7. forward extra

MIFID complexity
FX 3

product description

A forward extra deal combines the security of a forward deal with the flexibility of an option. If you have a concrete idea about the maximum forint strengthening that would be advantageous to your company you can enjoy the benefits of a pure right to buy in exchange for a level of protection that is somewhat higher (i.e. less advantageous) than the normal forward rate.

The forward extra is built up of a right to buy and a barrier obligation to buy. The obligation will be triggered when the exchange rate reaches a specific knock-in level:

- consequently, your company acquires a right to buy foreign currency at the forward extra rate (which is higher than the forward rate) provided that the spot rate on expiry is above the forward extra rate , and even if it is below the forward rate but in this case the option will not be exercised
- if the EUR/HUF rate reaches the trigger level, your obligation to buy becomes effective at the forward extra rate

There are two types of this “knock-in” trigger level:

- European type trigger: the question of whether the obligation becomes effective at the forward extra rate depends only on the spot rate at 12 p.m. on the expiry date.
- American type trigger: the obligation may become effective at any time during the tenor. The trigger is available also as a partial/ window barrier, when the trigger exists only over a certain part time period (window), which is fixed in advance.

For a given forward extra rate a European type trigger has a less favourable knock in level than an American trigger. In other words, the obligation to buy foreign currency may come into effect at a smaller appreciation of the forint. However, in case of a European type trigger the exchange rate is not monitored during the whole tenor, it will be decided whether the obligation to buy will come into effect on the spot exchange rate at only 12 p.m. on the expiry date.

In summary: before the trigger level is reached the arrangement works like a standard call option but if the trigger level is reached it turns into a normal FX forward (creating both a right and an obligation) at the same strike price.

Costs and revenues of the underlying exposure can compensate both the potential gains and losses of the deal, as long as the company assesses its underlying exposure and market situation properly.

The deals are made in order to stabilize the results, not to realise standalone financial gain.

example for an American type trigger: a Hungarian importer expects to incur EUR 100 000 a year from now in expenses. Let us assume that the current spot exchange rate is 290 EUR/HUF, and the one-year forward rate is 302 EUR/HUF. The company expects that the on the expiry date the spot rate will be more advantageous than the forward rate but it would like to have 100% protection against a potential depreciation of the forint. It cannot afford a EUR/HUF exchange rate above 315 but it expects that the EUR/HUF rate will not reach 270 during the tenor of the deal. The company is willing to take the risk that if the spot rate reaches 270 EUR/HUF at any time during the term (including the expiry date), it will only have a forward contract at a strike price of 315 EUR/HUF, thus it enters into a forward extra transaction at a forward extra rate of 315 EUR/HUF with an American trigger at 270 EUR/HUF. Altogether, the company enjoys protection against the depreciation of the forint up to the 315 EUR/HUF rate and can benefit from a potential appreciation of the forint until the 270 EUR/HUF rate. If, however, the 270 level is reached, the company’s obligation to buy foreign currency will be triggered so then the conversion must take place at 315 on the expiry date.

parameters of the forward extra with an American trigger	
notional amount	EUR 100 000
currency pair	EUR/HUF
tenor	1 year
expiry date (date of exchange rate monitoring)	2 business days before end of tenor
exchange rate monitoring	EUR/HUF spot rate at 12:00 p.m.(CET) on the expiry date
settlement date	end of tenor
spot rate prevailing at pricing	290 EUR/HUF
forward rate	302 EUR/HUF
ATMF volatility	15%
forward extra rate	315 EUR/HUF
trigger level (American)	270 EUR/HUF
transaction cost on the trade date	zero
possible scenarios on expiry depending on the spot market rates at 12:00 p.m. on the expiry date	
A) the exchange rate never reaches the 270 EUR/HUF rate during the tenor or on the expiry date	
A/1) exchange rate above 315 EUR/HUF	your company can buy EUR 100 000 at a rate of 315 EUR/HUF
A/2) exchange rate below 315 EUR/HUF	your company can buy euros at the spot rate prevailing on expiry
B) the exchange rate reaches 270 EUR/HUF during the tenor or on the expiry date	your company has a forward deal for EUR 100 000 at a rate of 315 EUR/HUF
best-case scenario (treasury transaction on a standalone basis)	The EUR/HUF spot rate is above 315 on the expiry date. In this case your company can buy EUR 100 000 at a rate of 315 EUR/HUF.
worst-case scenario (treasury transaction on a standalone basis)	At any time during the tenor, the EUR/HUF spot rate reaches the 270 trigger level and on the expiry date the EUR/HUF spot rate is below 315. In this case your company has to buy EUR 100 000 at a rate of 315 EUR/HUF. The resulting foreign exchange loss can be unlimited.

