

# Barrier Reverse Convertibles (BRC)

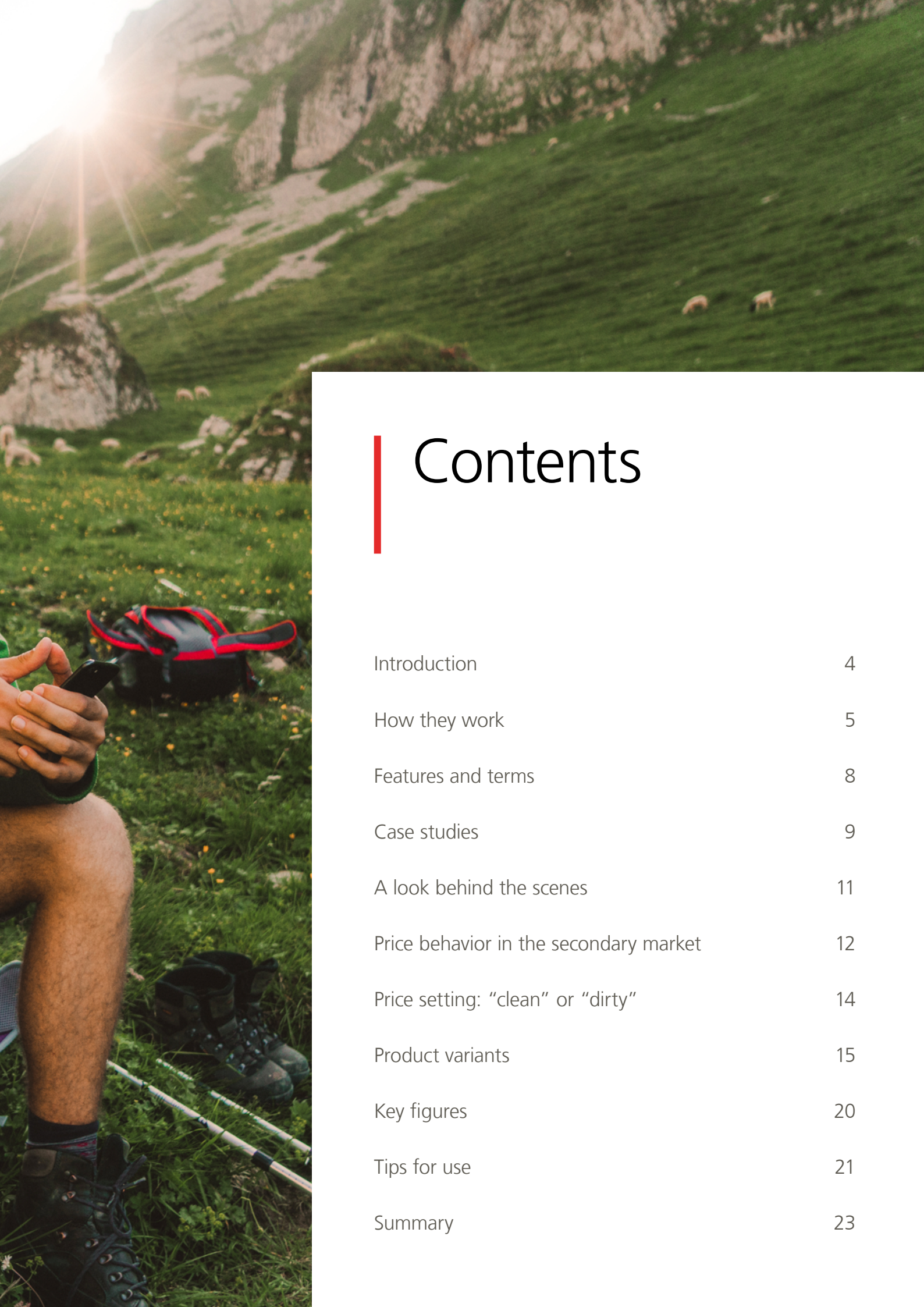
The coupon makes the difference



**UBS**

Barrier Reverse Convertibles are similar to bonds in many respects: They are fixed-interest securities that have a certain term to maturity and on whose nominal value a fixed, pre-agreed coupon is paid.





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# BRCs: guaranteed coupon for sideways-trending underlyings

Are you looking for an investment that offers you attractive coupon payments?

If so, then Barrier Reverse Convertibles – BRCs for short – could be exactly the right choice for you. This is because these yield enhancement products will provide you with a coupon that is sometimes significantly higher than the interest rate of bonds. The coupon is fixed in advance and is paid out without any other conditions having to be met. This means that returns are distributed regardless of how the underlying on which the product is based performs.

Would you also like to generate returns in stagnating markets?

Barrier Reverse Convertibles have conditional partial protection in the form of a barrier. The barrier is fixed at a certain level below the price of the underlying when the BRC is issued. If the barrier is never touched or breached during the term of the product, the nominal will be repaid. This means that in addition to the fixed coupon payment, you will also be paid back your invested capital in full at the end of the term. You therefore have the opportunity to achieve an attractive return on underlyings with a stable or moderately negative performance.

Would you like an investment that caters to your wishes?

There are BRCs based on numerous underlyings, with each BRC having very different features. Due to the fine adjustment of the various parameters, investors can to some degree control the level of opportunity and risk to which they are exposed with BRCs. You can choose between products with very low barriers if you value having a high safety buffer. Alternatively, you can make do with a smaller barrier distance and in return enjoy a correspondingly higher coupon. Additional features ensure further room for maneuver, e.g. the opportunity to double the coupon. Higher returns are also generated with BRCs that are based on multiple underlyings – these are referred to as Multi Barrier Reverse Convertibles.

