FX Option Solutions

FX Hedging

Contents

ING

1. FX Hedging Long Position

Long EUR/USD position

For illustration purposes, the strategies presented follow these assumptions:

- Customer has a Long position in EUR against USD
- Customer needs hedging for a tenor of 6 Months
- Reference spot rate is at 1.1000 (spot)
- Reference outright forward is at 1.1070 (Forward)

Strategy summary	Improvement Direction *	Improvement Participation	Premium	Worse case rate	Best case rate
Forward	None	None	No	1.1070	n.a.
Put	Up	100%	375**	1.0695***	open
Risk Reversal	Up	Limited	No	1.0790	1.1265
Participating Forward	Up	50%	No	1.0790	open
Risk Reversal Extra	Up	Limited	No	1.0790	1.1799
Forward Extra	Up	Limited	No	1.0990	1.1799
European Forward Extra	Up	Limited	No	1.0980	1.1499
Inverse Forward Extra	Down	Limited	No	1.0965	1.1929
Forward Plus	Up	Limited	No	1.0875	1.1799
Extra Forward Extra	Up/Down	Limited	No	1.0925	1.1649
Knock-Out Forward	Up	100%, if barrier hit	No	1.0760	open if…
Contingent Forward	Up	Limited	No	1.0995	1.1799
Inverse Risk Reversal	Down	Limited	No	1.0790	1.1370
Seagull	Up	100%, above upper strike	No	1.0700	open
Bonus European Forward Extra	(Down)/Up	Limited	No	1.0825	1.2299

* = Direction spot needs to move to improve the effective hedge rate

** = in pips

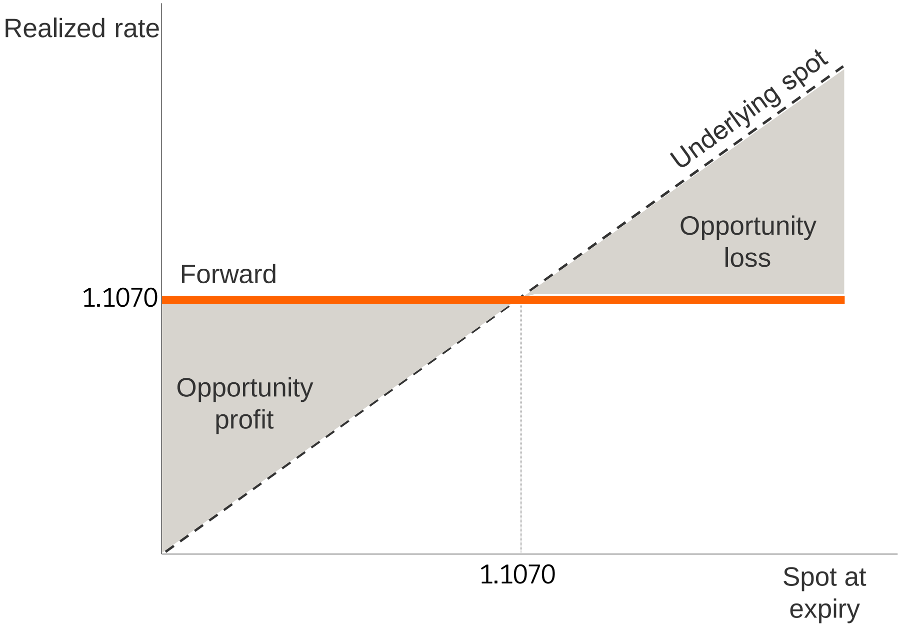
*** = including premium

Forward

Low risk, 100% Hedge, no upside participation

- A Forward contract is a deal to exchange currencies at an agreed date in the future, at a pre-determined exchange rate set at inception. Entering into a Forward is the most standard and basic strategy for Customer to fully hedge the position against currency risk
- With a Forward Contract, Customer agrees to sell its EUR at the Outright Forward Rate of 1.1070, which provides full protection against the depreciation of the spot rate, but will not be able to benefit should the spot rate EUR/USD appreciate
- Forward rates are determined on the basis of the spot rate, adjusted for the interest rate differential between the currencies

Graphical overview



Spot at expiry

	Below 1.1070	Above 1.1070
Spot	0.9900	1.2000
Realized rate	1.1070	1.1070

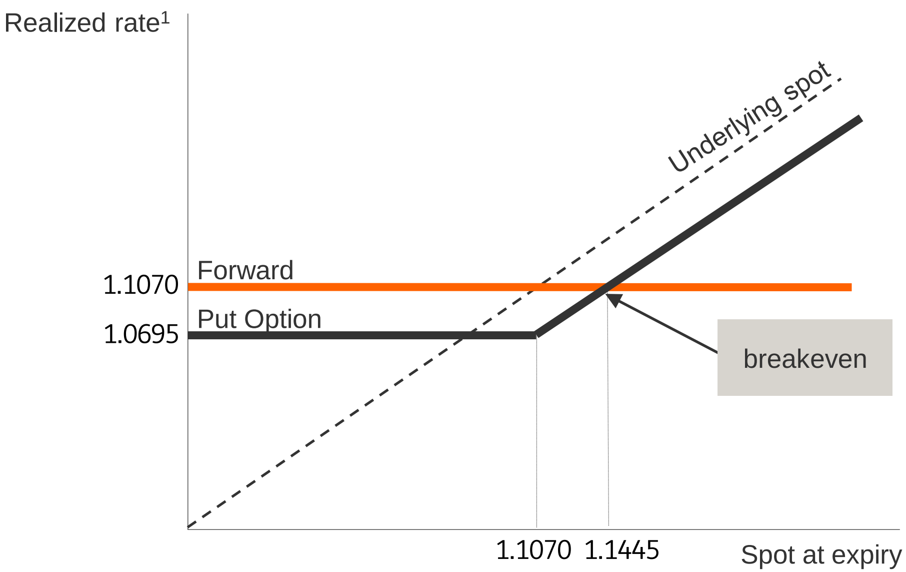
Pros	Cons
▪ Provides full protection against a depreciation of the EUR/USD rate ▪ No Premium	▪ Customer is unable to benefit from an appreciation of the EUR/USD rate above 1.1070

Put Option

Low risk, 100% Hedge, full upside participation

- A plain vanilla Put Option on the EUR gives Customer the right, but not the obligation, to sell the EUR against USD at a fixed rate on expiration of the option
- A premium for the option is paid upfront and the option is exercised when the spot rate is below the fixed rate ('strike price') at expiry
- For a premium of USD 0.0375 per EUR, Customer has the right to sell the EUR at 1.1070, while retaining the possibility of selling at more favourable rates in case of EUR/USD appreciation
- The premium is determined by the following factors: current forward rate, strike price, tenor, volatility and interest rates of the underlying currencies

Graphical overview



Spot at expiry

	Below 1.1070	Above 1.1070
Spot	0.9900	1.2000
Outcome	Option is exercised	Sell EUR at market rate
Realized rate[1]	1.0695	1.1625

Pros	Cons
• Provides full protection against a depreciation of the EUR/USD rate • Compared to the Forward, Customer is able to sell EUR at a more favourable rate if the spot at expiry is above 1.1445	• Premium required to be paid up front • Due to the premium, Customer realizes a rate less favourable than the Forward if the spot at expiry is below 1.1445

1. Realized Rate accounts for the premium paid upfront

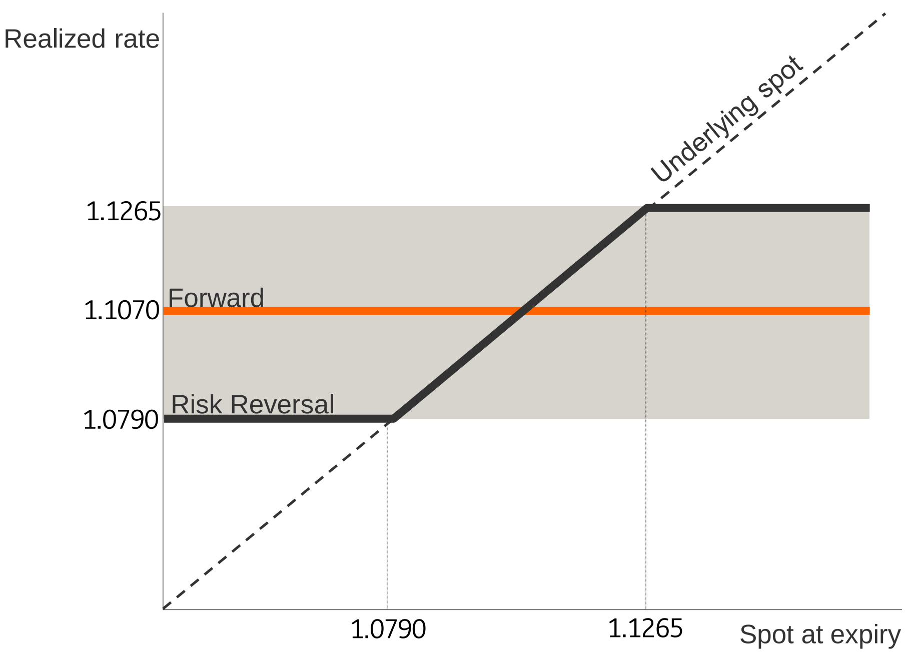
Risk Reversal

Low risk, 100% Hedge, limited upside participation

- A Risk Reversal is a zero premium strategy and provides a minimum and a maximum realizable rate for the EUR against the USD. It provides full protection against the depreciation of the spot and involves the purchase of a Put option and the sale of a Call option for the same amount. The premium raised by the sale of the Call matches the cost of the purchased Put Option

- Customer buys a Put option on the EUR at a strike of 1.0790 and sells a Call option on the EUR at a strike of 1.1265, thus is assured of a minimum and maximum selling price for the EUR against USD

Graphical overview



Spot at expiry

	Below 1.0790	Between 1.0790 and 1.1265	Above 1.1265
Spot	0.9900	1.1000	1.2000
Realized rate	1.0790	1.1000	1.1265

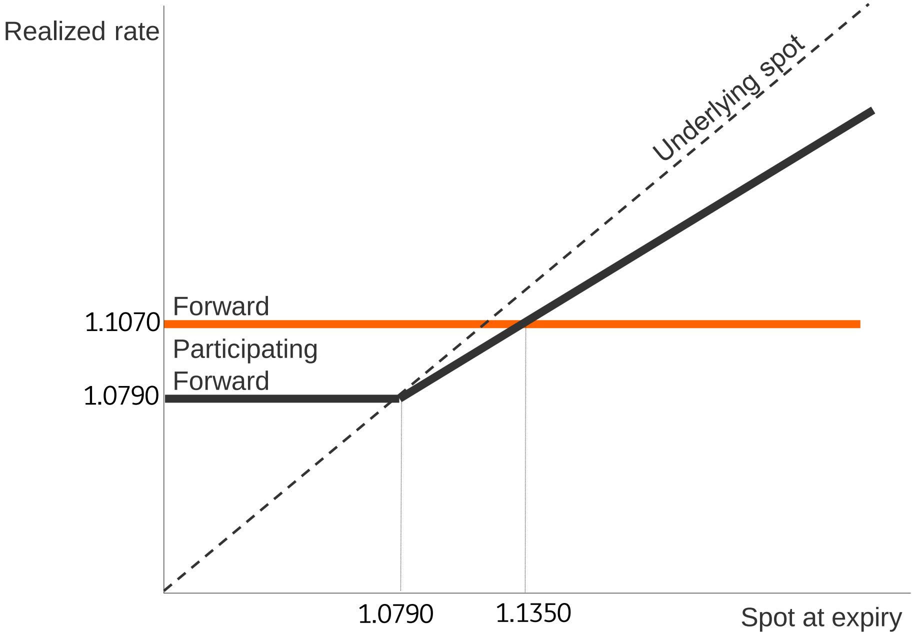
Pros	Cons
▪ Provides full protection against a depreciation of the EUR/USD rate ▪ Net zero premium strategy ▪ Compared to a Forward, Customer is able to sell the EUR at a higher rate if the spot at expiry is above 1.1070	▪ Customer is unable to benefit from an appreciation of the EUR/USD rate above 1.1265 ▪ Customer is hedged at a guaranteed rate which is lower than the Forward

Participating Forward

Low risk, 100% Hedge, 50% upside participation

- A Participating Forward is a zero premium strategy and provides full protection against the depreciation of the spot rate while allowing Customer to partially benefit from an unlimited appreciation of the underlying spot rate
- It involves buying a Put option on the EUR for 100% of the hedge amount and selling a Call option on the EUR for 50% of the hedge amount, both at a strike of 1.0790. Therefore if the EUR/USD appreciates, Customer may secure a better rate for the 'open part' of the hedge amount (50%) by selling the residual EUR at the spot market
- By entering into a Participating Forward, Customer is guaranteed a minimum rate of 1.0790 and participates in EUR/USD appreciation above that level