the market value of the position two weeks after the trade date from the customer's point of view

market value: the cost of closing the position calculated at a given point of time and under the prevailing market terms and conditions (the deal can be closed with profit if the market value is positive)

(assumption: except for the spot market rate, all other factors are unchanged)

The number of possible outcomes is unlimited, and there may be even more extreme values than the ones presented below.

spot rate in two weeks (EUR/HUF)	market value of the position (HUF)
270	-3 043 000 HUF
300	572 000 HUF
330	2 865 000 HUF

financial outcome of some possible scenarios on the expiry date, <u>if the exchange rate does not reach the knock in level during the tenor.</u>

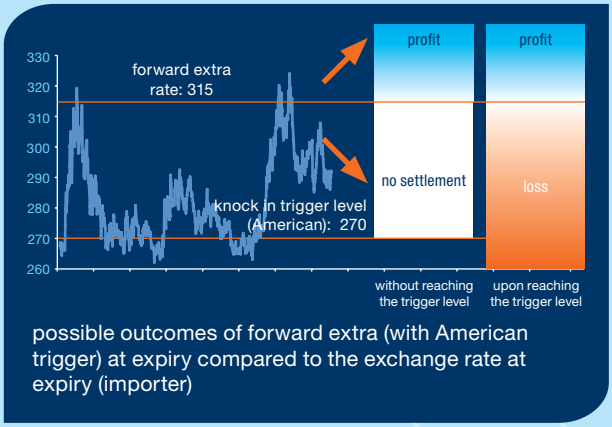
The number of possible financial outcomes is unlimited, and there may be even more extreme values than the ones presented below.

exchange rate on the expiry date (EUR/HUF)	underlying exposure's financial outcome with no treasury transaction (HUF)	profit / loss of the product on a standalone basis (HUF)	underlying exposure's financial outcome with the treasury transaction, hedged position (HUF)
280	280 * 100 000 = 28 000 000	0	280 * 100 000 = 28 000 000
300	300 * 100 000 = 30 000 000	0	300 * 100 000 = 30 000 000
330	330 * 100 000 = 33 000 000	(330 – 315) * 100 000 = 1 500 000	315 * 100 000 = 31 500 000

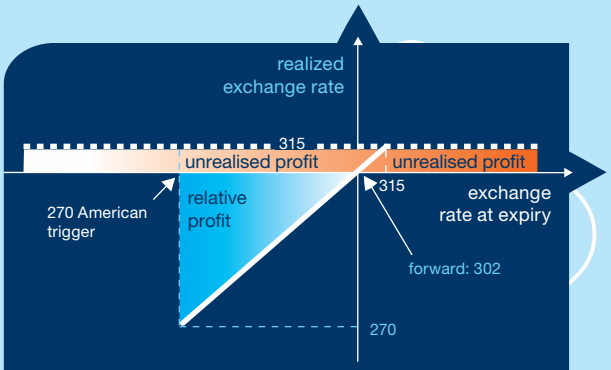
financial outcome of some possible scenarios on the expiry date, <u>if the exchange rate reaches the knock in level during the tenor.</u>

The number of possible financial outcomes is unlimited, and there may be even more extreme values than the ones presented below.

exchange rate on the expiry date (EUR/HUF)	underlying exposure's financial outcome with no treasury transaction (HUF)	profit / loss of the product on a standalone basis (HUF)	underlying exposure's financial outcome with the treasury transaction, hedged position (HUF)
270	270 * 100 000 = 27 000 000	(270 – 315) * 100 000 = - 4 500 000	315 * 100 000 = 31 500 000
300	300 * 100 000 = 30 000 000	0	315 * 100 000 = 31 500 000
330	330 * 100 000 = 33 000 000	(330 – 315) * 100 000 = 1 500 000	315 * 100 000 = 31 500 000



possible outcomes of forward extra (with American trigger) at expiry compared to the exchange rate at expiry (importer)



outcome of forward extra (with American trigger) at expiry as a hedging position compared to forward foreign exchange purchase (importer)

