

# Time to widen your options

Andrew Moorfield of bfinance argues that it is time that treasurers looked beyond the jargon and include FX options in their hedging or moving.

Foreign exchange (FX) options offer the company more flexibility in its transactional hedging than the forward contract, since they allow them to benefit from any advantageous currency movements while offering protection against the adverse ones. The firm can even take protection for translation hedging via use of options more easily than with a forward contract.

However, FX options are still used infrequently, particularly outside the FTSE 100. This is mainly because they are viewed as expensive, risky and difficult to understand. But fairly cursory examination will prove the opposite in respect of risk and difficulty, and there are a number of ways to reduce the cost and still maintain advantages. As with many aspects in treasury practice, UK corporates should consider using a range of products in their hedging strategies and certainly include FX options as one of the more attractive tools available.

For the purposes of examining how companies should transact FX options, we will look at some examples based on cable (£/US\$), as this is one of the more familiar currency pairs to UK organisations. For example, a UK firm may buy a six-

month sterling call/US\$ Put option as a hedge against exposures resulting from dollar-denominated receivables. This would give it the right, but not the obligation, to sell dollars at an agreed rate in six month's time.

## **Intrinsic value**

Although these are available to the company, it is more important to understand the basis of the pricing than to actually calculate the number. There are a number of variables in the price model. The key point is to remember that minimising the range of the variables will reduce the price. Technically, the price of an option is a function of its intrinsic value and its time value:

The option's intrinsic value is the profit that would be realised if the option were to expire today. Therefore, intrinsic value derives from the prevailing spot and forward rates in relation to the strike price (the price at which the option is exercised) and the historic variability of the currency pair in the past, and expected in the future.

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In practical terms, the value can be measured in several ways. 'In the money' (ITM), which if exercised today would produce immediate profit because the strike is profitable against the outright forward rate; 'at the money' (ATM), where the strike is the same as the outright forward; and 'out of the

money' (OTM), where the forward rate is more favourable than the strike.

The greater the level of immediate profit available, the more expensive the option price for the purchaser. For example, if the spot rate is \$1.50 and the outright forward is \$1.52 at, say, six months, an option to sell dollars, buy sterling (a dollar put/sterling call) at a strike of \$1.5 (ITM against the Forward rate) will be more expensive than a strike of \$1.52, (ATM), which will be more expensive than a strike of \$1.48 (OTM).

## **Put and Call**

The terminology of options is one of the first hurdles to overcome. Sellers and bank dealers relish jargon, but this is confusing and should be avoided. A currency Put option gives the buyer the right, but not the obligation, to sell (Put) a currency to the bank at a pre-determined rate (the Strike price) at/or before an agreed date in the future (the Expiry date). A Call option gives the buyer the right to buy (Call) a currency from the bank at a pre-determined rate at/or before an agreed date in the future.

Because we are dealing with two currencies here, the more perceptive reader will realise that a sterling call against the dollar is the same as a dollar put against sterling. Options derive from trading goods for physical delivery, where the buyer of the option would Put the object to the seller of the option for cash. Currency options have this added level of complexity as a result of selling one currency and buying another. But if this dual nature of the transaction is fully understood, much of the mystery dissolves.

## **Pricing the option**

The time value of the option is a function of volatility and time to maturity. The longer the time to maturity, the greater the period during which it can become ITM, thus the greater the risk of the option being exercised by the purchaser, so the higher the price of the option. Volatility of currency pairs is rarely analysed by treasurers and is not required to use options effectively. But when tracking the price of an option during the time the treasurer is contemplating purchase, or even comparing bids from competing banks, it is necessary to be aware of this volatility if the movement in price is to be understood.

## **Time value**

The volatility is crucial to the bank's pricing of the option. In essence, banks buy and sell volatility and price options according to their view of the past and present relationship between currency pairs. For the corporate, the current forward market will be regarded as more important than volatility, because this is effectively the alternative to the option.

**Differing bank and corporate perspectives**

As before, the banks' view of the market is essentially based around the volatility of a currency pair. The bank is looking at how to profit from volatility by buying and selling it at a margin. It bases its options book on volatility positions and will directly hedge its spot positions to remain 'spot neutral' or close to it. That means that for the bank the movement in spot is of little consequence. This can be in direct contrast with the company view. Once the option price is paid, it is the forward rate that determines whether the deal has been effective.