Graphical overview



Spot at expiry

	Below 1.0790	Above 1.0790
Spot	0.9900	1.2000
Outcome	Option is exercised	Sell 50% at spot Sell 50% at 1.0790
Realized rate	1.0790	1.1395

Pros

- Provides full protection against a depreciation of the EUR/USD rate
- Net zero premium strategy
- Compared to a Forward, Customer is able to sell the EUR at a higher rate if the spot at expiry is above 1.1350
- 50% participation in unlimited appreciation of the spot

Cons

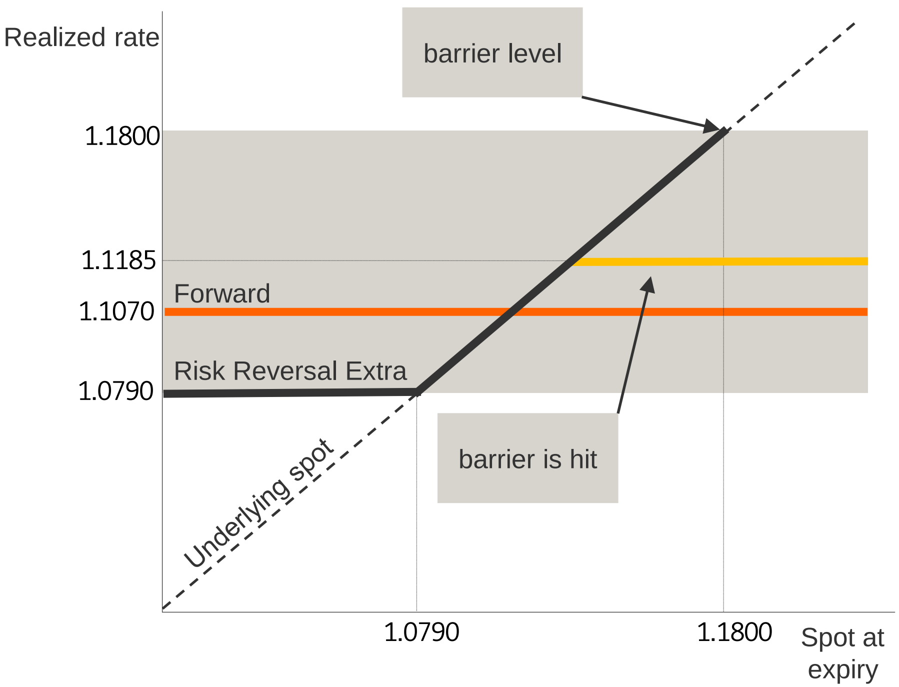
- Customer is hedged at a guaranteed rate which is lower than the Forward

Risk Reversal Extra

Low risk, 100% Hedge, Limited upside participation

- Similar to a Risk Reversal, the Risk Reversal Extra is a zero premium strategy and provides a minimum and maximum realizable rate for the EUR against USD. The difference in a Risk Reversal Extra is that Customer can achieve a higher maximum realizable rate compared to the Risk Reversal, but Customer also has a chance to end at a lower realizable rate compared to the Risk Reversal
- Customer is (a) guaranteed a minimum rate of 1.0790, (b) may fully benefit from the appreciation of EUR/USD as long as the spot does not trade at or above 1.1800, and (c) has a potential obligation to sell the EUR at 1.1185 if the EUR/USD spot rate appreciates to or above 1.1800

Graphical overview



Spot at expiry

	At or Below 1.0790	Between 1.0790 and 1.1800	Between 1.0790 and 1.1800	At or Above 1.1800
Spot	0.9900	1.1300	1.1300	1.2000
Highest spot	n.a.	< 1.1800	≥ 1.1800	n.a.
Realized rate	1.0790	1.1300	1.1185	1.1185

Pros

- Provides full protection against a depreciation of the EUR/USD rate
- Net zero premium strategy
- Compared to a Forward, Customer is able to sell the EUR at a higher rate if the spot at expiry is above 1.1070
- Higher maximum rate possible compared to a Risk Reversal

Cons

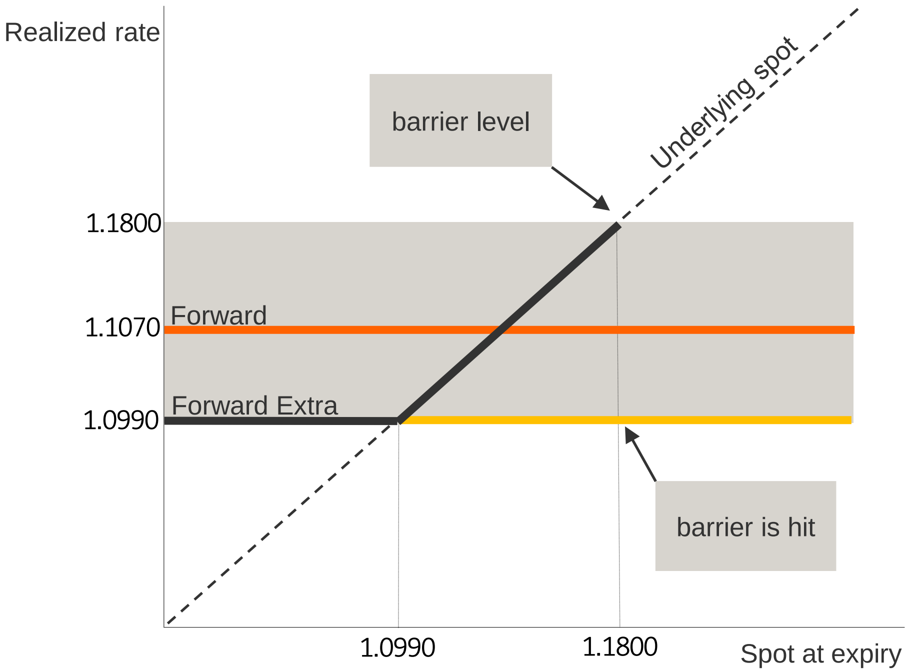
- Customer is hedged at a guaranteed rate which is lower than the Forward
- Customer is unable to benefit from an appreciation of the EUR/USD above 1.1800

Forward Extra

Low risk, 100% Hedge, Limited upside participation

- A Forward Extra is a zero premium strategy and provides full protection against the depreciation of the EUR/USD spot rate, while at the same time allowing Customer to benefit from the appreciation of the spot rate up to a pre-determined barrier level
- Customer is (a) guaranteed a minimum rate of 1.0990, and (b) is able to benefit from EUR/USD appreciation up to 1.1800
- If the EUR/USD spot rate trades at or above 1.1800 at any time during the tenor, Customer will be required to sell the EUR at 1.0990 regardless of where the spot is at expiry

Graphical overview



Spot at expiry

	At or Below 1.0990	Between 1.0990 and 1.1800	Between 1.0990 and 1.1800	At or Above 1.1800
Spot	0.9900	1.1400	1.1400	1.2000
Highest spot	n.a.	< 1.1800	≥ 1.1800	n.a.
Realized rate	1.0990	1.1400	1.0990	1.0990

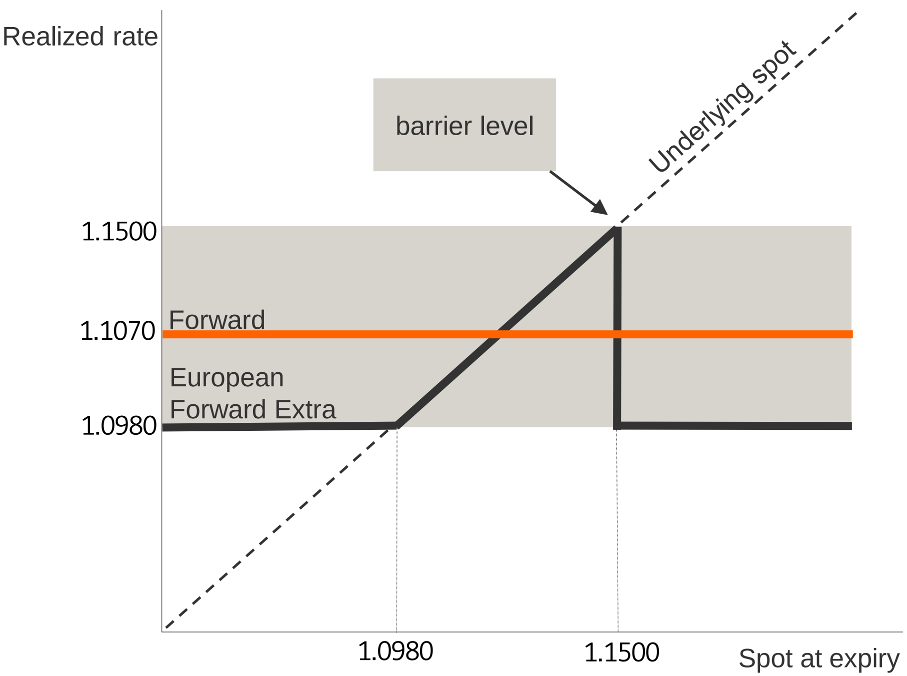
Pros	Cons
• Provides full protection against a depreciation of the EUR/USD rate • Net zero premium strategy • If the EUR/USD spot rate appreciates but does not trade at or above 1.1800, Customer may sell the EUR at a rate which is higher than the Forward	• Customer is hedged at a guaranteed rate which is lower than the Forward • If the EUR/USD spot rate trades at or above 1.1800, Customer is obliged to sell the EUR at 1.0990 • Barrier level 1.1800 is applicable at any time during the tenor

European Forward Extra

Low risk, 100% Hedge, limited upside participation

- A European Forward Extra is a zero premium strategy and provides full protection against the depreciation of the EUR/USD spot rate, while at the same time allowing Customer to benefit from the appreciation of the spot rate up to a predetermined barrier level
- Customer is (a) guaranteed a minimum rate of 1.0980, and (b) benefits if EUR/USD appreciates up to 1.1500 at expiry
- If the EUR/USD spot rate trades at or above 1.1500 at expiry, Customer will be required to sell the EUR at 1.0980

Graphical overview



Spot at expiry

	Below 1.0980	Between 1.0980 and 1.1500	Above 1.1500
Spot	0.9900	1.1240	1.2000
Realized rate	1.0980	1.1240	1.0980

Pros

- Provides full protection against a depreciation of the EUR/USD rate
- Net zero premium strategy
- If the EUR/USD spot rate appreciates but does not trade at or above 1.1500 at expiry, Customer may sell the EUR at a rate which is higher than the Forward
- Barrier level is only applicable at expiry

Cons

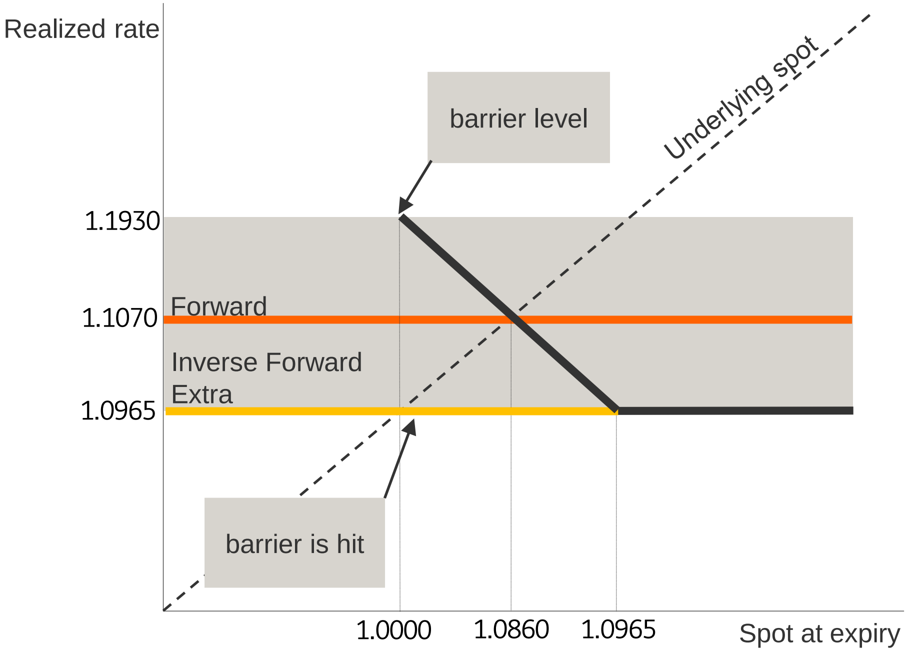
- Customer is hedged at a guaranteed rate which is lower than the Forward
- If the EUR/USD spot rate at expiry trades at or above 1.1500, Customer is obliged to sell the EUR at 1.0980