Be aware: you cannot generate attractive returns without taking risks.

Despite the conditional partial protection, Barrier Reverse Convertibles come with some risks. If the barrier is breached, the partial protection lapses and your loss risk reverts to that of a direct investment in the underlying – however, losses are reduced by the coupons received. Something else to keep in mind is that BRCs do not participate in the positive performance of the underlying. The maximum return opportunity is limited to the coupon payment.

Want to know more?

Read through the following pages for a detailed explanation of how these investment instruments work, the market phases in which the instruments demonstrate their advantages and the different types of products available.

# How do Barrier Reverse Convertibles work?

Barrier Reverse Convertibles are in many respects similar to bonds, i.e. they are fixed-income securities that have a specific term and a fixed, previously agreed coupon is paid out on their nominal. The investor is credited on the agreed payment days. The frequency at which the coupon payments are made, e.g. quarterly, every six months or annually, are dependent on the product terms and conditions.

They differ from bonds in the way in which repayment takes place. While the full nominal is usually always paid back with traditional bonds at the end of their terms, this is not the case in every scenario with Barrier Reverse Convertibles. In fact, the amount repaid depends on the performance of the underlying, which is usually equities or equity indices. Barrier Reverse Convertibles that are based on multiple underlyings are particularly popular. To find out why, read the section entitled "Multi Barrier Reverse Convertibles".

There are generally three repayment scenarios possible:

## Scenario 1

The price of the underlying **is at or above the starting level** (strike) at the expiration date, regardless of whether the barrier was touched or not.

Repayment of **100% of the nominal**.

## Scenario 2

The price of the underlying is **below the starting level** (strike) at the expiration date, but the barrier was never touched or breached during the term.

Repayment of **100% of the nominal**.

## Scenario 3

The price of the underlying **touched or breached the barrier** during the term and is **below the strike** on the expiration date.

Repayment by means of **physical delivery** of the underlying in accordance with the conversion ratio or by means of a **cash settlement** in line with the closing price of the underlying, applying the conversion ratio.

The following points must be observed with regard to how these instruments work:

- Regardless of the repayment, the **fixed coupon payments** are made on the agreed payment dates in all scenarios.
- The **strike** and the **barrier** are fixed by the issuer at the start of the term (the pricing date), with the strike normally being at the current level of the underlying price and the barrier set at a previously defined level below this (e.g. at 70% of the current underlying price). The rule is, the lower the barrier, the larger the buffer against price drops in the underlying and the larger the probability of the nominal being repaid in full.
- The conversion ratio is calculated by dividing the nominal of the Barrier Reverse Convertible by the strike. In the case of a strike of e.g. CHF 50 and a nominal of CHF 1,000, the conversion ratio would be 1:20.
- The **term** of Barrier Reverse Convertibles is usually between one and three years.

