

When drawing up a currency hedging programme, identifying the risks your business faces must be the first priority. Knowing your exact exposure is half of the hedging battle. Next comes selecting the most appropriate hedging instrument or mix of instruments – an approach that should provide a good foundation for the instruments section of your company's foreign exchange (FX) policy.

The most straightforward risks to hedge are those that are certain in nature, such as settlement risks linked to receivables and payables. Forward exchange contracts are the most popular hedging instrument used here because they can exactly offset the FX risks of cashflows that are certain (see *Figure 1*).

The difference between the spot and forward rate means that several issues must be considered before entering forward contracts:

- The accounting rate used to book foreign currency denominated items is unlikely to match the hedge rate. Therefore, an FX profit/loss (either positive or negative) will be created, depending on the interest rate differential.
- Does forward hedging make sense when the interest rate differential is substantial and against the company entering the agreement? This issue is especially acute for emerging market currencies where the cost of selling those currencies forward can be hefty.
- The use of forward contracts should be carefully evaluated in relation to the cashflows of the underlying risk. As a rule, the use of hedging instruments should not result in any cashflow mismatches. Some currency risks, such as net investments in foreign operations are, therefore, inappropriate for hedging with forward contracts. Any cash payouts on the hedge will not be offset by cash receipts from the hedged item.
- Forward contracts are not suitable for hedging uncertain exposures. If losses on the hedge instruments are not offset by profits from the underlying risk, there will be a significant impact on your company's bottom line. This issue formed the basis of the Financial Accounting Standards Board's statement number 52: 'Foreign Currency Translation' that was against applying hedge accounting treatment for forward contracts hedging anticipated cashflows. The position, however, was reversed with Statement of Financial Accounting Standards 133, under the express condition that 'the occurrence of the forecasted transaction is probable'.

**HEDGING FLOATING AND CONTINGENT RISKS.** One of the most challenging currency-related tasks facing treasurers worldwide is getting on top of their companies' overall FX exposures. Even when operational units are enticed to provide as accurate a forecast as possible, business variations, especially in volatile industries such as telecommunications, inevitably occur. Hedging in such circumstances is often tricky and warrants the use of flexible instruments.

Options offer the greatest diversity of risk-reward profiles for companies looking to offset their most complex risks. Unlike forward contracts, options give the buyer the right – not the obligation – to exchange one currency against another at a certain rate. This event can take place on or up to a set date in the future.

For the privilege of participating in such favourable currency moves – without risking the possibility of an adverse fluctuation – (see *Figure 2*), the option buyer must pay a premium upfront. This premium represents the present value of the expected (average) payout of the option.

# What are your hedging options?

UNDERSTANDING YOUR RISKS IS ONE OF THE BIGGEST CHALLENGES COMPANIES FACE WHEN DRAFTING A CURRENCY HEDGING PROGRAMME. ONCE ON TOP OF THIS, THE FOREIGN EXCHANGE MARKET OFFERS A RANGE OF SOLUTIONS INCLUDING OPTIONS – ONE OF THE BEST BETS FOR HEDGING UNCERTAIN RISKS.  
BY DIDIER HIRIGOYEN.

European option premiums are affected by four main parameters:

- The relative position of the strike price – the rate at which the currencies will be exchanged if the option is exercised versus the current forward rate;
- the length of time until the option expires;
- the level of volatility the market expects in the currency pair concerned between the inception of the contract and its expiry date; and
- the discount factor – this obviously drives the present value of the option's expected payout.

## Executive summary

- Forward exchange contracts provide a means of hedging straightforward risks that are certain in nature such as settlement risks linked to payables and receivables.
- Options, which give the buyer the right – not the obligation – to exchange one currency against the other at a certain rate in the future offer a greater diversity of risk-reward profiles for companies looking to offset complex risks.
- The option products available range from barrier options to average rate options, double average options and basket options – all of which can play a key role in a corporate's hedging strategy. Accounting standards, however, only allow limited hedge accounting treatment for options.
- Options are a complement to forwards when hedging cashflow volatility. If uncertainty regarding future cashflows is high, a greater proportion of the risk should be hedged using options. Options are also ideal for hedging contingent exposures such as mergers and acquisitions.
- Debt can provide the best means of offsetting net investment risk, although low premium options are also appropriate.
- Companies are becoming increasingly concerned about year-on-year FX-induced volatility in their earnings. Double average forwards or options are suitable for hedging earnings translation risk.