Inverse Forward Extra

Low risk, 100% Hedge, limited downside participation

- An Inverse Forward Extra is a zero premium strategy and provides full protection against a depreciation of the EUR/USD spot rate, while at the same time allowing Customer to benefit from a depreciation of the spot rate down to a pre-determined barrier level
- Customer is (a) guaranteed a minimum rate of 1.0965 (= Inverse Forward Extra Level), and (b) is able to benefit from EUR/USD depreciation down to 1.0000, the barrier level
- Customer is able to benefit from EUR/USD depreciation down from 1.0965 to 1.0000: Inverse Forward Extra Level + (Inverse Forward Extra Level - Final spot)

Graphical overview



Spot at expiry

	At or Below 1.0000	Between 1.0000 and 1.0965	Between 1.0000 and 1.0965	At or Above 1.0965
Spot	0.9900	1.0500	1.0500	1.2000
Lowest spot	n.a.	≤ 1.0000	> 1.0000	n.a.
Realized rate	1.0965	1.0965	1.1430	1.0965

Pros

- Provides full protection against a depreciation of the EUR/USD rate
- Net zero premium strategy
- If the EUR/USD spot rate depreciates but does not trade at or below 1.0000, Customer may sell the EUR at a rate which is higher than the Forward

Cons

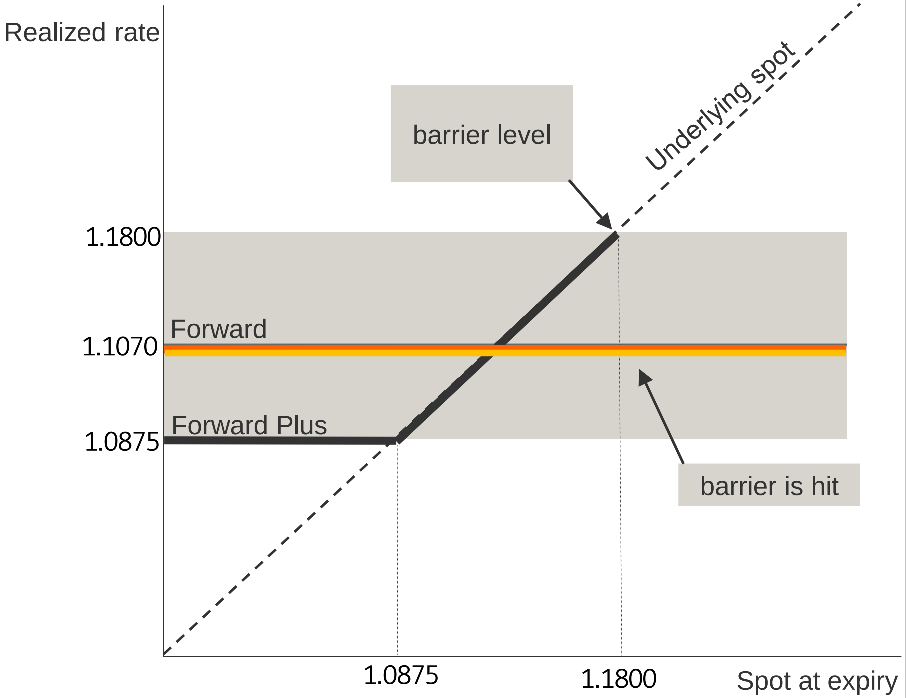
- Customer is hedged at a guaranteed rate which is lower than the Forward
- Barrier level 1.0000 is applicable at any time during the tenor

Forward Plus

Low risk, 100% Hedge, limited upside participation

- A Forward Plus is a zero premium strategy and provides full protection against a depreciation of the EUR/USD spot rate, while at the same time allowing Customer to benefit from the appreciation of the spot rate up to a pre-determined barrier level
- Customer is (a) guaranteed a minimum rate of 1.0875. and (b) able to benefit from EUR/USD appreciation up to 1.1800
- If the EUR/USD spot rate trades at or above 1.1800, at any time during the tenor, Customer will be required to sell the EUR at 1.1070, which is equal to the Forward

Graphical overview



Spot at expiry

	At or Below 1.0875	At or Below 1.0875	Between 1.0875 and 1.1800	Between 1.0875 and 1.1800	At or Above 1.1800
Spot	0.9900	0.9900	1.1338	1.1338	1.2000
Highest spot	< 1.1800	≥ 1.1800	< 1.1800	≥ 1.1800	n.a.
Realized rate	1.0875	1.1070	1.1338	1.1070	1.1070

Pros

- Provides full protection against a depreciation of the EUR/USD rate
- Net zero premium strategy
- If the EUR/USD spot rate appreciates but does not trade at or above 1.1800, Customer may sell the EUR at a rate which is higher than the Forward

Cons

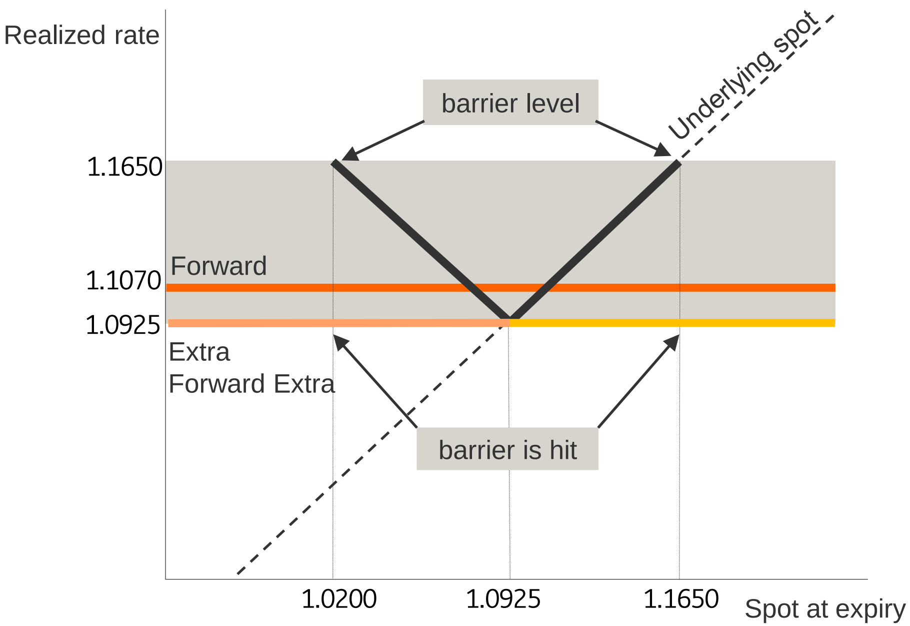
- Customer is hedged at a guaranteed rate which is lower than the Forward
- If the EUR/USD spot rate trades at or above 1.1800, Customer is obliged to sell the EUR at 1.1070
- Barrier level 1.1800 is applicable at any time during the tenor

Extra Forward Extra

Low risk, 100% Hedge, limited downside and limited upside participation

- An Extra Forward Extra is a zero premium strategy and provides full protection against a depreciation of the EUR/USD rate, while at the same time allowing Customer to benefit from both the appreciation and depreciation of the spot rate, both to a pre-determined barrier level
- Customer is (a) guaranteed a minimum rate of 1.0925 ('Extra Forward Extra Level'), and (b) is able to benefit from:
  - EUR/USD appreciation: up to 1.1650; computed as follows: Extra Forward Extra Level + (Final spot – Extra Forward Extra Level)
  - EUR/USD depreciation: down to 1.0200; computed as follows: Extra Forward Extra Level + (Extra Forward Extra Level - Final spot)

Graphical overview



Spot at expiry

	At or Below 1.0925	At or Below 1.0925	At or Above 1.0925	At or Above 1.0925
Spot	0.9900	1.0600	1.1300	1.2000
Lowest spot	≤ 1.0200	> 1.0200	n.a.	n.a.
Highest spot	n.a.	n.a.	< 1.1650	≥ 1.1650
Realized rate	1.0925	1.1250	1.1300	1.0925

Pros

- Provides full protection against a depreciation of the EUR/USD rate
- Net zero premium strategy
- If the EUR/USD spot rate appreciates but does not trade at or above 1.1650, or If the spot depreciates but does not trade at or below 1.0200, Customer may sell the EUR at a rate which is higher than the Forward

Cons

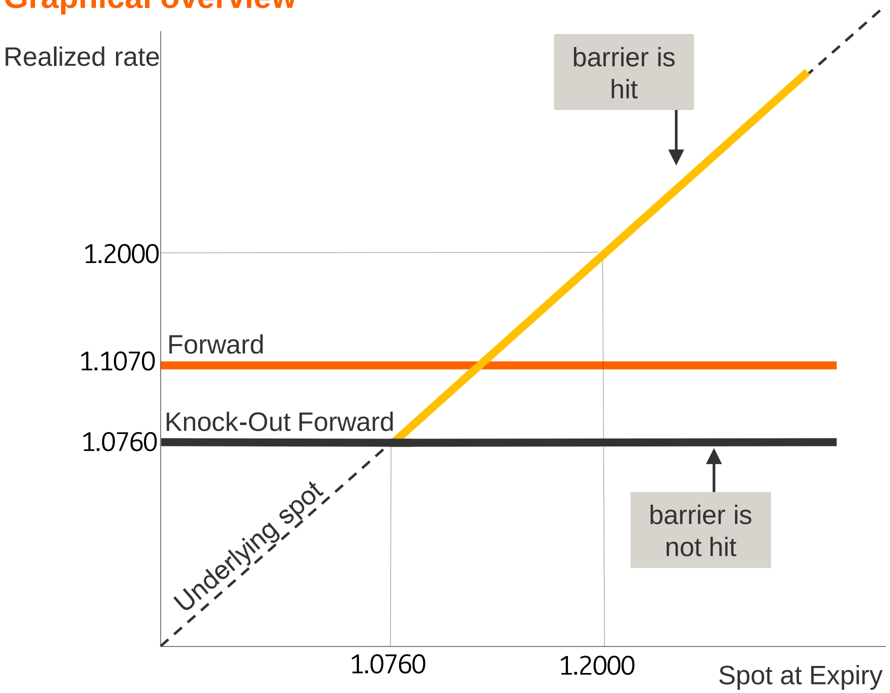
- Customer is hedged at a guaranteed rate which is lower than the Forward
- If the EUR/USD spot rate trades at or beyond both barrier levels Customer will not be able to benefit and is obliged to sell the EUR at 1.0925
- Barrier levels 1.0200 and 1.1650 are applicable at any time during the tenor

Knock-Out Forward

Low risk, 100% Hedge, with possible full upside participation

- The Knock-Out Forward is a zero premium strategy and provides full protection against a depreciation of the EUR/USD spot rate. At the same time Customer will be able to benefit from an appreciation of the spot rate if this spot rate hits a barrier level at any time during the tenor of the strategy
- Customer is guaranteed a minimum rate of 1.0760, regardless of whether the spot does or does not hit the barrier level
- If the EUR/USD spot rate trades at any time during the tenor at or below 1.0760 (barrier level) Customer will be able to fully benefit from EUR/USD appreciation up from 1.0760

Graphical overview



Spot at expiry

	Below 1.0760	Above 1.0760	Above 1.0760
Spot	0.9900	1.2000	1.2000
Barrier hit	n.a.	Yes	No
Realized rate	1.0760	1.2000	1.0760

Pros

- Provides full protection against a depreciation of the EUR/USD rate
- Net zero premium strategy
- If the EUR/USD spot rate trades at or below 1.0760 and appreciates afterwards, Customer may sell the EUR at a rate which is higher than the Forward
- Barrier level 1.0760 is applicable at any time during the tenor

Cons

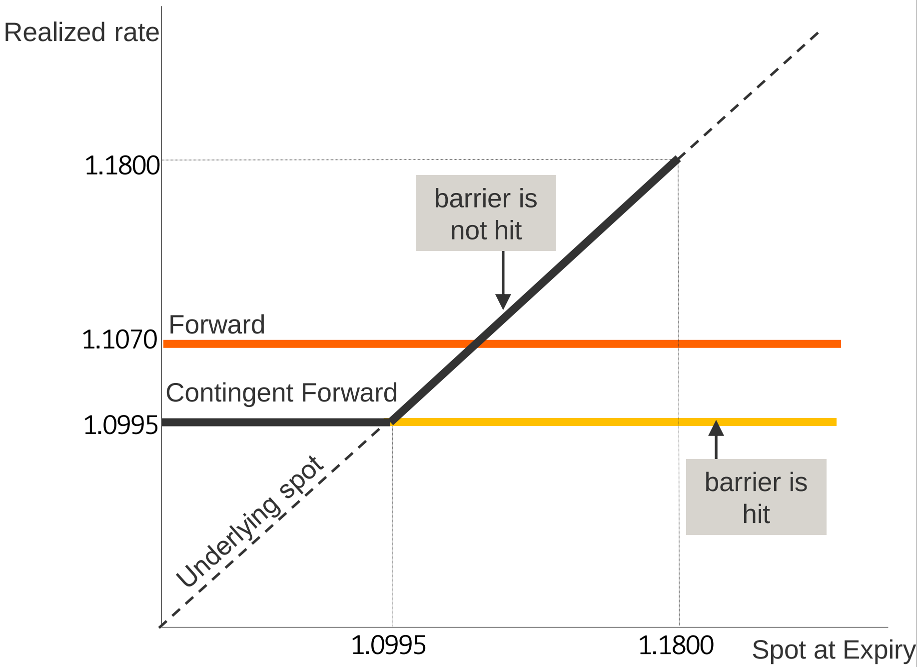
- Customer is hedged at a guaranteed rate which is lower than the Forward
- If the EUR/USD spot rate does not trade at or below 1.0760, Customer is obliged to sell the EUR at 1.0760