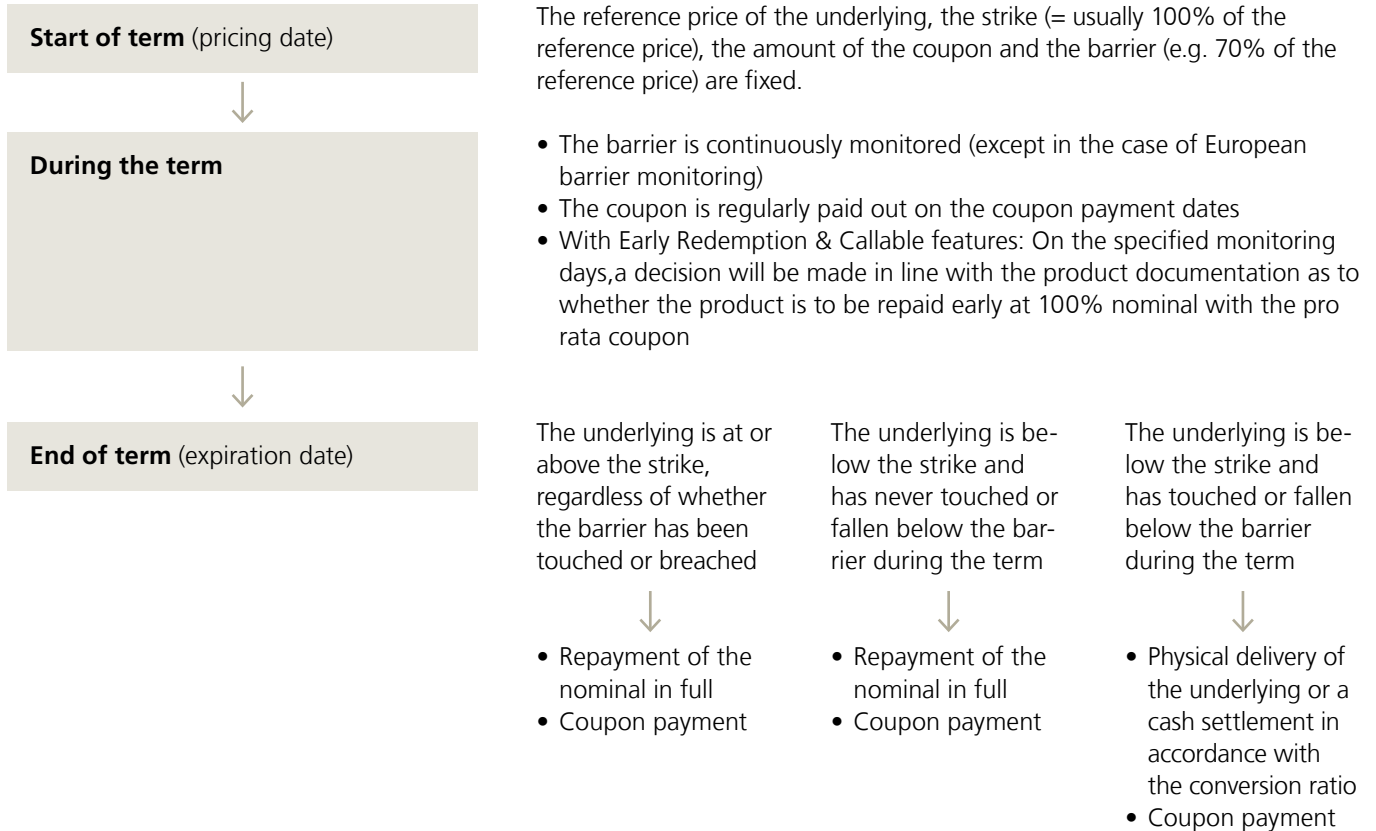
### Fractions

If the nominal and the strike do not divide evenly, a fraction will arise. In this instance, the investor will also receive a cash payment despite the physical settlement. If we suppose that the strike in our example is CHF 60, then the conversion ratio would be 1:16.667. This would result in the following repayment: In addition to 16 units of the underlying, the issuer would make a cash payment in line with the following formula for each Barrier Reverse Convertible:  $0.667 \times \text{equity price on the final fixing date}$ .

Fractions cannot be accumulated. Instead, the investor will receive a larger cash payment if they have more than one Barrier Reverse Convertible in their portfolio. Back to the example: If we suppose that an investor holds ten units, they will receive 160 equities plus the following payment:  $0.667 \times \text{equity price on the final fixing date}$ .



## An overview of how a BRC works



# Key features and terms at a glance

## Underlying

The underlying is the asset on which a Barrier Reverse Convertible is based. How the underlying performs determines the repayment of the product. The underlyings most frequently used for BRCs are equities and equity indices. BRCs can also be based on multiple underlyings (Multi BRCs).

### Commodities

Commodities trading fundamentally differs from the equity business. Natural products are forward traded. This fact impacts the way in which BRCs based on commodities work. Firstly, the barrier for such BRCs is only monitored on the closing price of a trading day. Secondly, commodity BRCs are based on the futures contract that is expiring next according to maturity (front-month) – the spot price is irrelevant.

## Strike

The strike is fixed when a BRC is issued by the issuer. It is normally identical to the starting reference price of the underlying. The strike is primarily a key factor for repayment. If the underlying price is below the strike on the expiration date and a barrier event has occurred prior to this, the nominal is not fully repaid. Instead, the issuer delivers the underlying or effects a cash settlement coupled to the closing price of the underlying at expiry.

## Barrier

As is the case with the strike, the barrier is fixed when the BRC is issued. The barrier is below the starting reference price of the underlying and thus represents a certain measure of protection against falling underlying prices. The rule is: the lower the barrier, the larger the safety buffer. If the underlying does not touch or fall below the barrier, the nominal of the BRC is paid out in full.

## Barrier event

A barrier event occurs when one of the underlyings touches or falls below the barrier during the term (respectively at the end of the term with European barrier monitoring).

## Coupon

A coupon is a fixed payment (with the exception of floating coupon BRCs) that the issuer makes on predefined coupon payment days. The distribution is always based on the nominal of a BRC. The coupon information is usually provided on a per annum basis (p.a.).

## Expiration

BRCs have a predefined term. This is set by the expiration date. BRCs can be traded, i.e. bought and sold, on the secondary market under normal market conditions until they expire.

## Repayment

Repayment takes place on the redemption date of the BRC. The type of repayment and the amount repaid is dependent on the performance of the underlying (or underlyings). There are different types of BRCs with which an early repayment before the normal redemption date is possible (see "Product variants").

# Case studies

The following example of a BRC illustrates how these yield enhancement products work. The example also shows that BRCs can outperform direct investments, particularly in sideways-trending and moderately declining markets. Although a barrier event could result in losses, these can still be compensated for to a certain extent by the coupon payment.

Underlying	Sample equity
Reference price of the underlying*	CHF 50
Strike (100% of the reference price)	CHF 50
Barrier (70% of the reference price)	CHF 35
Term	1 Year
Nominal of the BRC	CHF 1,000
Coupon p.a.	5.00%
Conversion ratio	1:20

\*Closing price of the sample equity on the pricing date

## BRC repayment scenarios

### Scenario 1: Without barrier event

(the sample equity never touched or fell below the barrier of CHF 35 during the term)

Sample Equity			Barrier Reverse Convertible				
Sample equity at the expiration date	Profit / loss	Profit / loss	Repayment BRC	Coupon payment	Repayment + coupon	Profit / loss	Profit / loss
CHF 37.50	CHF -12.50	-25%	CHF 1,000	CHF 50	CHF 1,050	CHF 50	5%
CHF 40	CHF -10	-20%	CHF 1,000	CHF 50	CHF 1,050	CHF 50	5%
CHF 45	CHF -5	-10%	CHF 1,000	CHF 50	CHF 1,050	CHF 50	5%
CHF 50	CHF 0	0%	CHF 1,000	CHF 50	CHF 1,050	CHF 50	5%
CHF 55	CHF 5	10%	CHF 1,000	CHF 50	CHF 1,050	CHF 50	5%
CHF 60	CHF 10	20%	CHF 1,000	CHF 50	CHF 1,050	CHF 50	5%
CHF 62.50	CHF 12.50	25%	CHF 1,000	CHF 50	CHF 1,050	CHF 50	5%

As shown in the table above, compared with direct investments Barrier Reverse Convertibles are at their most impressive when prices trend sideways (stagnate) and to a certain extent when underlying prices fall. In the above example, the sample equity can lose up to CHF 15 or 30%. Nevertheless, the BRC would be repaid at 100% of the nominal, i.e. CHF 1,000. For this to happen, the underlying

must not have touched or fallen below the barrier at any time during the term. The generated return corresponds to the coupon payment of 5% on the nominal. Our example BRC generates CHF 50 (CHF 1,000 × 5%). The investor does not profit from a price increase of the sample equity however, as the yield is limited to the coupon payment.