**Transacting options**

We shall assume there is a dollar receivable due in six months and it is desirable to fix the sterling value. This can be hedged with a forward sale of dollars, which will certainly fix the sterling. An alternative is to buy a dollar put/sterling call option.

Usually, the company will be purchasing an option. It is possible to sell an option. But this gives the bank the right, but not the obligation, to exercise the option.

Because options are fundamentally a process of passing risk from the buyer to the seller, it is a sophisticated company that will sell a naked option, unless it is trading options. The writer/seller of an option faces potential unlimited downside if market conditions lead to exercise, in return for only the limited upside of the cash premium.

The skill of a bank in trading options is to have hedged as much of the downside as possible by means of buying and selling the same risk to different counterparties, taking the

**Risk reversal**

This type of option, also referred to as a cylinder or zero cost option, is a means by which the treasurer gives up some of the advantages of the plain vanilla purchased option and gains a reduction in price. This price reduction often results in a zero cost. In this instance, a sterling call/\$ put is purchased at one rate, at the same time as a sterling put/dollar call is sold at a different rate.

The transaction fixes the upper and lower limits of exchange rate around the forward rate. So if the option purchased is at \$1.52 and the option sold is at \$1.48, the receivable will realise at a minimum £65,789 (\$100,000 at \$1.52) and a maximum of £67,567 (\$100,000 at \$1.48). This provides some room for appreciation, while fixing the worst case scenario, at no cost. The strike rates for both are calculated in such a way that the premium is the same for both options.

Readers closely following this article will recall the comments above regarding selling options. In the risk reversal, it is not a naked option that is being sold. It is a band of protection and, again, should be considered against the outright forward. Let us assume that a sterling-based company has a dollar requirement in six month's time.

When transacting a risk reversal, the treasurer is establishing the potential boundaries for the transaction. The actual boundaries can be adjusted by the company taking greater risks – that is, accepting a rate below 1.48, which will produce a rate above 1.52 on the other side of the cylinder. Paying some premium will allow the maintenance of the 1.48, but extend the 1.52.

**The level of risk the company accepts is a function of a number of aspects, including their view of the rate movement and any potential cashflow uncertainty**

premium on both sides for itself as a reward for this risky strategy. In this example, the firm could sell a dollar call to the bank, and receive the premium as a result.

However, the maximum the company could now receive is the strike price plus the premium. If the spot rate at expiry is better than the strike, the bank will exercise and the corporate will lose the difference between the strike and the spot. If the spot is worse than the strike, the bank will not exercise and the corporate will only receive the inferior spot.

We will assume that the receivable is \$100,000, the outright forward is \$1.5, and the ATM option price is 1.5% of the dollar amount. (Options prices are quoted as percentages of currency amount.) This means the option will cost £1,500. The effect therefore of buying the option, is to fix an exchange rate of no worse than \$1.5229, this being the proceeds of \$100,000 at the forward rate \$1.5 less the price of the option, £1,500. But any improvement in the dollar will be available to the company. So if the rate at expiry is \$1.45, there is a significant gain for the buyer, who will ignore the option and sell the dollars when received. The comment 'when received' evidences another advantage of the option over the forward contract. If the dollars are not received at all, the forward contract results in an exposure to the company. The option merely expires unused.

Note that when transacting options you need to clarify if the option is American (that it can be exercised at any time in its life), or European, which can only be exercised at the end of its life).

At all times a worst case scenario is protected at 1.48. The level of risk the company accepts is a function of a number of aspects, including their view of the rate movement and any potential cashflow uncertainty.

**Exotic or barrier options**

At their simplest level, barrier options involve a company buying or selling an option with a knock-in or knock-out level. This means that the option does not become a contractual obligation until the spot price has moved through a barrier activating it (knock-in) and/or ceases to be a contractual obligation when the spot price has moved through another barrier (knock-out). This is a conditional option that will be triggered if the market reaches a certain level (crosses a barrier) and 'knocks' the option into or out of life. It is similar to a cylinder, but with important differences. An example will help. Let us assume that the forward rate is 1.52, the option is a knock in at \$1.5 for the bank, and that the firm is hedging a dollar payable. The terms may be that the company has a worst case scenario of 1.52, but that the rate may improve in its favour to, say, 1.6. But if 1.6 is traded in the market, the banks option knocks in and the corporate is tied to a rate of 1.5.