Contingent Forward

Low risk, 100% Hedge, limited upside participation

- The Contingent Forward is a zero premium strategy and provides full protection against a depreciation of the EUR/USD spot rate. At the same time Customer will be able to benefit from the appreciation of the spot rate up to a pre-determined level
- Customer is (a) guaranteed a minimum rate of 1.0995 and (b) is able to profit to benefit from EUR/USD appreciation up to 1.1800
- If the EUR/USD spot trades at or below 1.0000 or at or above 1.1800 at any time during the tenor, Customer will be required to sell the EUR at 1.0995, regardless where the spot is at expiry

Graphical overview



Spot at expiry

	Below 1.0995	Above 1.0995	Above 1.0995
Spot	0.9900	1.1400	1.1400
Barrier(s) hit	n.a.	No	Yes
Realized rate	1.0995	1.1400	1.0995

Pros

- Provides full protection against a depreciation of the EUR/USD rate
- Net zero premium strategy
- If the EUR/USD spot rate appreciates but does not trade at or above 1.1800, or If the EUR/USD spot rate depreciates but does not trade at or below 1.0000, Customer may sell the EUR at a rate which is higher than the Forward

Cons

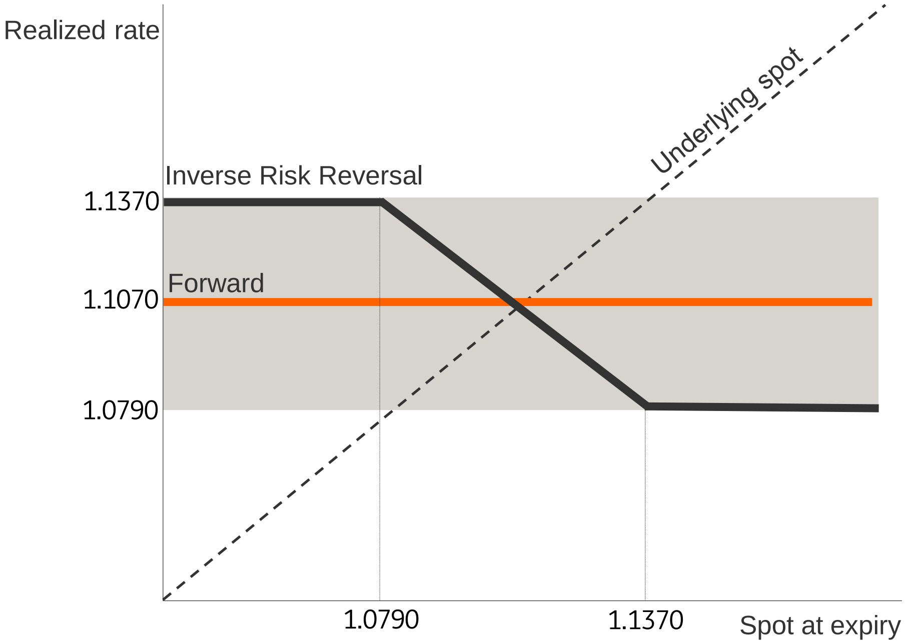
- Customer is hedged at a guaranteed rate which is lower than the Forward
- If the EUR/USD spot rate trades at or beyond one of the barriers, Customer is obliged to sell the EUR at 1.0995
- Barrier levels 1.0000 and 1.1800 are applicable at any time during the tenor

Inverse Risk Reversal

Low risk, 100% Hedge, limited downside participation

- An Inverse Risk Reversal is a zero premium strategy and provides a minimum and a maximum realizable rate for the EUR against the USD. It gives the opportunity to profit from a depreciation until a pre-determined level and provides protection to a further depreciation.
- It involves the purchase of an In-The-Money Put option and the sale of an In-The-Money Call option for the same amount. The premium raised by the sale of the Call matches the cost of the purchased Put Option.
- Customer buys a Put option on the EUR with a strike of 1.1370 and sells a Call option on the EUR with a strike of 1.0790, thus being assured of a minimum and maximum selling price for the EUR against USD

Graphical overview



Spot at expiry

	Below 1.0790	Between 1.0790 and 1.1370	Above 1.1370
Spot	0.9900	1.1100	1.2000
Realized rate	1.1370	1.1060	1.0790

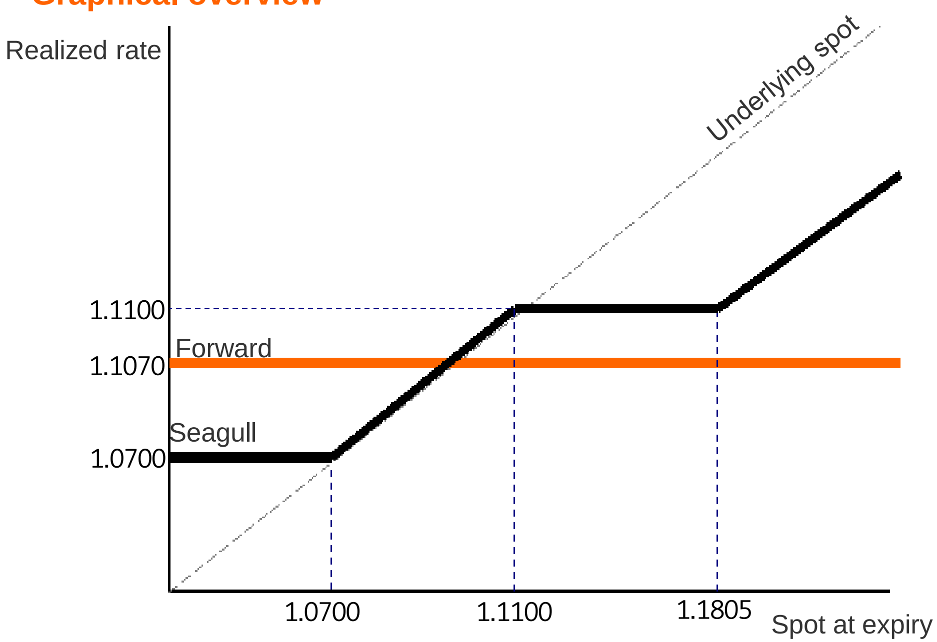
Pros	Cons
▪ Provides full protection against a depreciation of the EUR/USD rate ▪ Net zero premium strategy ▪ Compared to a Forward, Customer is able to sell the EUR at a higher rate if the spot at expiry is below 1.1090	▪ Customer is hedged at a guaranteed rate which is lower than the Forward ▪ Customer is only able to benefit from a depreciation in EUR/USD; the effective rate lowers if EUR/USD appreciates

Seagull

Low risk, 100% Hedge, upside participation

- A Seagull is a zero premium strategy and provides full protection against the depreciation of the EUR/USD exchange rate, while at the same time allowing Customer to benefit from an appreciation of the spot rate until and above pre-determined level
- Customer buys a Put option on the EUR at a strike of 1.0700, sells a Call option on the EUR at a strike of 1.1100, and buys a Call option on the EUR at a strike of 1.1805
- Customer is (a) guaranteed a minimum rate of 1.0700 (Put level), (b) is able to benefit from EUR/USD appreciation until 1.1100 and (c) is able to benefit from EUR/USD appreciation above 1.1805, with a realized rate computed as follows: Spot at expiry - (1.1805- 1.1100)

Graphical overview



Spot at expiry

	At or Below 1.0700	Between 1.0700 and 1.1100	Between 1.1100 and 1.1805	At or Above 1.1805
Spot	0.9900	1.0900	1.1453	1.2000
Realized rate	1.0700	1.0900	1.1100	1.1295

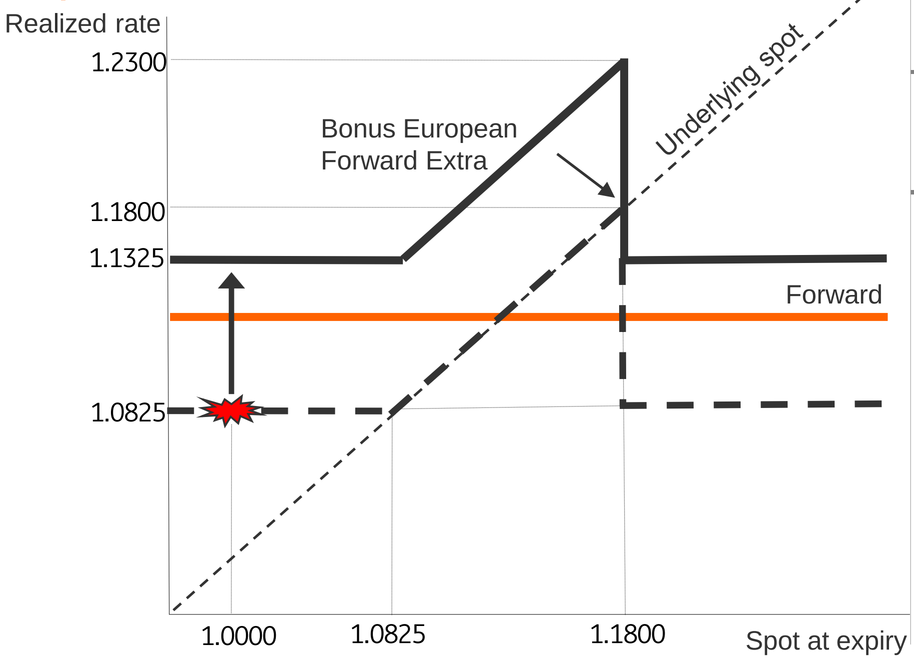
Pros	Cons
▪ Provides full protection against a depreciation of the EUR/USD rate ▪ Net zero premium strategy ▪ Opportunity to benefit from an appreciation of EUR/USD until 1.1100 ▪ Opportunity to benefit from an appreciation of EUR/USD above 1.1805	▪ Customer is hedged at a guaranteed rate which is lower than the Forward ▪ If the spot trades between 1.1100 and 1.1805, the Customer has to sell EUR at 1.1100 ▪ The realized rate if spot trades above 1.1805 will be lower than the market rate

Bonus European Forward Extra

Low risk, 100% Hedge, upside participation

- A Bonus European Forward Extra is a zero premium strategy appropriate for downside protection combined with a bearish view on EUR/USD
- The strategy provides full protection against depreciation of the EUR/USD exchange rate while at the same time allowing Customer to benefit from an appreciation of the rate until a pre-determined level
- In addition, if a barrier on the downside gets hit at any time during the tenor, Customer receives a 'bonus'. The bonus level can be chosen freely and will impact the worst and best case rate. The lower the barrier, the higher the bonus (ceteris paribus)
- Customer is (a) guaranteed a minimum rate of 1.0825, (b) is able to benefit from EUR/USD appreciation up to 1.1800, and (c) will receive a 'bonus' of USD 0.0500 if EUR/USD trades below 1.0000 at any moment during the full tenor

Graphical overview



Spot at expiry

	At or Below 1.0000	Between 1.0000 and 1.0825	Between 1.0000 and 1.0825	Between 1.0825 and 1.1800	Between 1.0825 and 1.1800	At or above 1.1800	At or Above 1.1800
Spot	0.9900	1.0400	1.0400	1.1300	1.1300	1.2000	1.2000
Lowest spot	n.a.	≤ 1.0000	> 1.0000	≤ 1.0000	> 1.0000	≤ 1.0000	> 1.0000
Realized rate	1.1325	1.1325	1.0825	1.1800	1.1300	1.1325	1.0825

Pros

- Provides full protection against a depreciation of the EUR/USD rate
- Net zero premium strategy
- If the EUR/USD spot rate appreciates but does not trade at or above 1.1800 at expiry, Customer may sell the EUR at a rate which is higher than the Forward
- Customer receives 'bonus' if EUR/USD hits 1.0000 during the tenor