Doing so will enable the company to minimise the chance of suffering a hedge instrument-induced loss without offsetting gains on the underlying risk. Such risk reduction is expressed in *Figure 3* through a decrease in the Value-at-Risk (VaR) coefficient. The VaR coefficient, as illustrated here, is simply the number of standard deviations that corresponds to a certain confidence level (eg 1.645 standard deviations for 95% confidence), expressed as a proportion of the full underlying currency risk. Since a VaR number expresses a potential loss, the VaR coefficient is tagged with a negative sign.

As the uncertainty surrounding future cashflows grows, so too does the risk from using forward contracts. A blend of forwards and options provides a much more appropriate hedge profile. Obviously, different levels of uncertainty warrant different combinations of the two instruments. The total notional amount hedged may also exceed 100% of the forecast. Although this makes perfect sense since the exposure may either exceed or fall short of the forecast, hedge accounting treatment will only be granted for that portion of the hedge that matches the anticipated exposure. Companies must, therefore, be aware of the possibility of being under-hedged when they follow accounting rules strictly.

Options are also ideal to hedge contingent exposures such as merger and acquisition or bid-to-award situations. Such risks are often managed by aligning the hedge ratio with the probability of occurrence. For example, a company will hedge 60% of a tender notional with forward contracts because it has a 60% chance of winning the contract.

Unfortunately, this approach can lead to an inappropriate hedge ratio. A company will end up 40% under-hedged if the bid is won or 60% over-hedged if it is lost. Only options can help resolve this dilemma – although the costs involved as well as the restrictions imposed by accounting rules often act as a deterrent.

**HEDGING BUSINESS-RELATED RISKS.** Aside from hedging uncertain exposures, options can also provide a very efficient means of hedging foreign exchange risks that may not always be obvious to the treasury department.

The processes followed by business units to determine local currency price lists so that they fall in line with exchange rates fluctuations, often creates a currency risk. The asymmetric nature of this risk profile – local currency prices are adjusted as the exchange rate moves in favour of the firm's customers but not otherwise – means that options are usually the most appropriate hedging instrument to use.

Using forward contracts tends to just modify the risk profile (sometimes inverting it completely) rather than eliminating it.

Failure to use the most appropriate strategy can lead to unexplained FX-induced profits and losses. Moreover, the business units may become less competitive if their hedges prevent them from passing the benefits of favourable exchange rate changes on to their customers.

Risk-sharing agreements with customers and/or suppliers also present some interesting hedging challenges. Firstly, the communication between most companies' operational units and the treasury functions is not always very efficient. Businesses often perceive risk-sharing agreements as a cheap way to mitigate risk or as a negotiation tool, but they sometimes fail to convey the relevant information to the treasury. Certain companies have dealt with this issue by creating standardised agreements and reporting templates that business units cannot deviate from without prior approval from the treasury department. This not only improves communication but also facilitates the hedging process.

**HEDGING UNCERTAIN CASHFLOWS.** When dealing with variable cashflows, options are a necessary complement to forward contracts. The optimal hedging mix should always reflect the probability of the cashflow actually happening in the event of a contingent risk such as a merger or acquisition taking place, or possible deviation between forecasted and actual cashflows in the case of a volatile business environment.

*Figure 3* illustrates how cashflow volatility should be hedged. It reveals that if the standard deviation from the mean forecast increases, so too should the proportion of options purchased.