## Scenario 2: With barrier event

(the sample equity touched or fell below the barrier of CHF 35 during the term)

Sample Equity			Barrier Reverse Convertible				
Sample equity at the expiration date	Profit / loss	Profit / loss	Repayment BRC	Coupon payment	Repayment + coupon	Profit / loss	Profit / loss
CHF 35	CHF -15	-30%	CHF 700*	CHF 50	CHF 750	CHF -250	-25%
CHF 40	CHF -10	-20%	CHF 800*	CHF 50	CHF 850	CHF -150	-15%
CHF 45	CHF -5	-10%	CHF 900*	CHF 50	CHF 950	CHF -50	-5%
CHF 50	CHF 0	0%	CHF 1,000	CHF 50	CHF 1,050	CHF 50	5%
CHF 55	CHF 5	10%	CHF 1,000	CHF 50	CHF 1,050	CHF 50	5%
CHF 60	CHF 10	20%	CHF 1,000	CHF 50	CHF 1,050	CHF 50	5%
CHF 65	CHF 12.50	30%	CHF 1,000	CHF 50	CHF 1,050	CHF 50	5%

\*In these scenarios, a repayment by means of cash settlement has been assumed for reasons of simplicity (repayment amount = sample equity price at the expiration date / conversion ratio). Profit and loss are, however, the same in the event that the repayment takes place via a physical delivery of the underlying, as the value of the delivered equities is the same as that of the cash settlement.

Should a barrier event occur during the term, i.e. the barrier is touched or breached at any point during the term, this does not necessarily mean that the investor makes a loss. This is because there is a chance that the underlying will recover from the price drop over time after the barrier event and will be listed at or above its initial value (strike) at the expiration date. In this instance, the nominal will be repaid. Nevertheless, such "comebacks" are very rare. In this respect, investors should in principle only consider products or underlyings that are considered as having a low probability of falling below the barrier.

Should a barrier event occur and the underlying is below the strike upon expiry, the investor must expect losses. However, as the table above shows, these losses would be lower than those for a direct investment in the underlying due to the fixed coupon payment. In the case of multi-year product terms, there is even the chance that losses from a lower repayment can be offset or in some cases even more than compensated for by a corresponding number of coupon payments or a recovery of the underlying.

# A look behind the scenes

In order to show how a BRC works, the issuer combines a **zero coupon bond** with the **sale of a down-and-in put option** on the underlying during the structuring.

## Zero coupon bond component

A zero coupon bond is a bond on which no interest is paid during the term. Instead, the remuneration for the capital commitment (quasi the interest) is granted as the difference between the repayment amount (e.g. CHF 1,000) and a lower issue amount (e.g. CHF 990). Or in other words, the investor receives a markdown on the nominal instead of a coupon. The size of the discount depends on the general interest rate level (risk-free interest rate), the credit rating of the issuer (probability of default) and thus on its risk premium on the risk-free interest rate (= credit spread). In general, the better the credit rating of the issuer, the lower the probability of default and the lower the credit spread – and vice versa.

## Down-and-in put option

A down-and-in put option is an exotic option in which two levels are relevant. The first is, as with traditional put options, the strike and the second is a kick-in level below the strike. The issuer receives an option premium from the sale of the down-and-in put option. In the case of an ordinary put option, the issuer could collect this as a profit if the underlying asset is listed above the strike when the option expires – because then its counterpart would not exercise the put option.

Alternatively, the counterpart would exercise the put option and the issuer would have to purchase the underlying from it at a price that is higher than the current value. With a down-and-in put option, the process is slightly different. This is because with this option type, the issuer can collect the option premium as profit as long as the underlying does not touch the kick-in level below the strike. This is the only instance in which the down-and-in put option would become a conventional put option. This also clarifies how the barrier in Barrier Reverse Convertibles are structured – the kick-in level of the down-and-in put is the barrier.

Two sources of income for financing the coupon become available to the issuer from the combination of the zero coupon bond and the sale of the down-and-in put options. The first is a markdown on the zero coupon bond. The second source is the return provided by the option premium from the sale of the option. The rule is, the lower the kick-in level (barrier) is set, the smaller the resulting returns (option premium) from the sale of the down-and-in put option. Another important factor influencing the option premium is the implied volatility of the underlying, i.e. the degree to which it is expected to fluctuate. Here, the higher the implied volatility of the underlying, the higher the option premium and the more attractive the conditions that the issuer can present for a BRC (in the form of a low barrier and / or a higher coupon).

# Secondary market: Price behavior of BRCs during the term

Barrier Reverse Convertibles can be purchased by an investor via both the primary and secondary market. Primary market products are when a BRC is in the subscription phase. Once this period of time comes to an end, the BRC is issued in the secondary market. The secondary market, however, comprises products that have already been issued and can now be purchased or sold via the stock exchange or other trading venues. This means that under normal market conditions, investors can also buy or sell BRCs via the secondary market during the term of the product. As a Market Maker,

the issuer regularly sets buying and selling prices during the respective trading hours. Against this background, investors are posed with the question of which factors influence the price of BRCs during the term. As explained in the previous section, Barrier Reverse Convertibles are made up of a zero coupon bond and the sale of a down-and-in put option. Both components influence the price of a BRC traded on the secondary market. Hence, it is necessary to examine what in turn influences the price of the individual components.