Cons

- If EUR/USD does not hit 1.0000 during the tenor, Customer is hedged at a guaranteed rate which is lower than the Forward
- If the EUR/USD spot rate at expiry trades at or above 1.1800, Customer is obliged to sell the EUR at 1.0825 or 1.1325, depending on the 1.0000 barrier being hit or not

2. FX Hedging Short Position

Short EUR/USD position

For illustration purposes, the strategies presented follow these assumptions:

- Customer has a Short position in EUR against USD
- Customer needs hedging for a tenor of 6 Months
- Reference spot rate is at 1.1000 (spot)
- Reference outright forward is at 1.1070 (Forward)

Strategy summary	Improvement Direction *	Improvement Participation	Premium	Worse case rate	Best case rate
Forward	None	None	No	1.1070	n.a.
Call	Down	100%	375**	1.1445***	open
Risk Reversal	Down	Limited	No	1.1330	1.0780
Participating Forward	Down	50%	No	1.1330	open
Risk Reversal Extra	Down	Limited	No	1.1330	1.0201
Forward Extra	Down	Limited	No	1.1230	1.0001
European Forward Extra	Down	Limited	No	1.1245	1.0301
Inverse Forward Extra	Up	Limited	No	1.1185	1.0571
Forward Plus	Down	Limited	No	1.1370	1.0001
Extra Forward Extra	Up/Down	Limited	No	1.1300	1.0601
Knock-Out Forward	Down	100%, if barrier hit	No	1.1300	open if…
Contingent Forward	Down	Limited	No	1.1240	1.2001
Inverse Risk Reversal	Up	Limited	No	1.1330	1.0865
Seagull	Down	100%, below lower strike	No	1.1500	open
Bonus European Forward Extra	(Up)/Down	Limited	No	1.1330	1.0851

* = Direction spot needs to move to improve the effective hedge rate

** = in pips

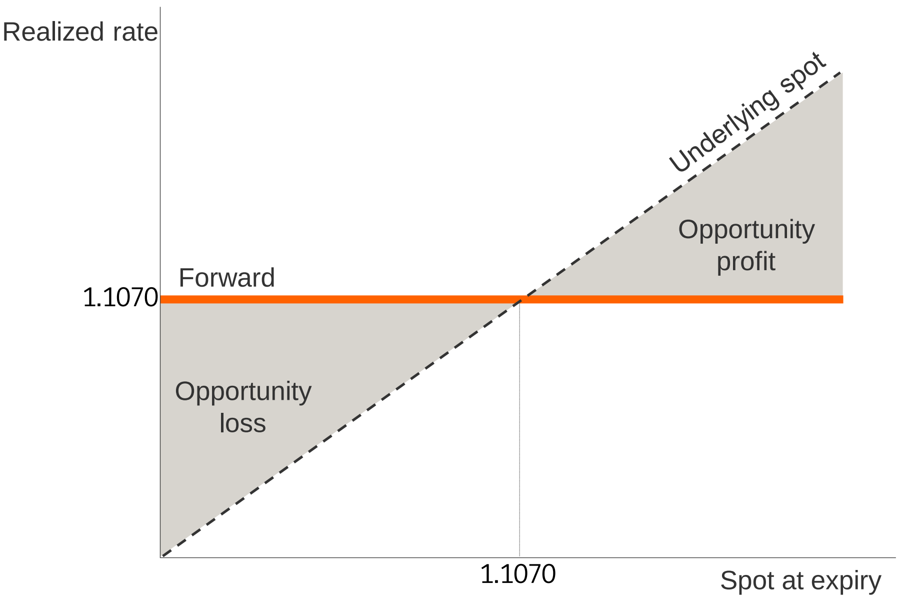
*** = including premium

Forward

Low risk, 100% Hedge, no downside participation

- A Forward contract is a deal to exchange currencies at an agreed date in the future, at a pre-determined exchange rate set at inception. Entering into a Forward is the most standard and basic strategy for Customer to fully hedge the position against currency risk
- With a Forward Contract, Customer agrees to buy its EUR at the Outright Forward Rate of 1.1070, which provides full protection against the appreciation of the spot rate, but will not be able to benefit should the spot rate EUR/USD depreciate
- Forward rates are determined on the basis of the spot rate, adjusted for the interest rate differential between the currencies

Graphical overview



Spot at expiry

	Below 1.1070	Above 1.1070
Spot	0.9900	1.2200
Realized rate	1.1070	1.1070

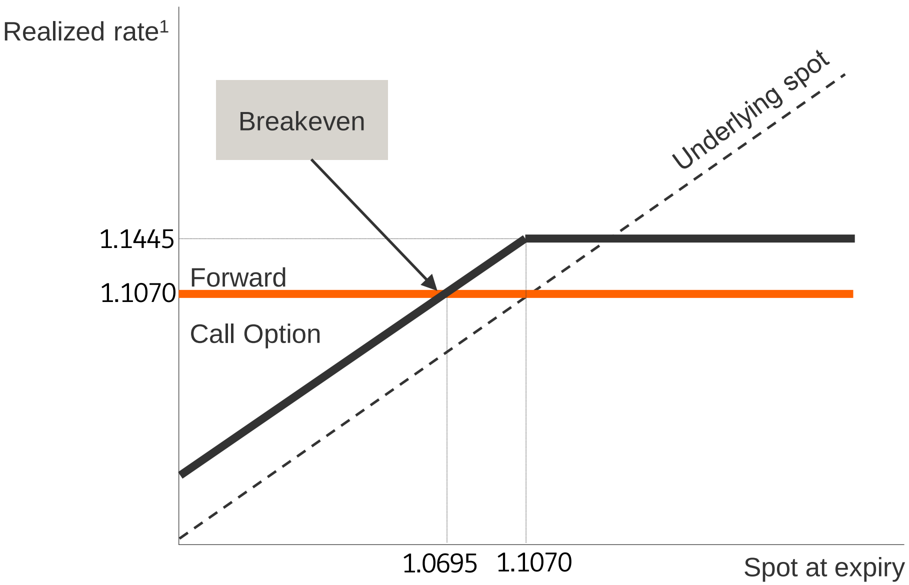
Pros	Cons
▪ Provides full protection against an appreciation of the EUR/USD rate ▪ No Premium	▪ Customer is unable to benefit from a depreciation of the EUR/USD rate below 1.1070

Call Option

Low risk, 100% Hedge, full downside participation

- A plain vanilla Call Option on the EUR gives Customer the right, but not the obligation, to buy the EUR against USD at a fixed rate on expiration of the option
- A premium for the option is paid upfront and the option is exercised when the spot rate is above the fixed rate ('strike price') at expiry
- For a premium of USD 0.0375 per EUR, Customer has the right to buy the EUR at 1.1070, while retaining the possibility of buying at more favourable rates in case of EUR/USD depreciation
- The premium is determined by the following factors: current forward rate, strike price, tenor, volatility and interest rates of the underlying currencies

Graphical overview



Spot at expiry

	Below 1.1070	Above 1.1070
Spot	0.9900	1.2200
Outcome	Buy EUR at market rate	Option is exercised
Realized rate[1]	1.0275	1.1445

Pros	Cons
• Provides full protection against an appreciation of the EUR/USD rate • Compared to the Forward, Customer is able to buy EUR at a more favourable rate if the spot at expiry is below 1.0695	• Premium required to be paid up front • Due to the premium, Customer realizes a rate less favourable than the Forward if the spot at expiry is above 1.0695

1. Realized Rate accounts for the premium paid upfront

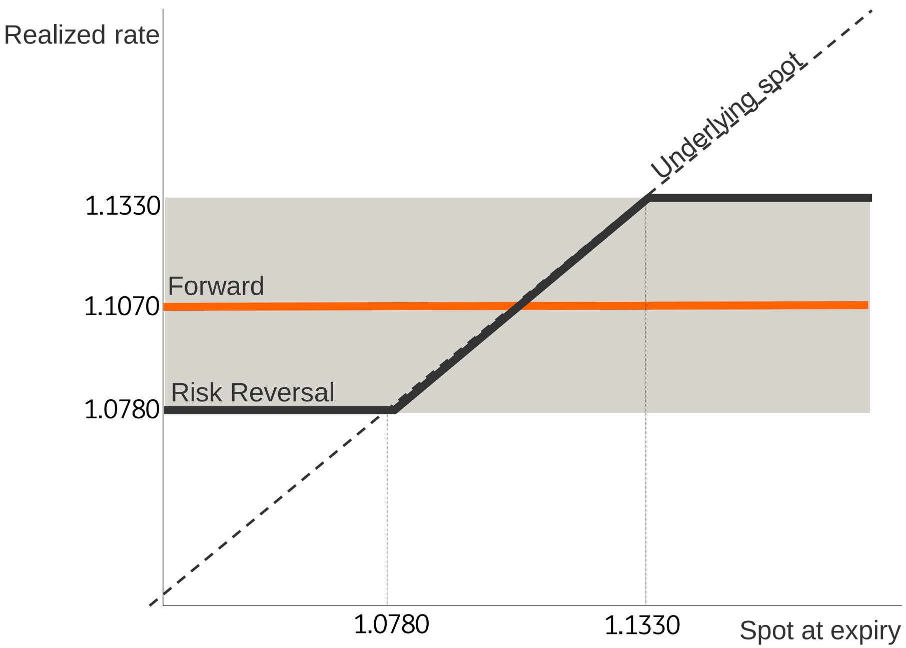
Risk Reversal

Low risk, 100% Hedge, limited downside participation

- A Risk Reversal is a zero premium strategy and provides a minimum and a maximum realizable rate for the EUR against the USD. It provides full protection against the appreciation of the spot and involves the purchase of a Call option and the sale of a Put option for the same amount. The premium raised by the sale of the Put matches the cost of the purchased Call Option

- Customer buys a Call option on the EUR at a strike of 1.1330 and sells a Put option on the EUR at a strike of 1.0780, thus is assured of a minimum and maximum buying price for the EUR against USD

Graphical overview



Spot at expiry

	Below 1.0780	Between 1.0780 and 1.1330	Above 1.1330
Spot	0.9900	1.1100	1.2200
Realized rate	1.0780	1.1100	1.1330

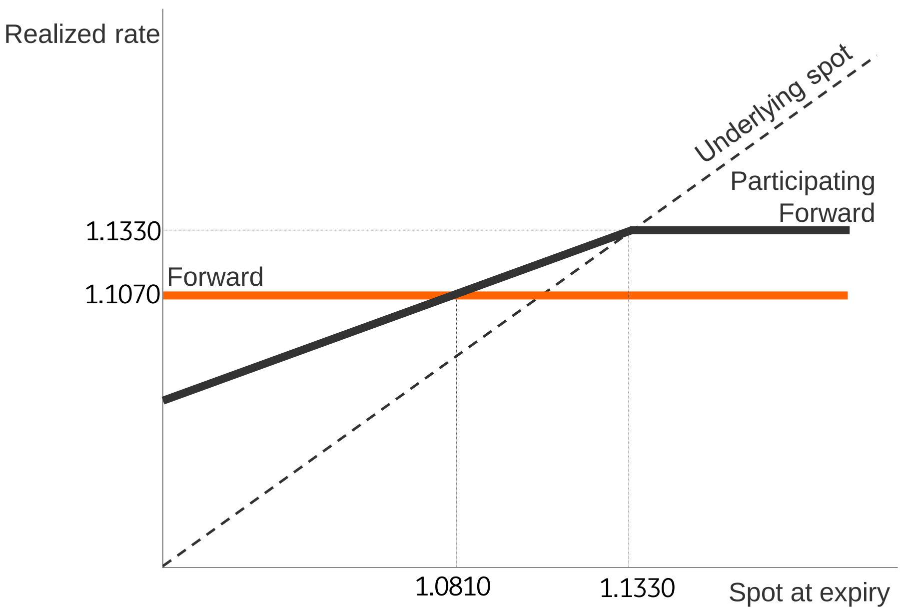
Pros	Cons
• Provides full protection against an appreciation of the EUR/USD rate • Net zero premium strategy • Compared to a Forward, Customer is able to buy the EUR at a lower rate if the spot at expiry is below 1.1070	• Customer is unable to benefit from a depreciation of the EUR/USD rate below 1.0780 • Customer is hedged at a guaranteed rate which is higher than the Forward

Participating Forward

Low risk, 100% Hedge, 50% downside participation

- A Participating Forward is a zero premium strategy and provides full protection against the appreciation of the spot rate while allowing Customer to partially benefit from an unlimited depreciation of the underlying spot rate
- It involves buying a Call option on the EUR for 100% of the hedge amount and selling a Put option on the EUR for 50% of the hedge amount, both at a strike of 1.1330. Therefore if the EUR/USD depreciates, Customer may secure a better rate for the 'open part' of the hedge amount (50%) by buying the residual EUR at the spot market
- By entering into a Participating Forward, Customer is guaranteed a maximum rate of 1.1330 and participates in EUR/USD depreciation below that level