The effect of this arrangement is that, again, the corporate may pay two cents above the outright forward, if the dollar has significantly weakened. If this is acceptable, then the trade allows a high degree of gain with no additional risk to the company. The cost of these structures can be zero and the

parameters can be amended by payment of premium.

The deciding factor will be where the bank and the company agree to set the barrier. All items are adjustable within broad limits, depending on price adjustment. Carefully setting the barrier near to key chart points helps the management of the item by the company.

A factor to consider in using options is their liquidity. The more exotic the option, the less liquidity it will have and the greater the buy/sell spread. Companies do not always need an option to run to maturity, and abandoning it or exercising it before the final exercise date as an alternative to selling it, may result in the loss of substantial value. It is therefore important to know in advance what the bank counterparty is likely to do if in order to reverse the option before expiry.

**Risk and return**

The choice of the types of options described here will of course depend largely on the currency view taken by the company and its overall risk management policy. For example, if the firm has the view that sterling will dive to 1.25 against the dollar, but has to have protection in place, it should buy a sterling call/\$ put. Nevertheless, the high price and lack of transparency of some options will still put off some treasurers.

As can be seen from the example above, the cost can be significantly reduced. Indeed, it is possible to set the limits and barriers on exotic options so that the option the company is selling is worth more than that being purchased and the bank will pay the corporate a premium.

It is always a balance of the level of protection required and how valuable that is to the company. It is clear that a 'plain

vanilla' option, for example, to buy dollars for sterling at a fixed price in the future, but with no obligation to do so, is highly desirable. It is also expensive. Adding barriers and limits reduces the absolute purity of the hedge, but provided the hedge remains more valuable than the uncertainty, the deal is worthwhile.

There also exist highly exotic options that have complex payoff matrices and significant gearing effect. These transactions lie outside the scope of this article. But treasurers should be aware that they exist and remain highly cautious as to the uses. Banks often incorporate such items within a complex product. It is recommended that any option product is fully understood at the level of base components, as this will provide a clear understanding of the risks being transferred to the bank and the mechanics of the final outcome.

**Well served**

Bank pricing on FX options is now as tight as that on any other commoditised bank FX product. The terminology of options and the track record when misused, for example, selling naked options has led to some distrust and misunderstanding. Options are a useful and beneficial part of the treasurer's toolbox to manage FX exposure and the time taken to understand the possibilities is well worthwhile. Master the art and use options in full understanding of all aspects and they can serve the corporate treasurer well. ■

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**Gary Trott**

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Profile

**Age:** 28

**Education & Qualifications**

Marshalls Park School  
 1994 CIMA  
 1998 AMCT  
 2000 ACMA

**Career history:**

Accounts Assistant  
 Miltzer & Munch (UK) Ltd  
 1993 Treasury Accountant  
 Visual Communications Ltd (now part of Express Newspapers)  
 1995 Systems Accountant  
 Peachey Brothers (Wholesale) Ltd  
 1997 Financial Accountant  
 Creston Land & Estates plc  
 1999 Financial Accountant  
 Brixton Estate plc  
 2000 Group Accountant  
 MyNewDeal.com

After completing my professional accountancy exams in November 1994 I spent some time building a good base in all round commercial accounting and financial management, with a view to taking a further professional examination in either taxation or treasury.

My interest in treasury first began at Visual Communications which had major clients in different countries around the world. FRA's were used to manage large foreign currency receipts.

I have no doubts that the addition of the ACT qualification has strengthened my CV and I feel gives me an edge when applying for positions. As I like to work in small to medium sized organisations where the roles are varied,

there is usually an emphasis on effective treasury management and forecasting especially efficient utilisation of working capital. Information systems have developed into sophisticated financial management tools and in an SME environment treasury and accounting cannot not be separated.

My current position offers me the opportunity to utilise my Treasury knowledge as not only is there an obvious focus on cash and working capital but I also have responsibility for the groups treasury position and implementation of treasury systems. This involves managing various bank relationships and ensuring the liquidity of the group.