The chart illustrates the possible financial outcomes; profit or loss of the transaction may be balanced out by the financial outcome of the underlying exposure. The evolution of the historical exchange rate on the chart only intends to show a comparison between the level(s) of the transaction and the exchange rates prevailing in the past. Future evolution of the exchange rate and exchange rate fluctuations until maturity are unknown in advance, extent of profit or loss depends on the exchange rate level upon expiry. Number of possible outcomes is infinite and there may be even more extreme values than the ones presented below. The chart is not suitable to forecast the market value of the position during the tenor.

example for an European type trigger: a Hungarian importer expects to incur EUR 100 000 a year from now in expenses. Let us assume that the current spot rate is 290 EUR/HUF, and the one-year forward rate is 302 EUR/HUF. The company expects the spot rate on expiry to be better than the forward rate but it would like to enjoy 100% protection against a potential depreciation of the forint. It cannot afford a EUR/HUF exchange rate above 315, but it expects that on the expiry date the EUR/HUF rate will not reach 284. The company is willing to take the risk that if on the expiry date the EUR/HUF exchange rate reaches the level 284, or goes below that, it will only have a forward contract at a strike price of 315 EUR/HUF, therefore it enters into a forward extra transaction at a forward extra rate of 315 EUR/HUF, with an European type trigger at 284 EUR/HUF.

All in all, the company enjoys protection against the depreciation of the forint up to the 315 EUR/HUF (forward extra) rate, and can benefit from a potential appreciation of the forint until the 284 EUR/HUF rate. If, however, the 284 level is reached, the company's obligation to buy foreign currency will be triggered so then the conversion must take place at 315 (forward extra) rate on the expiry date.

parameters of the forward extra with a European trigger	
notional amount	EUR 100 000
currency pair	EUR/HUF
Tenor	1 year
expiry date (date of exchange rate monitoring)	2 business days before end of tenor
exchange rate monitoring	EUR/HUF spot rate at 12:00 p.m. (CET) on the expiry date
settlement date	end of tenor
spot rate prevailing at pricing	290 EUR/HUF
forward rate prevailing at pricing	302 EUR/HUF
ATMF volatility	15%
forward extra rate	315 EUR/HUF
trigger level (European)	284 EUR/HUF
transaction cost on the trade date	zero
possible scenarios on expiry depending on the spot market rates at 12:00 p.m. on the expiry date	
A) the exchange rate is above 284 EUR/HUF at 12 p.m. on the expiry date	
A/1) exchange rate is above 315 EUR/HUF	your company can buy EUR 100 000 at a rate of 315 EUR/HUF
A/2) exchange rate is between 284 and 315 EUR/HUF	your company can buy euros at the spot rate prevailing on expiry
B) the exchange rate is below 284 EUR/HUF at 12 p.m. on the expiry date	your company has a forward deal for EUR 100 000 at a rate of 315 EUR/HUF
best-case scenario (treasury transaction on a standalone basis)	The EUR/HUF spot rate on the expiry date is above 315. In this case your company can buy EUR 100 000 at a rate of 315 EUR/HUF.
worst-case scenario (treasury transaction on a standalone basis)	The EUR/HUF spot rate is below the 284 on the expiry date. In this case your company has to buy EUR 100 000 at a rate of 315 EUR/HUF. The resulting foreign exchange loss can be unlimited.

the market value of the position two weeks after the trade date from the customer's point of view

market value: the cost of closing the position calculated at a given point of time and under the prevailing market terms and conditions (the deal can be closed with profit if the market value is positive)

(assumption: except for the spot market rate, all other factors are unchanged)

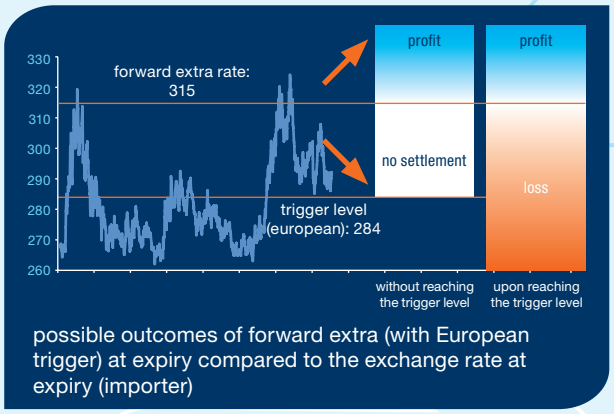
The number of possible outcomes is unlimited, and there may be even more extreme values than the ones presented below.