Graphical overview



Spot at expiry	Below 1.1330	Above 1.1330
Spot	0.9900	1.2200
Outcome	Buy 50% at spot Buy 50% at 1.1330	Option is exercised
Realized rate	1.0615	1.1330

Pros	Cons
• Provides full protection against an appreciation of the EUR/USD rate • Net zero premium strategy • Compared to a Forward, Customer is able to buy the EUR at a lower rate if the spot at expiry is below 1.0810 • 50% participation in unlimited depreciation of the spot	• Customer is hedged at a guaranteed rate which is higher than the Forward

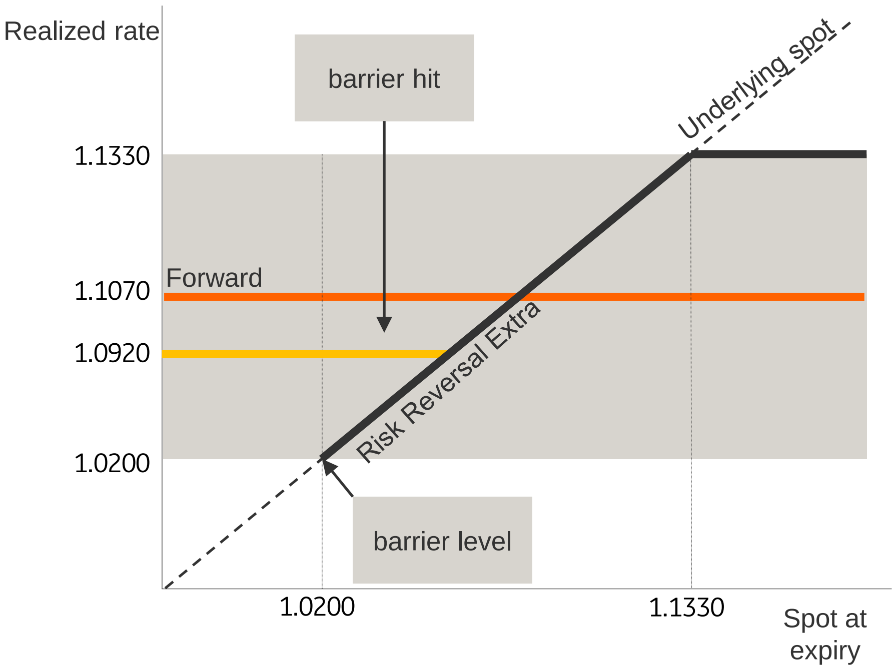
Risk Reversal Extra

Low risk, 100% Hedge, limited downside participation

- Similar to a Risk Reversal, the Risk Reversal Extra is a zero premium strategy and provides a minimum and maximum realizable rate for the EUR against USD. The difference in a Risk Reversal Extra is that Customer can achieve a lower minimum realizable rate compared to the Risk Reversal, but Customer also has a chance to end at a higher realizable rate compared to the Risk Reversal

- Customer is (a) guaranteed a maximum rate of 1.1330, (b) may fully benefit from the depreciation of EUR/USD as long as the spot does not trade at or below 1.0200, and (c) has a potential obligation to buy the EUR at 1.0920 if the EUR/USD spot rate depreciates to or below 1.0200

Graphical overview



Spot at expiry

	At or Below 1.0200	Between 1.0200 and 1.1330	Between 1.0200 and 1.1330	At or Above 1.1330
Spot	0.9900	1.0800	1.0800	1.2200
Highest spot	n.a.	≤ 1.0200	> 1.0200	n.a.
Realized rate	1.0920	1.0920	1.0800	1.1330

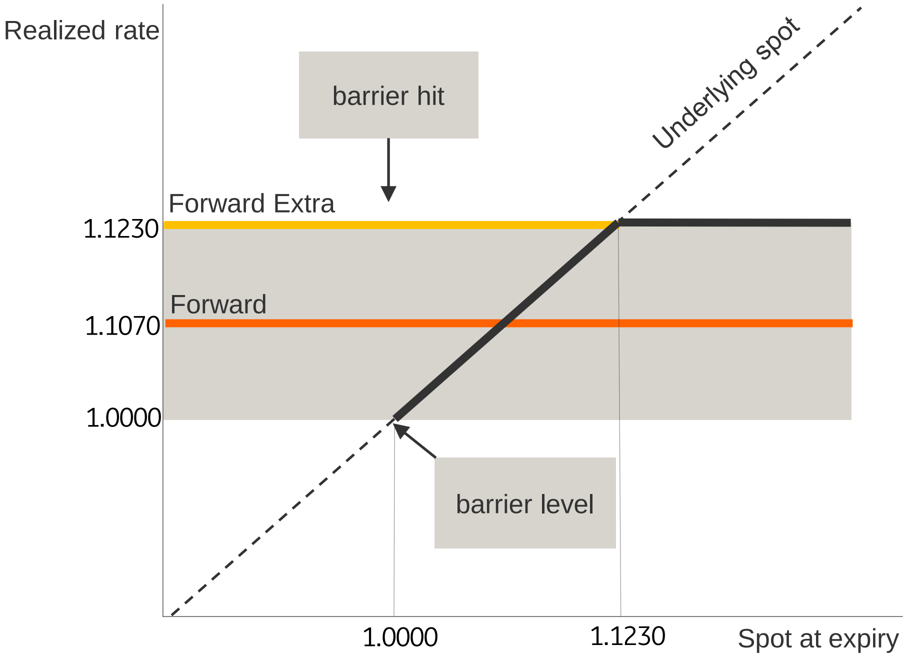
Pros	Cons
▪ Provides full protection against an appreciation of the EUR/USD rate ▪ Net zero premium strategy ▪ Compared to a Forward, Customer is able to buy the EUR at a lower rate if the spot at expiry is below 1.1070 ▪ Lower minimum rate possible compared to a Risk Reversal	▪ Customer is hedged at a guaranteed rate which is higher than the Forward ▪ Customer is unable to benefit from a depreciation of the EUR/USD below 1.0200

Forward Extra

Low risk, 100% Hedge, limited downside participation

- A Forward Extra is a zero premium strategy and provides full protection against the appreciation of the EUR/USD spot rate, while at the same time allowing Customer to benefit from the depreciation of the spot rate down to a pre-determined barrier level
- Customer is (a) guaranteed a maximum rate of 1.1230, and (b) is able to benefit from EUR/USD depreciation down to
- If the EUR/USD spot rate trades at or below 1.0000 at any time during the tenor, Customer will be required to buy the EUR at 1.1230 regardless of where the spot is at expiry

Graphical overview



Spot at expiry

	At or Below 1.0000	Between 1.0000 and 1.1230	Between 1.0000 and 1.1230	At or Above 1.1230
Spot	0.9900	1.0600	1.0600	1.2200
Highest spot	n.a.	≤ 1.0000	> 1.0000	n.a.
Realized rate	1.1230	1.1230	1.0600	1.1230

Pros	Cons
• Provides full protection against an appreciation of the EUR/USD rate • Net zero premium strategy • If the EUR/USD spot rate depreciates but does not trade at or below 1.0000, Customer may buy the EUR at a rate which is lower than the Forward	• Customer is hedged at a guaranteed rate which is higher than the Forward • If the EUR/USD spot rate trades at or below 1.0000, Customer is obliged to buy the EUR at 1.1230 • Barrier level 1.0000 is applicable at any time during the tenor

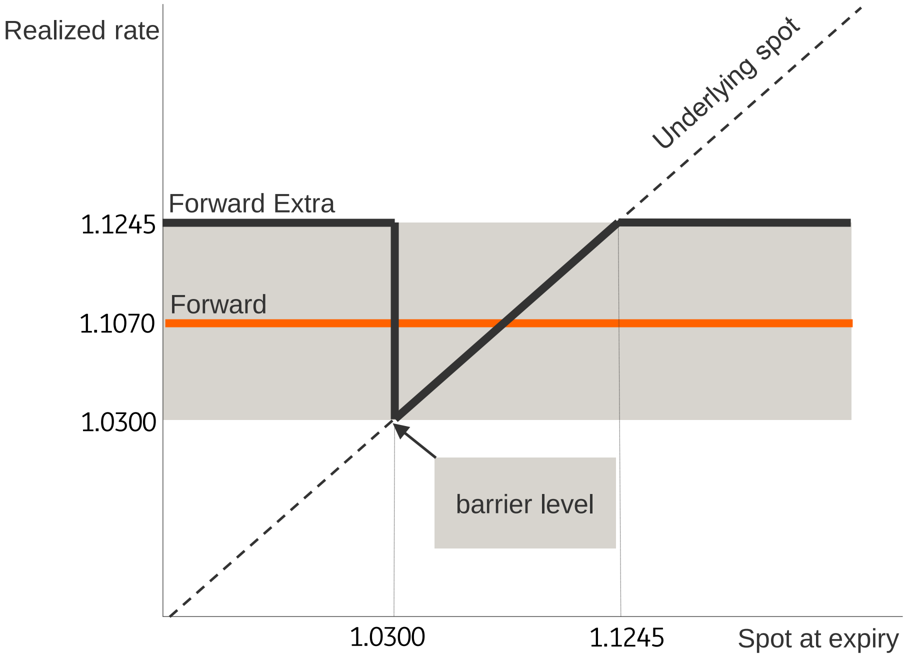
ING

European Forward Extra

Low risk, 100% Hedge, Limited downside participation

- A European Forward Extra is a zero premium strategy and provides full protection against the appreciation of the EUR/USD spot rate, while at the same time allowing Customer to benefit from the depreciation of the spot rate down to a predetermined barrier level
- Customer is (a) guaranteed a maximum rate of 1.1245, and (b) benefits if EUR/USD depreciates down to 1.0300 at expiry
- If the EUR/USD spot rate trades at or below 1.0300 at expiry, Customer will be required to buy the EUR at 1.1245

Graphical overview



Spot at expiry

	Below 1.0300	Between 1.0300 and 1.1245	Above 1.1245
Spot	0.9900	1.0773	1.2200
Realized rate	1.1245	1.0773	1.1245

Pros

- Provides full protection against an appreciation of the EUR/USD rate
- Net zero premium strategy
- If the EUR/USD spot rate depreciates but does not trade at or below 1.0300 at expiry, Customer may buy the EUR at a rate which is lower than the Forward
- Barrier level is only applicable at expiry

Cons

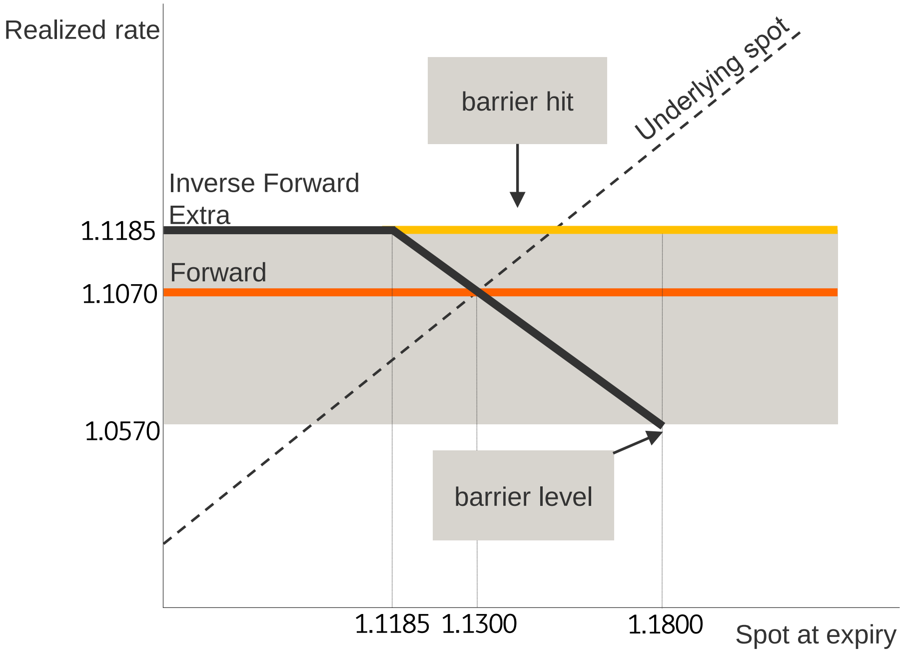
- Customer is hedged at a guaranteed rate which is higher than the Forward
- If the EUR/USD spot rate at expiry trades at or below 1.0300, Customer is obliged to buy the EUR at 1.1245

