capital. The likelihood to suffer a total loss increases.
- **Market risk:** The value of a Warrant is dependent on the underlying's performance. An unfavourable performance of the underlying may result in price fluctuations of the certificate. This may result in a partial or even total loss of the invested capital.
- **Performance:** The Warrant's price is not only dependent on the underlying's performance but on various influencing factors such as the underlying's volatility, interest rates, issuer's solvency or remaining term. Selling the warrant prior to maturity may result in a partial or even total loss of the invested capital.
- **Currency risk:** If the underlying quotes in a currency that is different to the certificate's currency, and the certificate is not currency hedged, exchange rate fluctuations during the term impact the price of the Warrant. Due to the market risk, this may increase the potential loss.
- **Payouts of the underlying:** Dividends and similar payouts of the underlying are taken into account in the certificate's structuring and are not paid out.

Please note the information on issuer and bail-in risk in the section "Basic Knowledge of Certificates" as well as the comprehensive information available on the website at www.rcb.at/en/customerinformation



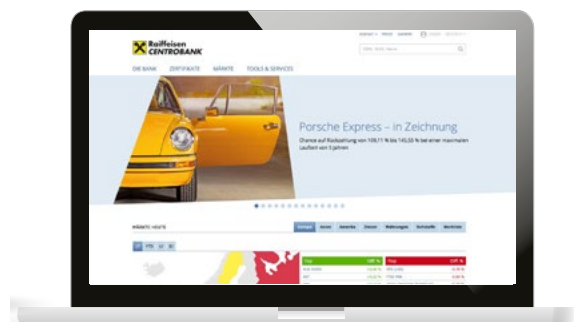
"Warrants are suited to realise a strong market opinion or to hedge positions."

Marianne Kögel
Sales Structured Products, RCB

FURTHER INFORMATION

Website: www.rcb.at

On the website of Raiffeisen Centrobank AG you will find current prices as well as all relevant marketing and legal documents relating to our certificates. In addition, we inform you about new subscriptions and the latest news in the world of certificates. The responsive design of the RCB website also allows an optimal use on a smartphone or tablet. www.rcb.at



Video series: Certificates Knowledge Compact

Within the video series "Certificates Knowledge Compact" certificates expert Stefan Neubauer explains the functionality and payout profiles of the following certificate categories: Capital Protection Certificates, Bonus Certificates, Express Certificates and Reverse Convertible Bonds.

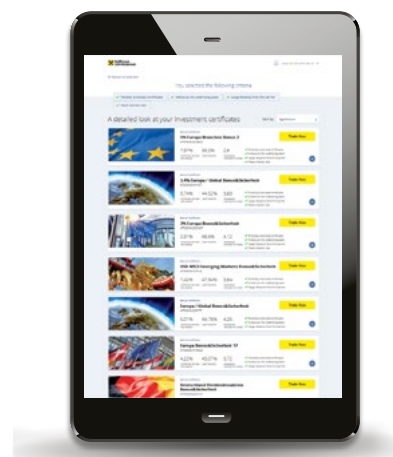
www.rcb.at/en/certificates/know-how



Certificate Finder

The investment certificate finder is intended to provide an introduction to the world of capital protected certificates, bonus certificates, and reverse convertible bonds from our vast range of products (roughly 8,000 investment certificates). It is based on around 30 products that are updated in line with the market conditions every two weeks. The investment certificate finder allows you to define whether the invested capital should be protected (capital protected certificates) or whether you prefer only partial protection in favour of a higher return (bonus certificates/reverse convertible bonds). At the end of the process, the available products with the most matches are sorted based on the other criteria you select.

www.certificatefinder.at

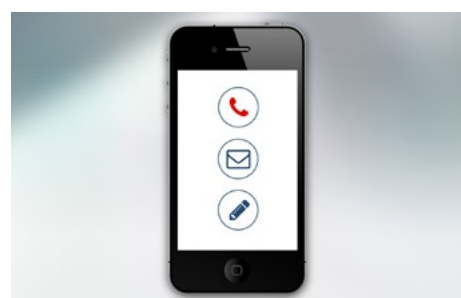


Product hotline

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Basic Information Sheet (KIDs): For the securities described herein, a key information document (KID) is available. This can be obtained free of charge and in English by entering the securities identification number (ISIN) of the security at www.rcb.at.

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Structured Products



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