## Factors that influence the price of a zero coupon bond

The value of the zero coupon bond is significantly influenced by the **risk-free market interest rate**, the issuer's refinancing costs in the form of the **credit spread**, and the **residual term**. If interest rates rise, the price of the zero coupon bond falls – and vice versa. It should also be noted that the value of a zero coupon bond with a declining residual term will approximate its nominal, i.e. it will increase.

## Factors that influence the price of a down-and-in put option

In the case of the down-and-in put option, the **price of the underlying** and the expected range of price fluctuations, i.e. the **implied volatility of the underlying**, are among the most relevant influencing factors on the option price. To a lesser extent, the **interest rates** and, where applicable, the **expected dividends** also play a role. Both a rising underlying price and a declining implied volatility shall result in an increase in the value of the option component under conditions that are otherwise the same. In contrast, the down-and-in put option will drop in value with a falling underlying price and a rise in volatility, as this would increase the risk of the kick-in level being breached. The rule is, the closer the price of the underlying is to the kick-in level, the greater the price impact.



## Overview of the most important price influencing factors

Influencing factor		Zero coupon bond	Down-and-in-put option (short)	Barrier Reverse Convertible
Price of underlying	rises ↗ falls ↘	No influence	rises ↗ falls ↘	rises ↗ falls ↘
Residual term	falls ↘	rises ↗	rises ↗	rises ↗
Implied volatility of the underlying	rises ↗ falls ↘	No influence	falls ↘ rises ↗	falls ↘ rises ↗
Risk-free interest rate / credit spread issuer	rises ↗ falls ↘	falls ↘ rises ↗	Not clear	falls ↘ rises ↗

### Market making disruptions

Although issuers and market makers do their utmost to guarantee that bid- and ask-prices are offered in the secondary market at all times, interruptions are possible. This applies, for example, before a company releases its upcoming quarterly figures or other important dates relating to the underlying. In such phases, the volatility may really get out of hand and thus forces Market Makers to temporarily stop price quotes in a BRC.

# Price setting: “clean” or “dirty”

With BRCs, the coupon payment is always made retrospectively for the corresponding interest period. Should an investor purchase a Barrier Reverse Convertible during the term, it must pay its price as well as the accrued interest for the term that has already elapsed, as the investor is not entitled to this interest. Here is an example: A BRC on the sample equity has a nominal of CHF 1,000, a term of one year and a coupon of 6.00% p.a. This equates to a distribution of CHF 60 per BRC for the entire term. If we suppose that the security will be purchased by an investor after a period of six months, the investor would not be entitled to the full coupon payment of CHF 60 but only the distribution for the remaining term. In this example, this would be CHF 30. The interest accumulated up until the time of purchase is referred to as **accrued interest** and is added to the costs in a purchase transaction.

## Different pricings

Depending on whether accrued interest has already been included in the price of a BRC or if it needs to be added as an extra, one uses the terms “dirty pricing” and “clean pricing”. “Dirty pricing” is where the **accrued interest has been included in the price of the Barrier Reverse Convertible**. The disadvantage of this method is that the percentage of the nominal of the BRC actually listed is not apparent to the investor. Therefore, BRCs are usually priced “clean”, rather than “dirty”. In so doing, the accrued interest is calculated and shown separately to the price of the BRC. This way, it is easy for investors to compare different BRCs. If a clean-priced product is purchased in the secondary market, the accrued interest is charged as an extra in the purchase transaction.

## Quotation in percent

With a BRC, the price is quoted as a percentage in relation to the nominal of the product. If a Barrier Reverse Convertible is, for example, listed at 101%, this would equate to a value of CHF 1,010 with a nominal of CHF 1,000. The same applies to BRCs as for bond trading: In the case of prices greater than 100%, the product is said to be “above par”, whereas it is listed “under par” at lower values. In the case of a price of 100%, the current value of the BRC may consequently be referred to “at par”. Purchasing a BRC that is listed below par provides the investor with an additional opportunity. Provided that no barrier events occur, the investor can make a price gain here in addition to the coupon. This increases the potential maximum return.

### Price reference

The BRC is therefore also similar to a bond in terms of the percentage pricing in reference to the nominal. In contrast, the Structured Product distinguishes itself from other asset classes: While share prices always refer to a single unit of the corresponding security, the quantity is decisive for commodities. For example, the oil price is per barrel (with 159 litres) of crude oil.

# Product variants: almost no limits to the diversity

## Reverse Convertibles

The Reverse Convertible is a forefather of sorts within the BRC product range. The most important feature is that these products have **no barriers**. Repayment depends on whether the underlying is listed **at or above the strike** on the expiration date. If it is, the investor receives the nominal back in full. If not, a delivery of the underlying or a cash settlement takes place. Due to the lack of a barrier, there is a higher risk with this type of product of the investor not receiving back the full nominal. On the other side of the coin, there is normally a higher coupon than with comparable products with barriers. The coupon is also paid out regardless of the performance of the underlying. Reverse Convertibles are suitable for investors that expect the underlying to at least move sideways. They forego a risk buffer in the form of the barrier and in return want to be compensated with a higher coupon.