Inverse Forward Extra

Low risk, 100% Hedge, Limited downside participation

- An Inverse Forward Extra is a zero premium strategy and provides full protection against an appreciation of the EUR/USD spot rate, while at the same time allowing Customer to benefit from an appreciation of the spot rate up to a pre-determined barrier level
- Customer is (a) guaranteed a maximum rate of 1.1185 (= Inverse Forward Extra Level), and (b) is able to benefit from EUR/USD appreciation up to 1.1800, the barrier level
- Customer is able to benefit from EUR/USD appreciation up from 1.1185 to 1.1800: Inverse Forward Extra Level + (Inverse Forward Extra Level - Final spot)

Graphical overview



Spot at expiry

	At or Below 1.1185	Between 1.1185 and 1.1800	Between 1.1185 and 1.1800	At or Above 1.1800
Spot	0.9900	1.1500	1.1500	1.2200
Lowest spot	n.a.	< 1.1800	≥ 1.1800	n.a.
Realized rate	1.1185	1.0870	1.1185	1.1185

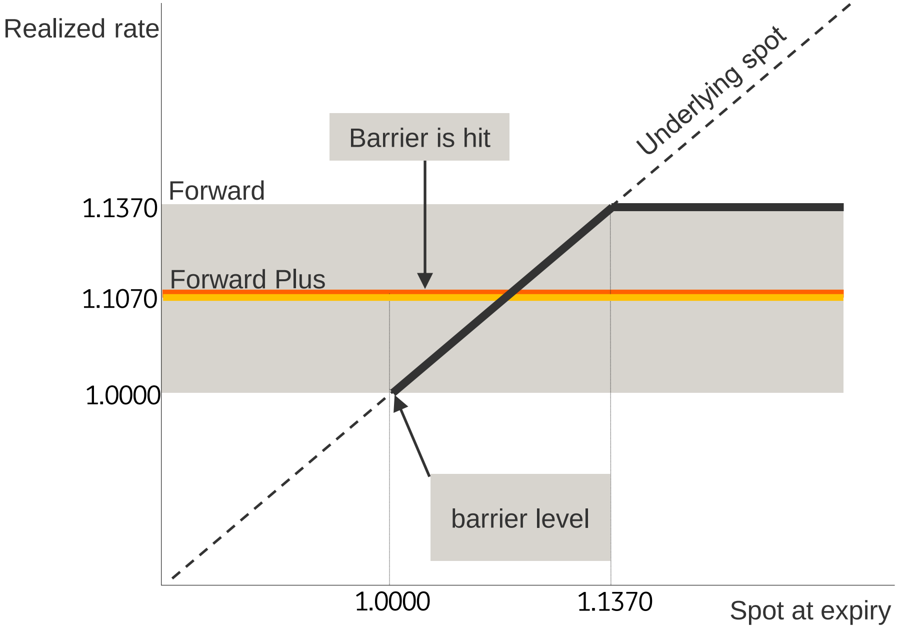
Pros	Cons
• Provides full protection against an appreciation of the EUR/USD rate • Net zero premium strategy • If the EUR/USD spot rate appreciates but does not trade at or above 1.1800, Customer may buy the EUR at a rate which is lower than the Forward	• Customer is hedged at a guaranteed rate which is higher than the Forward • Barrier level 1.1800 is applicable at any time during the tenor

Forward Plus

Low risk, 100% Hedge, limited downside participation

- A Forward Plus is a zero premium strategy and provides full protection against an appreciation of the EUR/USD spot rate, while at the same time allowing Customer to benefit from the depreciation of the spot rate down to a pre-determined barrier level
- Customer is (a) guaranteed a maximum rate of 1.1370. and (b) able to benefit from EUR/USD depreciation down to 1.0000
- If the EUR/USD spot rate trades at or below 1.0000, at any time during the tenor, Customer will be required to buy the EUR at 1.1070, which is equal to the Forward

Graphical overview



Spot at expiry

	At or Below 1.0000	Between 1.0000 and 1.1370	Between 1.0000 and 1.1370	At or Above 1.1370	At or Above 1.1370
Spot	0.9900	1.0685	1.0685	1.2200	1.2200
Highest spot	n.a.	≤ 1.0000	> 1.0000	≤ 1.0000	> 1.0000
Realized rate	1.1070	1.1070	1.0685	1.1070	1.1370

Pros	Cons
▪ Provides full protection against an appreciation of the EUR/USD rate ▪ Net zero premium strategy ▪ If the EUR/USD spot rate depreciates but does not trade at or below 1.0000, Customer may buy the EUR at a rate which is lower than the Forward	▪ Customer is hedged at a guaranteed rate which is higher than the Forward ▪ If the EUR/USD spot rate trades at or below 1.0000, Customer is obliged to buy the EUR at 1.1070 ▪ Barrier level 1.0000 is applicable at any time during the tenor

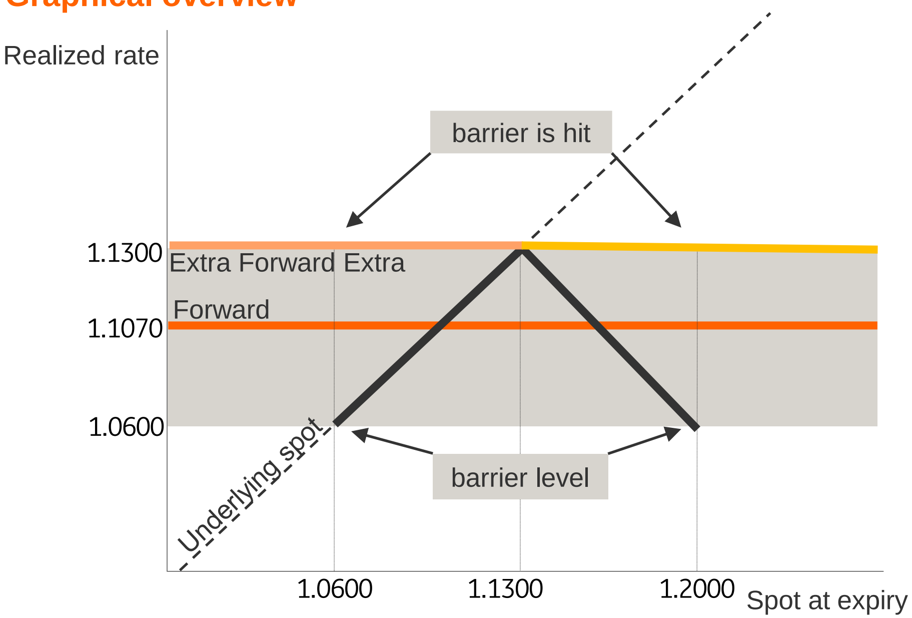
ING

Extra Forward Extra

Low risk, 100% Hedge, limited downside and limited upside participation

- An Extra Forward Extra is a zero premium strategy and provides full protection against an appreciation of the EUR/USD rate, while at the same time allowing Customer to benefit from both the appreciation and depreciation of the spot rate, both to a pre-determined barrier level
- Customer is (a) guaranteed a maximum rate of 1.1300 (‘Extra Forward Extra Level’), and (b) is able to benefit from:
  - EUR/USD depreciation: down to 1.0600; computed as follows: Extra Forward Extra Level + (Final spot – Extra Forward Extra Level)
  - EUR/USD appreciation: up to 1.2000; computed as follows: Extra Forward Extra Level + (Extra Forward Extra Level - Final spot)

Graphical overview



Spot at expiry

	At or Below 1.1300	At or Below 1.1300	At or Above 1.1300	At or Above 1.1300
Spot	0.9900	1.1000	1.1700	1.2200
Lowest spot	≤ 1.0600	> 1.0600	n.a.	n.a.
Highest spot	n.a.	n.a.	< 1.2000	≥ 1.2000
Realized rate	1.1300	1.1000	1.0900	1.1300

Pros

- Provides full protection against an appreciation of the EUR/USD rate
- Net zero premium strategy
- If the EUR/USD spot rate depreciates but does not trade at or below 1.0600, or If the spot appreciates but does not trade at or above 1.2000, Customer may buy the EUR at a rate which is lower than the Forward

Cons

- Customer is hedged at a guaranteed rate which is higher than the Forward
- If the EUR/USD spot rate trades at or beyond both barrier levels Customer will not be able to benefit and is obliged to buy the EUR at 1.1300
- Barrier levels 1.2000 and 1.0600 are applicable at any time during the tenor

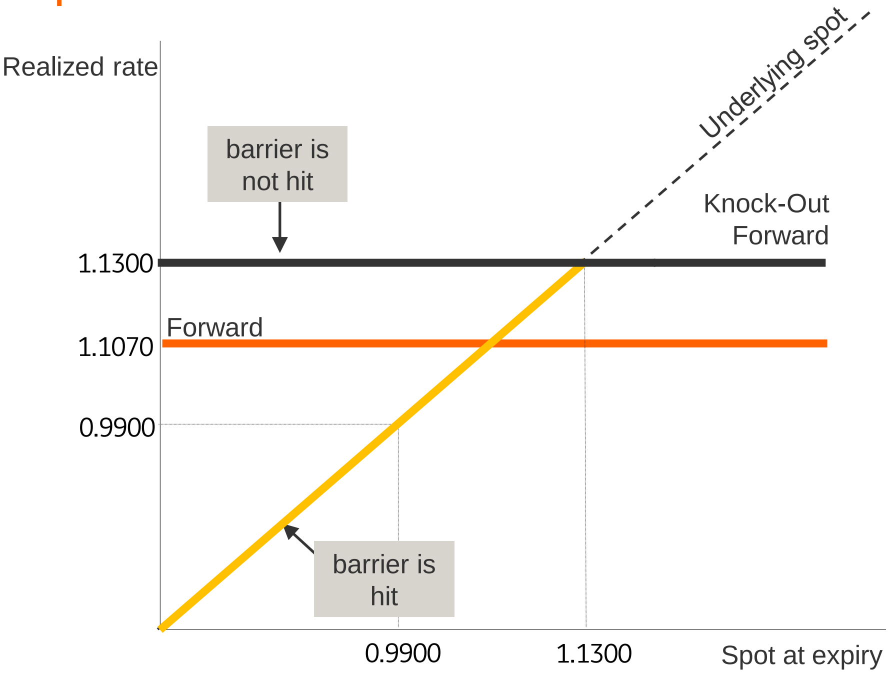
ING

Knock-Out Forward

Low risk, 100% Hedge, with possible full downside participation

- The Knock-Out Forward is a zero premium strategy and provides full protection against an appreciation of the EUR/USD spot rate. At the same time Customer will be able to benefit from a depreciation of the spot rate if this spot rate hits a barrier level at any time during the tenor of the strategy
- Customer is guaranteed a maximum rate of 1.1300, regardless of whether the spot does or does not hit the barrier level
- If the EUR/USD spot rate trades at any time during the tenor at or above 1.1300 (barrier level) Customer will be able to fully benefit from EUR/USD depreciation down from 1.1300

Graphical overview



Spot at expiry

	Below 1.1300	Below 1.1300	Above 1.1300
Spot	0.9900	0.9900	1.2200
Barrier hit	No	Yes	n.a.
Realized rate	1.1300	0.9900	1.1300

Pros	Cons
▪ Provides full protection against an appreciation of the EUR/USD rate ▪ Net zero premium strategy ▪ If the EUR/USD spot rate trades at or above 1.1300 and depreciates afterwards, Customer may buy the EUR at a rate which is lower than the Forward ▪ Barrier level 1.1300 is applicable at any time during the tenor	▪ Customer is hedged at a guaranteed rate which is higher than the Forward ▪ If the EUR/USD spot rate does not trade at or above 1.1300, Customer is obliged to buy the EUR at 1.1300

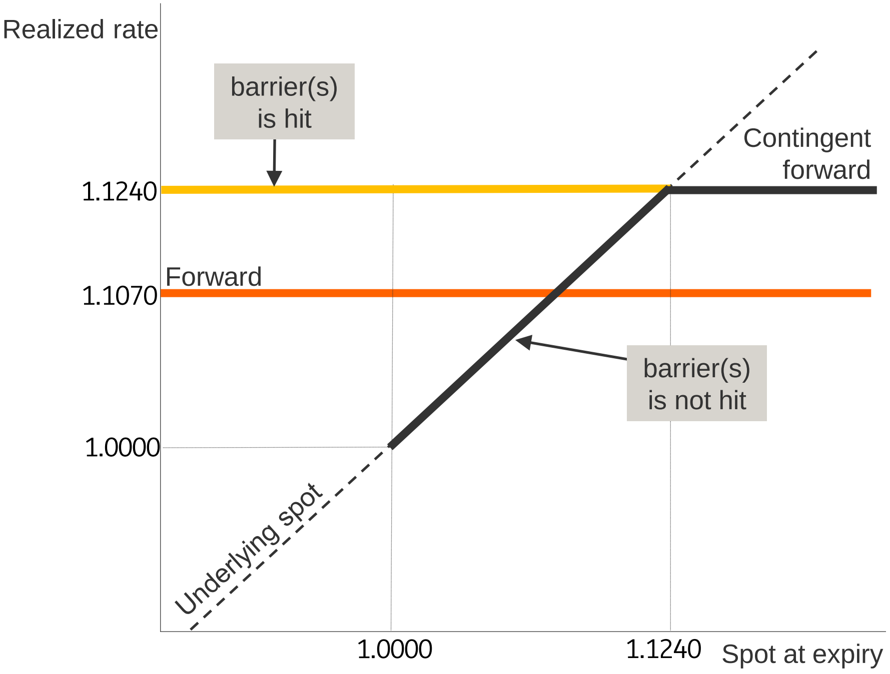
ING

Contingent Forward

Low risk, 100% Hedge, limited downside participation

- The Contingent Forward is a zero premium strategy and provides full protection against an appreciation of the EUR/USD spot rate. At the same time Customer will be able to benefit from the depreciation of the spot rate down to a pre-determined level
- Customer is (a) guaranteed a maximum rate of 1.1240 and (b) is able to profit to benefit from EUR/USD depreciation down to 1.0000
- If the EUR/USD spot trades at or below 1.0000 or at or above 1.2000 at any time during the tenor, Customer will be required to buy the EUR at 1.1240, regardless where the spot is at expiry