Figure 1. Hedging a US\$ receivable with a forward

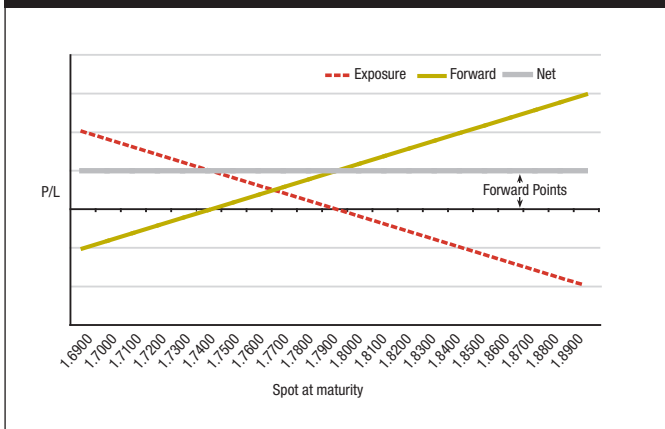
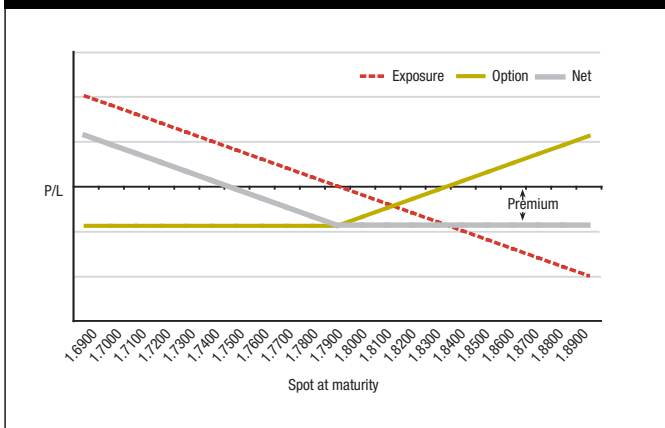


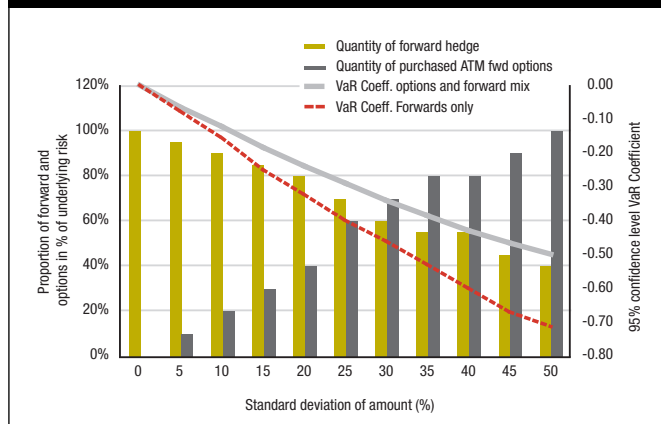
Figure 2. Hedging a US\$ receivable with an option



Secondly, the currency clauses embedded in business contracts can display some very complex profiles. For example, a price reset is often triggered only if an average exchange rate deviates from a reference level by a specified quantity. This in itself implies the usage of barrier options.

The more 'exotic' the need, clearly the higher the cost of hedging. However, there are several reasons why a company should

Figure 3. Optimised ATMf option and forward mix as a function of the standard deviation of amount



be concerned about these types of agreements. Although the terms often seem equitable to both parties, they frequently favour one over the other. Such contracts rarely take into consideration market parameters such as forward points or option volatility skew. At the same time, because these clauses are attached to specific transactions, they will often create a basis risk between the exchange rate they imply and the accounting rate used for booking purposes. This in essence will generate volatility in the foreign exchange line of the income statement, a situation that is hardly acceptable to most companies. Finally, risk-sharing agreements may not be in line with the exposure netting opportunities available within a group, and thus result in reduced portfolio efficiencies.

**HEDGING TRANSLATION RISKS.** Translation risk refers to net investment and earnings consolidation-related risks – two types of exposures that warrant their own individual hedging methodologies.

As many companies tend to invest in a country for an indefinite amount of time, few are interested in hedging this risk and often support this decision with the idea that expected currency returns are zero in the long run. Of course, the rationale and the timing of a divestment are generally random from a currency perspective, which means that when divestment happens the currency level may or may not be favourable to the company. Unsurprisingly, this element is usually left out of hedging decision making. However,

## Forward exchange contracts defined

A forward exchange contract is an obligation between two parties to exchange a specified amount of one currency into another on a pre-agreed date at a pre-agreed rate.