spot rate in two weeks (EUR/HUF)	market value of the position (HUF)
270	-2 601 000
300	471 000
330	3 049 000

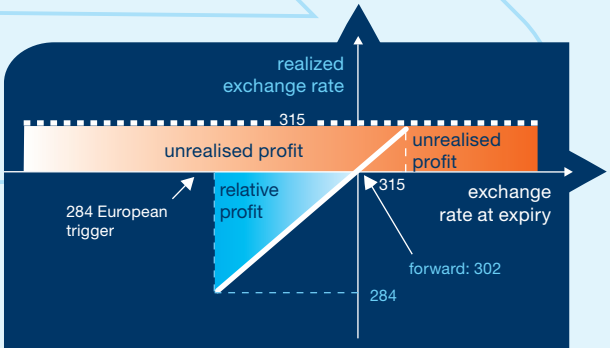
financial outcome of some possible scenarios on the expiry date

The number of possible financial outcomes is unlimited, and there may be even more extreme values than the ones presented below.

exchange rate on the expiry date (EUR/HUF)	underlying exposure's financial outcome with no treasury transaction (HUF)	profit/loss of the product on a standalone basis (HUF)	underlying exposure's financial outcome with the treasury transaction, hedged position (HUF)
270	270 * 100 000 = 27 000 000	(270 – 315) * 100 000 = - 4 500 000	315 * 100 000 = 31 500 000
300	300 * 100 000 = 30 000 000	0	300 * 100 000 = 30 000 000
330	330 * 100 000 = 33 000 000	(330 – 315) * 100 000 = 1 500 000	315 * 100 000 = 31 500 000



possible outcomes of forward extra (with European trigger) at expiry compared to the exchange rate at expiry (importer)



outcome of forward extra (with European trigger) at expiry as a hedging position compared to forward foreign exchange purchase (importer)

The chart illustrates the possible financial outcomes; profit or loss of the transaction may be balanced out by the financial outcome of the underlying exposure. The evolution of the historical exchange rate on the chart only intends to show a comparison between the level(s) of the transaction and the exchange rates prevailing in the past. Future evolution of the exchange rate and exchange rate fluctuations until maturity are unknown in advance, extent of profit or loss depends on the exchange rate level upon expiry. Number of possible outcomes is infinite and there may be even more extreme values than the ones presented below. The chart is not suitable to forecast the market value of the position during the tenor.

advantages of transaction

- full protection against a possible depreciation of the forint, the maximum exchange rate of the future currency buying transactions is fixed in advance (the worst-case scenario is known)
- as long as the spot rate does not reach the trigger level, the company can take full advantage of exchange rate levels better than the forward rate
- no cost or separate fee charged
- the forward extra rate and the trigger level can be tailored to your expectations, plans and budget. Changing a parameter entails change in the rest.
- if the hedge is no longer needed, the position can be closed with a counter deal at any time before the expiry date. This may result in profit or loss, depending on the prevailing market conditions.

risks of transaction

- protection at a level less advantageous than the standard forward rate
- after the trigger level has been reached the call option will be replaced by a forward contract whereby the company will be obliged to buy its currency above the normal forward rate
- if you decide to close your position before expiry by means of a counter deal you may incur a loss
- the market value of options is determined by the evolution of the spot exchange rate, the interest rate levels of the two currencies for the given tenor, the difference between the interest rates for the given tenor, the number of days remaining until the expiry of the transaction, and the evolution of market volatility. The drop in market liquidity could lead to a bid-offer spread widening, which could also affect the market value of the position negatively.
- the change in market value could lead to an obligation of temporary or permanent increase of collateral which may affect the company's liquidity and solvency negatively. In case of exceptional market circumstances (e.g. money market and other crises) the negative market value of the position from the Client's

viewpoint could reach such extreme levels that providing sufficient collateral may cause the company to become insolvent. Moreover, failure to provide additional collateral in time might lead to the closure of open positions thus prompt realization of losses, which may affect the company's liquidity and solvency negatively.

- chapter I/b. entitled "Risk Factors" of "K&H Treasury Handbook of Market Risk Management" lists those risks that do not originate exclusively from the nature of the product described here, but rather, from other factors.

product structure

The forward extra is built up of a right to buy and a barrier obligation to buy. The section on plain vanilla options and barrier options of Chapter I/c. entitled "5 Basic Products" of "K&H Treasury Handbook of Market Risk Management " also applies to this product.