## Multi BRC

These products are particularly popular in Switzerland. In contrast to the Barrier Reverse Convertible, these products are based on **multiple underlyings** (e.g. three different equities). This allows for a **higher coupon to be paid out or for the product to be set up with a lower barrier**. In return, the repayment risks are higher. This is because the investor will only be repaid the nominal on the expiration date if none of the underlyings touch or fall below the respective barrier at any time during the term. If just one of the underlyings falls below the barrier, the partial protection lapses. Subsequently, all of the underlyings must be listed at or above the starting level on the final fixing date to ensure that the maximum return is guaranteed. If this does not come to pass, the repayment (cash or physical delivery) is linked to the underlying with the worst performance. In specialist jargon, this is known as the **"Worst of"** principle.

An example of the "Worst of" principle with a Multi Barrier Reverse Convertible (physical settlement)

Underlying	Equity A	Equity B	Equity C
<b>Reference price of the underlying</b> (= strike)	CHF 50	CHF 80	CHF 60
<b>Barrier</b> (at 60% of the respective reference price)	CHF 30	CHF 48	CHF 36
<b>Barrier event</b>	Yes	No	No
<b>Underlying price at expiration</b>	CHF 40	CHF 92	CHF 45
<b>Performance of the underlying</b>	-10%	15%	-25% Worst Performer
<b>Repayment</b>	Delivery of <b>Equity C</b> according to the conversion ratio		

As this example shows, it does not matter which underlying has touched or fallen below the barrier, as the worst performing at expiry underlying is always decisive for repayment on the expiration date. Although equity A triggered a barrier event, equity C was delivered, as this had the worst performance on the expiration date at -25%.

## Double Coupon BRC

With this BRC variant, investors have the opportunity to receive a double coupon payment. This would require the underlying(s) to be at or above its / their respective double coupon trigger level(s). In most cases, the trigger level is at the respective strike. The repayment term and conditions usually correspond to those of traditional BRCs. As a result, the investor will definitely be repaid the nominal in full if none of the underlyings breach the barrier during the term. The opportunity of receiving a double coupon payment is usually at the expense of security in the form of smaller barrier distances.

### Example of a Double Coupon BRC with a coupon of 5% p.a.

Underlying	Equity A	Equity B	Equity C
<b>Reference price of the underlying</b> (= strike)	CHF 50	CHF 80	CHF 60
<b>Barrier</b> (at 80% of the respective reference price)	CHF 40	CHF 48	CHF 36
<b>Double coupon trigger level</b> (100% of the reference price)	CHF 50	No	No
<b>Double coupon trigger event</b>	<b>Yes</b> , this means that all of the underlyings are listed at or above their respective double coupon trigger levels on the expiration date. <b>Coupon payment: 2 × 5% p.a.</b>		
<b>Double coupon trigger event</b>	<b>No</b> , this means that at least one of the underlyings is listed under the double coupon trigger level on the expiration date. <b>Coupon payment: 5% p.a.</b>		



## Floating Coupon BRC

With a Floating Coupon BRC, the coupon payment is made up of two components – a variable money market interest rate and a fixed spread. For the variable money market interest rate, SARON (CHF), ESTER (EUR) and SOFR (USD) are usually used. The issuer pays a fixed add-on to the variable interest, e.g. 2% p.a. As a rule, the coupon payment days are aligned with the frequency at which the variable money market interest rates are paid out, e.g. every three months. The repayment terms and conditions are the same as those for traditional BRCs. Floating Coupon BRCs are an interesting prospect for investors that anticipate rising interest rates and want to benefit from these via the variable interest rate component.

## Autocallable / Callable / Trigger BRC

With some BRC variants, the issuer has the option of early redemption. It triggers the early repayment of the full nominal as well as of the pro rata coupon. The right to redemption can on one hand be linked to the performance of the underlying. Alternatively, the issuer has the option of terminating a product of its own accord on specific dates. In the case of Autocallable and Early Redemption BRCs, the underlying is reviewed on predefined monitoring days. If the underlying is listed at or above a specific price level, usually the starting value, this leads to an early redemption. The BRC is then paid back within a few days. In the case of multi-products, the same stipulation applies – here, all underlyings must be listed at or above the predefined barrier

in order to trigger the Autocallable function. With the Callable BRC, the decision to exercise the right to redemption on the respective monitoring dates in order to subsequently transfer the nominal and the pro rata coupon to the product holder is in contrast at the sole discretion of the issuer.

Trigger BRCs are another special variant. With this variant, there are no fixed monitoring days. Instead, checks are carried out on every stock exchange trading day to see whether the underlying(s) is / are at or above a specific price level – the trigger level. If this is the case, the investor will be credited its invested capital plus the pro rata coupon a few days after the trigger event. The trigger level(s) is / are normally fixed by the issuer a couple of percent higher than the strike. This means that the underlying must appreciate in value for an early redemption.

The right of redemption is accompanied by uncertainty about the expiry date. The resulting reinvestment risk is compensated for via the conditions. To put it plainly, products with the right of redemption offer higher coupons and / or lower barriers than BRCs under the same parameters.

**No early redemption:** If an early redemption does not take place, Early Redemption BRCs, Callable BRCs and Trigger BRCs continue to run until the date on which they normally expire. The conventional repayment mechanisms will then come into effect.

Types of early redemption	Autocallable BRCs	Callable BRCs	Trigger BRCs
<b>The nominal can be redeemed early if ...</b>	... all of the underlyings are at or above the autocallable level on one of the monitoring days.	... the issuer exercises its right of early redemption on one of the monitoring days.	... all of the underlyings are at or above the trigger level, regardless of the day.



