With the volume of global payments continuing to grow, it is imperative for finance professionals to stay on top of trends and developments.

Complying with FAS 133

Hedging Currency Transactions

Ira G. Kawaller, Ph.D.
Kawaller & Company, LLC

Elie R. Zabal
INSSINC

When companies trade with foreign counterparties, currency exchange rate risk is inherent in their transactions, but each company deals with this risk in different ways. For example, some U.S. companies buy goods from abroad and pay a fixed dollar price. Here, the exchange rate risk is born entirely by the foreign supplier. Other U.S. firms negotiate a price in the home currency of the supplier, in which case the U.S. firm bears the risk.

An analogous pair of alternatives also exists for U.S. firms that sell to foreign customers. These goods might be priced in dollars, in which case the foreign customer bears the exchange rate risk; or the U.S. firm could be priced in the currency of the customer, and then the U.S. firm bears the risk.

This article looks at the issue of currency risk from the perspective of the firm that bears the exposure — which, again, might be the buyer or the seller. In either case, the firm with the risk ultimately has a decision to make: *Should this risk be hedged, and if so, what's the best hedging strategy?*

Financial professionals can answer these questions by analyzing a specific risk exposure and comparing three "baseline" hedging solutions — using forwards to lock in the exchange rate for the coming transaction, buying a currency option to cover the risk of an adverse change in the exchange rate, and engaging in a currency collar to constrain the effective exchange rate within the bounds of both a best- and worst-case outcome.

Critical Questions

Whether to hedge this risk or not will depend on a number of considerations, such as the following:

- If the pound does strengthen (and thus the dollar cost of goods goes up), will the company be able to pass along these higher costs to the ultimate consumer without suffering a decline in market share or profit margins?
- Are competitors of this firm affected by the same currency exposure, or will they be immunized from this risk either because of alternative sources or because of a reliance on hedging techniques?
- Is there any reason to expect the value of the pound to move in one direction or another, and how confident is the firm about this market forecast?
- Will volatility in earnings associated with an unhedged exposure be sufficient to threaten the market's perception of shareholder value?

Hedging With Forwards

Assuming the decision is made to hedge the risk, the most likely first strategy to consider employs the use of currency forwards to lock in prospective currency exchange rates. In the language of Financial Accounting Standard 133 (FAS 133) — the accounting standard that pertains to derivative contracts and hedging activities — this application of a forward contract satisfies the criteria for "cash flow hedge accounting." That is, the exposure being hedged is an uncertain cash flow of a forecasted event (i.e., the purchase of inputs from a foreign supplier). In the typical use of forwards, the "size" of the contract corresponds to the number of currency units needed, and the "value date" matches the date that the payment is scheduled to be made. Under these conditions, the forward will be perfectly effective.

Following the implementation of the hedge, the forward is listed as an asset or liability on the balance sheet at its fair

Exhibit 1. INSSINC Hedge Summary Report

Description: Anticipated purchase of equipment for 10 million GBP on May 12
Hedge Type: Cash flow
Objective: Offset effect of changes in forward price of GBP with purchase of forward FX contract
Effectiveness Assessment: Comparison of cumulative changes of the forward price of the hedged item with those of the derivative
Exclusions: None

Hedged Item / Derivative Item								
Notional Value:	**10,000,000 GBP**			**10,000,000 GBP**				
Reval Date	Spot Price	Forward Price	Change in the Forward Price	Cummulative Change in the Forward Price	Forward Price	Change in the Forward Price	Cummulative Change in the Forward Price	
1/10/01	1.5000	1.5028	NA	NA	1.5028	NA	NA	
3/31/01	1.6000	1.6021	0.0993	0.0993	1.6021	0.0993	0.0993	
5/10/01	1.7000	1.7000	0.0979	0.1972	1.7000	0.0979	0.1972	
Accounting Cycle Ending	Derivative Fair Value	Change in Fair Value	Cumulative Change in Fair Value	Percent Effective	Accumulated OCI	Effective Results (OCI)	Excluded Results	Ineffective Results (Income)
3/31/01	896,804	896,804	896,804	100.00%	896,804	896,804	0	0
5/10/01	1,972,000	1,075,196	1,972,000	100.00%	1,972,000	1,075,196	0	0

Source: Futrak 2000 System Report – Copyright 2000 Investment Support Systems, All Rights Reserved

market value. Because the terms of the forward perfectly match the exposure being hedged, all gains or losses of the forward will be recorded in other comprehensive income (OCI) initially, and later reclassified into earnings coincidently with the earnings impact of the hedged item. In this case, where the hedged item is an input used in the production process, the reclassification occurs when the manufactured goods are ultimately sold.