Graphical overview



Spot at expiry

	Below 1.1240	Below 1.1240	Above 1.1240
Spot	1.0600	1.0600	1.2200
Barrier(s) hit	Yes	No	n.a.
Realized rate	1.1240	1.0600	1.1240

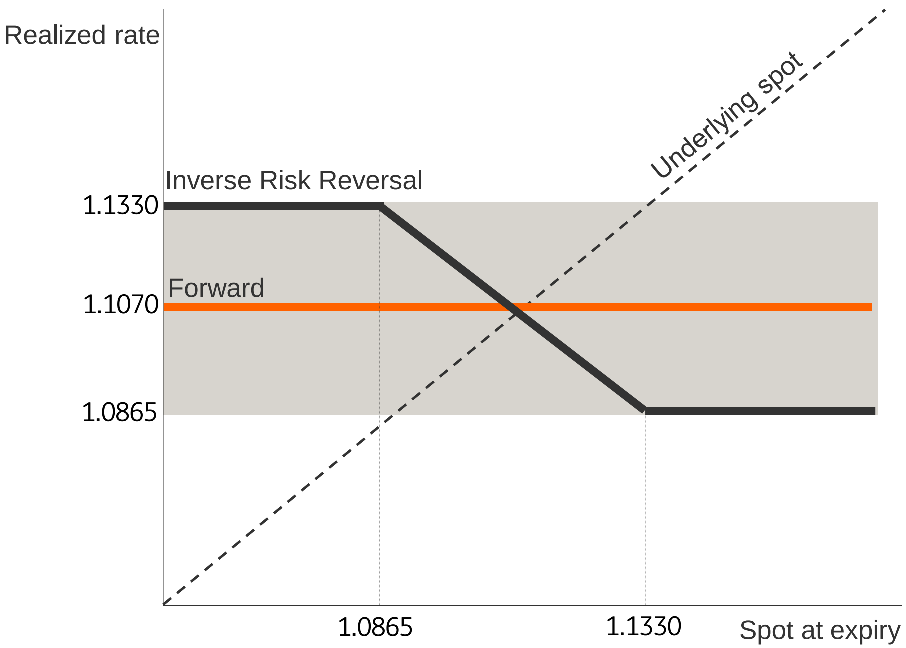
Pros	Cons
• Provides full protection against an appreciation of the EUR/USD rate • Net zero premium strategy • If the EUR/USD spot rate appreciates but does not trade at or above 1.2000, or If the EUR/USD spot rate depreciates but does not trade at or below 1.0000, Customer may buy the EUR at a rate which is lower than the Forward	• Customer is hedged at a guaranteed rate which is higher than the Forward • If the EUR/USD spot rate trades at or beyond one of the barriers, Customer is obliged to buy the EUR at 1.1240 • Barrier levels 1.0000 and 1.2000 are applicable at any time during the tenor

Inverse Risk Reversal

Low risk, 100% Hedge, limited upside participation

- An Inverse Risk Reversal is a zero premium strategy and provides a minimum and a maximum realizable rate for the EUR against the USD. It gives the opportunity to profit from an appreciation until a pre-determined level and provides protection to a further appreciation.
- It involves the purchase of an In-The-Money Call option and the sale of an In-The-Money Put option for the same amount. The premium raised by the sale of the Put matches the cost of the purchased Call Option.
- Customer buys a Call option on the EUR with a strike of 1.0865 and sells a Put option on the EUR with a strike of 1.1330, thus being assured of a minimum and maximum buying price for the EUR against USD

Graphical overview



Spot at expiry

	Below 1.0865	Between 1.0865 and 1.1330	Above 1.1330
Spot	0.9900	1.1100	1.2200
Realized rate	1.1330	1.1095	1.0865

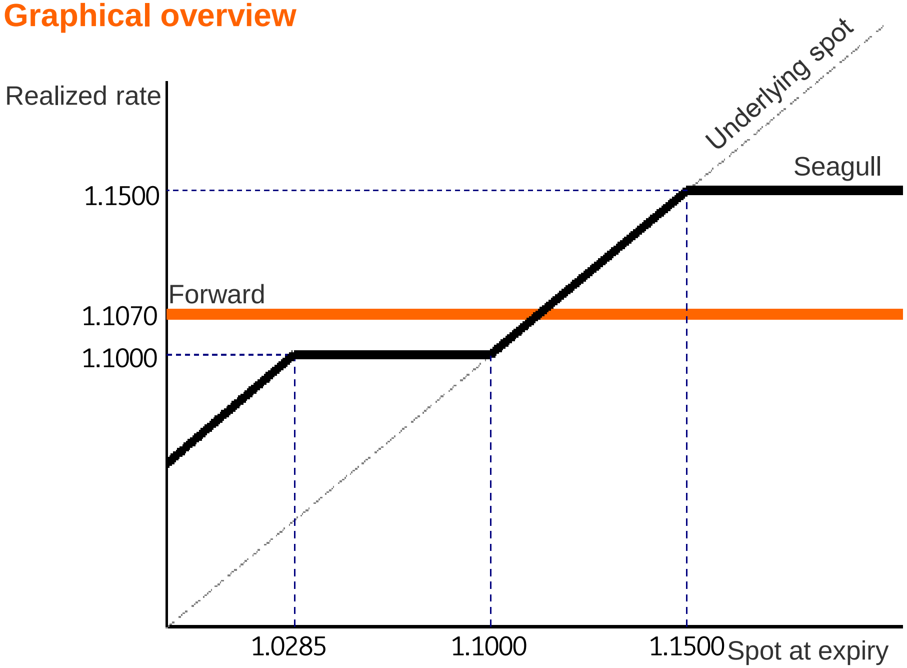
Pros	Cons
▪ Provides full protection against an appreciation of the EUR/USD rate ▪ Net zero premium strategy ▪ Compared to a Forward, Customer is able to buy the EUR at a lower rate if the spot at expiry is above 1.1125	▪ Customer is hedged at a guaranteed rate which is higher than the Forward ▪ Customer is only able to benefit from an appreciation in EUR/USD; the effective rate increases if EUR/USD depreciates

Seagull

Low risk, 100% Hedge, downside participation

- A Seagull is a zero premium strategy and provides full protection against the appreciation of the EUR/USD exchange rate, while at the same time allowing Customer to benefit from a depreciation of the spot rate until and below pre-determined level
- Customer buys a Call option on the EUR at a strike of 1.1500, sells a Put option on the EUR at a strike of 1.1000, and buys a Put option on the EUR at a strike of 1.0285
- Customer is (a) guaranteed a maximum rate of 1.1500 (Call level), (b) is able to benefit from EUR/USD depreciation until 1.1000 and (c) is able to benefit from EUR/USD depreciation below 1.0285, with a realized rate computed as follows: Spot at expiry - (1.0285- 1.1000)

Graphical overview



Spot at expiry

	At or Below 1.0285	Between 1.0285 and 1.1000	Between 1.1000 and 1.1500	At or Above 1.1500
Spot	0.9900	1.0643	1.1250	1.2200
Realized rate	1.0615	1.1000	1.1250	1.1500

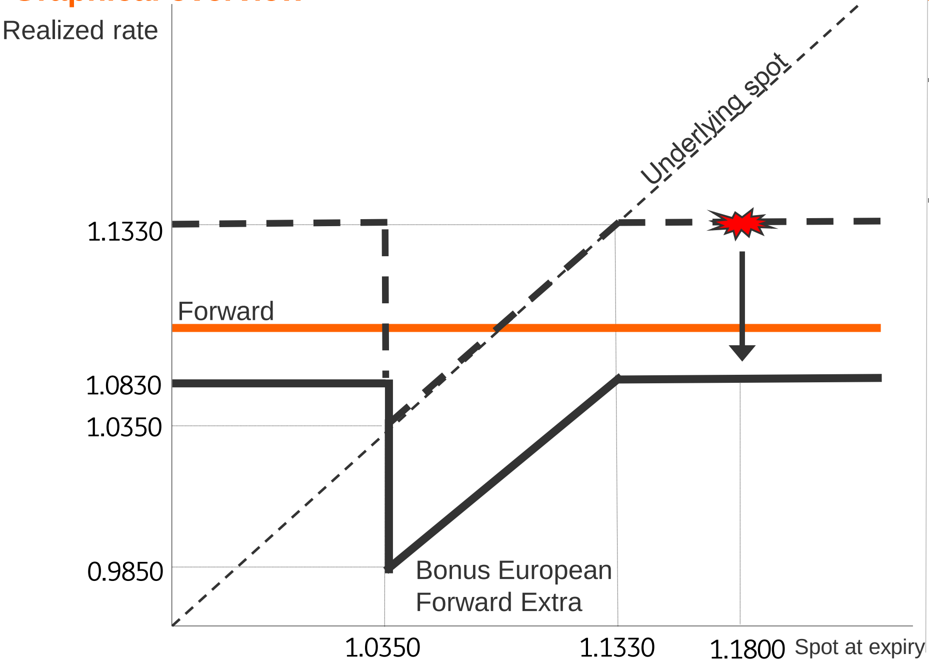
Pros	Cons
• Provides full protection against an appreciation of the EUR/USD rate • Net zero premium strategy • Opportunity to benefit from a depreciation of EUR/USD until 1.1000 • Opportunity to benefit from a depreciation of EUR/USD below 1.0285	• Customer is hedged at a guaranteed rate which is higher than the Forward • If the spot trades between 1.1000 and 1.0285, the Customer has to buy EUR at 1.1000 • The realized rate if spot trades below 1.0285 will be higher than the market rate

Bonus European Forward Extra

Low risk, 100% Hedge, downside participation

- A Bonus European Forward Extra is a zero premium strategy appropriate for upside protection combined with a bullish view on EUR/USD
- The strategy provides full protection against appreciation of the EUR/USD exchange rate while at the same time allowing Customer to benefit from a depreciation of the rate until a pre-determined level
- In addition, if a barrier on the topside gets hit at any time during the tenor, Customer receives a 'bonus'. The bonus level can be chosen freely and will impact the worst and best case rate. The higher the barrier, the higher the bonus (ceteris paribus)
- Customer is (a) guaranteed a maximum rate of 1.1330, (b) is able to benefit from EUR/USD depreciation down to 1.0350, and (c) will receive a 'bonus' of USD 0.0500 if EUR/USD trades above 1.1800 at any moment during the full tenor

Graphical overview



Spot at expiry

	At or Below 1.0350	At or Below 1.0350	Between 1.0350 and 1.1330	Between 1.0350 and 1.1330	Between 1.1330 and 1.1800	Between 1.1330 and 1.1800	At or Above 1.1800
Spot	0.9900	0.9900	1.0800	1.0800	1.1500	1.1500	1.2200
Lowest spot	< 1.1800	≥ 1.1800	< 1.1800	≥ 1.1800	< 1.1800	≥ 1.1800	n.a.
Realized rate	1.1330	1.0830	1.0800	1.0300	1.1330	1.0830	1.0830

Pros

- Provides full protection against an appreciation of the EUR/USD rate
- Net zero premium strategy
- If the EUR/USD spot rate depreciates but does not trade at or below 1.0350 at expiry, Customer may buy the EUR at a rate which is lower than the Forward
- Customer receives 'bonus' if EUR/USD hits 1.1800 during the tenor

Cons

- If EUR/USD does not hit 1.1800 during the tenor, Customer is hedged at a guaranteed rate which is higher than the Forward
- If the EUR/USD spot rate at expiry trades at or below 1.0350, Customer is obliged to buy the EUR at 1.1330 or 1.0830, depending on the 1.1800 barrier being hit or not

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