The forward rate is determined using the continuous compounding method of calculating interest, i.e.:

$$F = S \times e^{(r_f - r_b)t}$$

Here F is the forward rate, S is the spot rate at inception,  $r_t$ : the interest rate of the

term currency,  $r_b$ : the interest rate of the base currency and t: the maturity of the contract in number of years.

If the £:\$ exchange rate today is 1.7900 and one-year interest rates stand at 5% and 2.25% respectively, then the one-year forward rate will be:

$$F = 1.7900 \times e^{(0.0225 - 0.05)} = 1.7415$$

As the pound's value in US dollar terms here is lower one-year out than it is at spot, it is described as trading at a 'discount' to the dollar. If its value was lower one year out, it would be trading at a 'premium'.

Forward points – in this case: 1.7415 minus 1.7900 = -0.0485 – are the result of swapping a certain amount of one currency for a certain amount of another at the prevailing interest rates for a specific period of time. They represent the cost of carry of the position.

The forward rate is hence not the market's forecast of what the exchange rate will be at a certain point in time in the future.

Empirical evidence has shown that the spot rate is a better guide to future exchange rates.

because of their non-mean-reverting nature, emerging market currencies may warrant hedging.

At the same time, a company interested in hedging net investment risk must remain very aware of the implications of the lack of cashflow that comes with this type of risk. This will determine the range of hedge instruments that should be considered. The first choice must naturally be debt which, because of its long-term nature and minimal cashflow implications, provides an ideal offset to net investment risk. At maturity, the debt can be re-financed without generating any cashflow, in essence matching the cashflow profile of the asset.

Alternatively, companies looking for a more opportunistic bias could use options, especially low delta ones that require little premium upfront and act more like catastrophe insurance. Use of forward contracts has in the past sometimes resulted in a dramatically negative cashflow impact and companies should generally stay away from them when hedging net investment risks.

**EARNINGS TRANSLATION RISK.** Hedging earnings translation is a difficult proposition due to the absence of hedge accounting treatment both under SFAS 133 and IAS 39. However, many companies – especially US companies – have long been concerned by the year-on-year volatility induced by FX fluctuations on the domestic currency value of their foreign earnings. This concern is often related to analysts' approach to corporate performance, which is based on the year-on-year comparisons of quarterly results in the company's consolidation currency.

As foreign earnings are generally translated at the average rate for the period, hedging this risk necessitates the use of average based instruments – either forwards or options. More specifically, use of a double average instrument can perfectly replicate the risk profile of the translation process.

A double average forward is a derivative contract with a settlement based on the difference between two averages calculated over two different periods. If a company plans to leave its foreign earnings in the foreign currency for local reinvestment, use of this forward instrument is not recommended since the risk is purely accounting-related, not cashflow-related. However, a company hedging this risk

## A range of options

The FX market's tremendous liquidity means that the range of option products available is vast:

- **Barrier options.** These get activated or de-activated depending on the path of the underlying exchange rate.
- **Average rate options.** Their payout is the difference between the strike price and an average rate agreed on by both parties.
- **Double average options.** The strike here is set at the average rate in a pre-determined period. Settlement depends on the difference between that average and the average of another period.
- **Basket options.** Their payout depends on how the net value of a portfolio of currencies behaves versus a specific currency.

All of these tools can find a role in a corporate's hedging strategy. However, accounting standards only allow for limited hedge accounting treatment when using options.

SFAS 133's Form 20 has helped overcome early difficulties experienced in illustrating the effectiveness of options when hedging anticipated cashflows. IAS 39 still lacks a shortcut method that would enable companies to assess options' effectiveness at expiry.

will need to use a double average option as any loss will be limited to the premium paid. In the absence of true economic risk, however, premium reduction through the purchase of out-of-the-money options may be warranted.

This dilemma is not relevant if what the company really aims to do is hedge anticipated dividend repatriations. In this case, there is a real economic/cashflow risk which can be hedged.

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