An example of the documentation for this type of hedge is illustrated in Exhibit 1, which analyzes the case of a U.S. manufacturing company that expects to buy inputs from a British supplier for £10 million. The hedge is assumed to have been initiated on January 10, when the spot exchange rate was $1.5000 per pound sterling. However, the goods were not expected to be received (or paid for) until May 12. It should be clear that this company was exposed to the risk that the value of the pound would strengthen over the term between January 10 and May 10 (the trade date associated with a May 12 spot settlement date).

This example reflects the case where the pound strengthens relative to the dollar. Because the entity documented that hedge effectiveness would be based on a comparison of cumulative changes of the forward price associated with the hedged item to cumulative changes of the forward price associated with the forward — and because the two are identical — 100 percent of the gain or loss on the forward is deemed to be effective.

Note that the fair values of the derivative reflect present values of changes in the forward price from the original $1.5026. Ultimately, however, the present value factor will accrete to unity, so the accumulated OCI will be a reflection of the notional amount of the forward times the change in the forward price over the hedge horizon — in this case £10 million ¥ ($1.7000/£ – $1.5028/£) = $1.972 million. Ultimately, in the scenario shown, the equipment will be purchased for $17 million dollars, reflecting the prevailing spot exchange rate of $1.7000 per GBP, but the reclassification of $1.972 million of OCI into earnings will leave this company with the same earnings that it would otherwise have resulted from buying the equipment at a dollar price of $15.028 million.

Hedging With Purchased Options

While forward contracts eliminate the risk associated with a strengthening pound, they also preclude benefiting from a weakening pound. Options overcome this negative. That is, a purchased option — in this case a call on pounds — gives the holder the right to buy pounds at a specified strike price or exercise price. Clearly, if at the desired settlement date, pounds may be purchased at a spot exchange rate that is cheaper than the strike price, the option will go un-exercised, and the currency exchange will take place at the spot exchange rate.

But if the spot price rises above the strike price, the option will be exercised. Thus, the strike price serves as the upper bound or worst case out-

come that the firm might realize — with the very real possibility that the ultimate exchange rate realized will be more favorable. Put another way, buying an option works very much like insurance, where, for an up-front premium, the hedger is protected against the risk of the exchange rate moving beyond some threshold exchange rate, but where the hedger also has the opportunity to enjoy the effects of a beneficial exchange rate move.

In April of 2001, the Financial Accounting Standards Board (FASB) offered new, tentative guidance (DIG issue G20) for cases such as the current example, where a purchased option is used in a cash flow hedge. As always, the derivative — in this case the option — is recorded on the balance sheet at fair value; but under G20, the entire change in the price of the option is deferred in OCI, provided (a) the notional amount of the option matches that of the exposure, (b) the underlying of the option is identical to the price risk being hedged, and (c) the option expiration is timed to the point at which the forecasted event is expected to occur.

If these criteria are not satisfied, an assessment of ineffectiveness would be required, where the gains or losses of the hedging derivative would have to be compared with this "hypothetical option" (i.e., an option that does satisfy these criteria). Only the effective component of the hedge results would go to OCI; ineffective results would go to earnings.

Importantly, getting this accounting treatment is predicated on designating the risk being hedged in a particular way. The stated hedge objective must be to offset changes of the "probability weighted" exchange rate associated with the exchange rate rising above the strike price of the option. This documentation allows the reporting entity to consider the full change in the options price to be effective so that all of this gain or loss may be deferred in OCI during the hedging period. And again, as with the case of the forward hedge, the reclassification of OCI into earnings coincides with the income effect of the hedged item.

Hedging With Collars

The biggest deterrent associated with the purchased option hedge is the fact that it requires an initial cash payment. Of course, the size of this requirement will depend on the choice of strike price (i.e., the right to buy pounds at a higher price will clearly be more costly than the right to buy pounds at a lower price, all else being equal); but often times, the strike price of an "affordable" option is deemed to be so far out-of-the-money that protection begins at a level too far away, leaving the hedger exposed to more risk than he or she cares to bear. A collar addresses this concern by "financing" the purchased option with the sale of a second option.