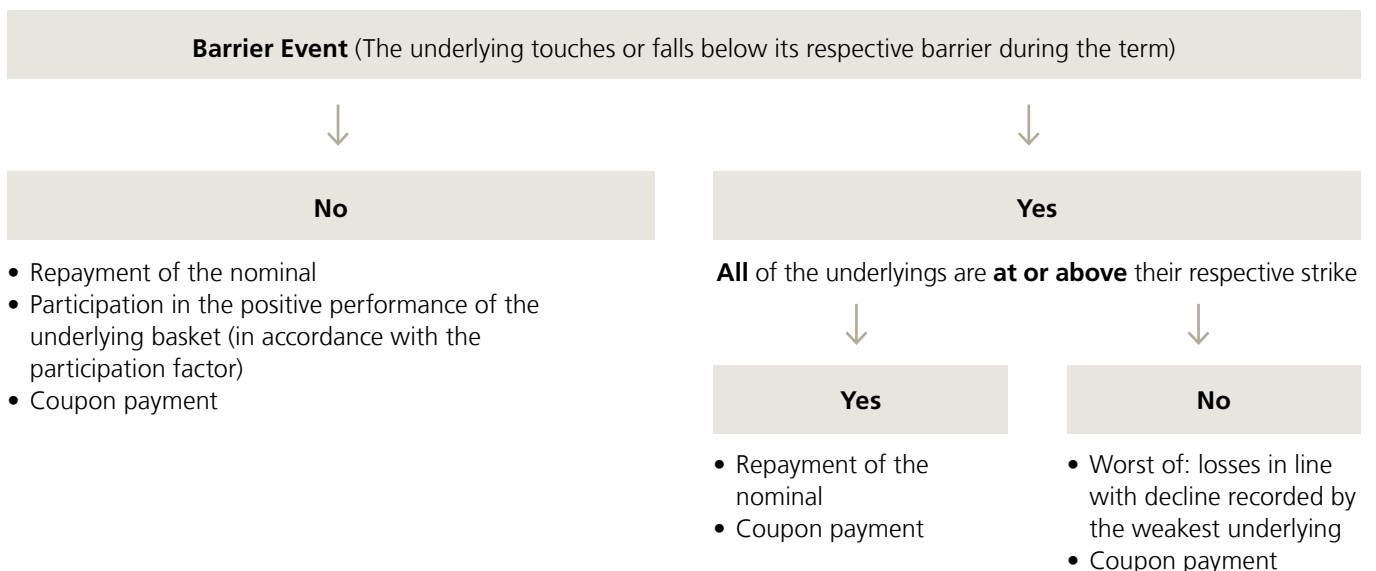
## BRCs with Participation

In addition to a fixed coupon payment, investors that opt for a BRC with Participation will also have the opportunity to participate in the positive performance of an underlying basket. In order to make use of this opportunity, none of the underlyings in the basket must touch or fall below its respective barrier during the term. If we suppose that equity A has risen by 8% between issuance and expiry, equity B by 4% and equity C by 12%, the average performance of the basket would subsequently be 8%  $((8\% + 4\% + 12\%) / 3)$ . With a nominal of CHF 1,000, an assumed coupon of 4% and a participation rate of 100%, the BRC would be repaid at CHF 1,120. This figure comprises the nominal, CHF 80 for the positive underlying basket performance as well as the coupon of CHF 40. Should the underlying basket deliver a negative performance without breaching the barrier, the investor will be credited the nominal, i.e. CHF 1,000, plus the coupon of CHF 40.

This changes if an underlying touches or falls below the barrier during the term, i.e. if a barrier event occurs. The possibility of a participation ceases to exist if this is the case. In terms of returns, the investor only receives the coupon payment. As is the case with a traditional BRC, repayment depends on the underlying levels at the final fixing.



## How do Barrier Reverse Convertibles with participation work?





## Quanto Feature

The underlyings of a BRC are frequently traded in currencies that deviate from the product value date. These products are therefore generally exposed to exchange rate risk. BRCs with integrated quanto mechanisms exclude this influence. Such products are suitable for investors that do not want to be affected by investment and currency risk. Currency hedging is not free, however. Quanto BRCs usually have less favorable conditions than comparable BRCs without currency hedging.

## European Barrier Feature

Issuers can massively change the way in which a BRC works through the use of a European option. With this feature, the barrier is only activated upon the final fixing date, so changes in the price of the underlying during the term are not an issue. This product variant can be attractive for investors that expect a correction in the short term. They do however think that the underlying is capable of stabilizing or even recovering by the expiration date.

# Key figures

## Barrier distance (in %)

This key figure provides the difference between the current underlying price and the barrier. The closer the underlying moves to this level, the higher the risk of a barrier event. Consequentially, the sensitivity of the BRC to changes in the underlying price increases if the barrier distance gets smaller.

$$\text{Difference between the underlying and the barrier in \%} = \frac{\text{Price of the underlying} - \text{barrier}}{\text{Price of the underlying}} \times 100$$

## Sideways yield

The sideways yield specifies the return that is achieved with the BRC if the individual underlying or (in the case of a multi-product) all of the underlyings is / are listed at the same level on the expiration date as on the observation day. If a barrier event has not occurred by the reference date, the amount calculated using the following formula is the maximum yield.

$$\text{Repayment amount (RA)} = N \times (100\% + C \times T \times \frac{CP_r}{CP_t})$$

$$\text{Current buy price (BP)} = N \times (\text{Ask} + \text{AI})$$

$$\text{Determination of sideways return} = \frac{\text{RA}}{\text{BP}} - 1$$



### Legend

N	Nominal
C	Coupon in % p.a.
T	Total term in years
CP <sub>r</sub>	Number of remaining Coupon payments
CP <sub>t</sub>	Number of Coupon payments in total
Ask	Current Ask price in %
AI	Accrued interest in %

## Example of a Double Coupon BRC with a coupon of 5% p.a.

Nominal	CHF 1,000
Coupon p.a.	8.00%
Total duration	1.5 years
Total number of coupon payments	6
Number of remaining coupon payments	4
Current ask price	95.00%
Current accrued interest	1.50%

### Definition of redemption amount:

$$\text{CHF } 1,000 \times (100\% + 8.00\% \times 1.5 \times \frac{4}{6}) = \text{CHF } 1,080$$

### Definition of current buy price:

$$\text{CHF } 1,000 \times (95.00\% + 1.50\%) = \text{CHF } 965$$

### Definition of sideways return:

$$\frac{\text{CHF } 1,080}{\text{CHF } 965} - 1 = 11.92\%$$

# Tips for the use of BRCs

## 1

### What type of investor are you?

Before investors make an investment decision, they should start by clarifying their risk appetite as well as their yield expectations. It is quite possible that you prefer fixed income securities, even though this asset class continues to frequently yield only very meager returns in the current low-interest environment. Bonds are, however, considered to be highly secure. Equities offer a means of giving potential returns a boost. However, equity prices can fall very quickly in weak stock market phases. Barrier Reverse Convertibles can strike a balance between security and potential gains for investors torn between the two asset classes. Not only do they offer regular and attractive distributions, they provide investors a certain degree of security against falling prices. The first aspect is reflected in the coupon payment, while the second comes into play with barriers.

## 2

### What is your priority – opportunity or risk?

If an investor decides that Barrier Reverse Convertibles are an adequate investment opportunity, the next step is to find the right product. Are you focusing on high coupons? Or are low barriers your priority? The investor could see to it that a target return is the first feature to be defined (e.g. 5% p.a.). They could then only select products from this range of products that have a barrier that is in line with their risk tolerance as well as suitable coupons (e.g. a barrier distance of at least 30%).

## 3

### What expectations do you have of the market?

When it comes to the underlying, investors should only consider equities and equity indices that they expect to not experience strong upward or downward price fluctuations during the term. For example, if you expect the price of the underlying to rise sharply, you may be better off with a direct investment. This is because the potential returns of a BRC are capped. Bear in mind here that, unlike with an equity investment, investors in BRCs have to forego dividend payments. BRCs are thus suitable for investors that expect underlying prices to trend sideways or increase moderately. Although falls are a possibility, the risk that the underlying value will decline to such an extent that it is close to the barrier is rated as comparatively small.

## 4

### Why you should pay attention to correlation with Multi BRCs

BRCs with multiple underlyings offer the prospect of comparatively higher returns than those with single underlyings. Nevertheless, the loss risk with Multi BRCs is greater, as all it would take for the partial protection to lapse would be for just one of the individual securities to fall below the barrier. The risk of a barrier event with Multi BRCs can be mitigated slightly if the investor makes sure there is a high level of correlation (synchronization) between each of the underlyings. This is because the more the underlyings correlate with one another, e.g. because they are all from the same sector, the more unlikely it is that an individual security will fall away from the others and upset the balance of the entire investment scenario.

# 5

## Why you should always keep an eye on volatility

The expected range of fluctuation (implied volatility) of the underlying is a massively important factor that influences the price of a BRC. For primary market products, i.e. BRCs, that are in the subscription phase, it holds true that the higher the volatility, the more attractive product conditions the issuer can offer (see "A look behind the scenes"). This could come in the form of a higher coupon (and therefore higher potential returns) and / or a lower barrier (and thus a lower risk of loss). Be careful, however, as the higher the expected range of fluctuation, the greater the risk that an underlying will decline following issuance and in doing so may fall below the barrier. With BRCs that are already being traded in the secondary market, it may also pay off to buy in periods of high volatility. This is because of the price benefits that a BRC can offer in a volatile market environment. Another reason is that (and under the same conditions) price gains are also possible should the volatility diminish again. The same applies in reverse: If purchases are made in quiet market phases, i.e. those with low volatility, an increase in the volatility will result in falls in prices for Barrier Reverse Convertibles.

# 6

## The term should match your investment horizon?

The term of a BRC should be in line with the investor's investment horizon and expectation of the market. This is because the prices of BRCs are subject to various influencing factors that could have a positive or negative impact until the date on which the BRCs expire. Nevertheless, it may in certain cases be expedient to sell the product before the expiration date. In situations where prices are rising, investors can realize gains. If, on the other hand, it becomes apparent that the holder's market expectations do not come to pass and the delivery of the underlying is imminent, an early sale may be advantageous for the product holder.

# Summary

## Your investor profile

- Focus on regular predefined returns
- Would like conditional capital protection
- Alternatives to direct investments in equities

## The key benefits at the glance

- Fixed coupon payments that are usually above the market interest rate
- No conditions for coupon payments
- Conditional capital protection provided by means of the barrier
- Lower loss risk than with a direct investment

## Market expectations

- Sideways-trending to moderately increasing
- No massive upswings or downswings

## Time horizon

- Medium- to long-term

## Risks to watch out for

- Loss risk with a barrier event
- Limited return opportunities
- No entitlement to dividends
- Issuer risk

## Our offering

UBS is one of the leading providers of investment products from the Barrier Reverse Convertibles product range. The range covers hundreds of products based on numerous underlyings.

The return monitor allows to filter for attractive BRCs in the secondary market using your own criteria:

**[keyinvest-ch-en.ubs.com/yield-monitor](https://keyinvest-ch-en.ubs.com/yield-monitor)**

You can find our offering on

**[keyinvest-ch-en.ubs.com](https://keyinvest-ch-en.ubs.com)**

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