The collar is engineered by purchasing a call option and selling a put (i.e., a long call/short put combination), where the strike price of the put is lower than the strike price of the call. A particularly popu-

lar combination is one where the prices of the two options are equal, such that no net outflow (or inflow) of cash is required at the onset of the hedge. The effect of the collar is to limit both risk and opportunity. That is, the worst-case price of pounds is dictated by the strike price of the call, but at the same time, the best case is dictated by the strike price of the put. If the spot price happens to fall between these two extremes when payment is due, that prevailing market exchange rate will apply.

With collars, as with long option hedges, in order to qualify for the most attractive hedge accounting, the hedge objective must be stated in a particular way. The documentation must say that the hedge is designed to offset changes of the "probability weighted" exchange rate associated with the exchange rate rising above the strike price of the call option or below the strike price of the put option. The market value of the collar would be recorded on the balance sheet; and, with this documentation, the full change in the value of the collar would be recorded in OCI and later reclassified in earnings, coincidently with the earnings impact of the purchase.

A Comparison of Results

The three different strategies share several important features. For each, none of the hedge results had to be excluded from consideration of prospective the hedge effectiveness. Additionally, the hedge results are perfectly effective in an accounting sense. Specifically, the full change in the derivatives value is initially recorded in OCI and later reclassified in earnings such that no unintended income volatility occurs during the hedge period.

These conclusions are contingent on using the "right" derivatives — forwards or option contracts that have an underlying identical to the risk being hedged and expirations timed to coincide with the timing of the forecasted event. Otherwise, some degree of income volatility during the hedging period would arise, somewhat due to hedge ineffectiveness. Despite these similarities, the results, in terms of reported earnings, are clearly different. Ranking the earnings results will depend on whether or not the risk of the strengthening pound is realized.

Exhibit 2 returns to the example discussed earlier, where the U.S. firm anticipated buying equipment priced at £10 million from a British supplier, and provides a summary of results for the three strategies assuming two different market scenarios — first with the pound strengthening and then with the pound weakening. When the former conditions occur, the "best" outcome (in terms of highest earnings, as reflected by the larges value for accumulated other comprehensive income or [AOCI]) occurs with the use of a forward; second best with the collar; and least desirable is the long option hedge. In contrast, when the pound weakens relative to the dollar, the preference ordering changes. In this scenario, all of the hedges generate losses, so the ranking from best

Exhibit 2. INSSINC Hedge Comparison Report

Description: **Anticipated purchase of equipment for 10 million GBP on May 12**

Alternative Strategies:

Forward Contract: Purchase a forward on 10 million GBP at $1.5028
Long Option: Call option on 10 million GBP; strike price = $1.5528; premium = $312,222
Collar: Long call option on 10 million GBP; strike price = $1.5528; premium = $312,222
Short put option on 10 million GBP; strike price = $1.4545; premium = ($312,222)

Strengthening Pounds (Initial Spot Exchange Rate = $1.5000)

Accounting Cycle Ending	Spot Price	Forward		Long Option		Collar	
		AOCI	OCI	AOCI	OCI	AOCI	OCI
3/31/01	1.6000	896,804	896,804	303,292	303,292	608,177	608,177
5/10/01	1.7000	1,972,000	1,075,196	1,159,778	856,486	1,472,000	863,823

Weakening Pounds (Initial Spot Exchange Rate = $1.5000)

Accounting Cycle Ending	Spot Price	Forward		Long Option		Collar	
		AOCI	OCI	AOCI	OCI	AOCI	OCI
3/31/01	1.4000	(1,002,631)	(1,002,631)	(306,943)	(306,943)	(610,371)	(610,371)
5/10/01	1.3000	(2,028,000)	(1,025,369)	(312,222)	(5,279)	(1,545,000)	(934,629)

Source: Futrak 2000 System Report – Copyright 2000 Investment Support Systems, All Rights Reserved

to worst reflects the strategy with the AOCI that is closest to zero. First, second, and third choices, respectively, are the long option, the collar, and finally the forward strategy.

Making an Intelligent Choice

Given the inability to forecast with certainty, the best managers can hope to do is make an intelligent choice based on all available information. At one time, FASB accounting guidance tended to discourage the use of options in cash flow hedging situations, but Implementation Issue G20 provided a revised interpretation that eliminated this bias. As a consequence, the choice of hedging strategy may now be made based on economic considerations, without the fear that the accounting results might be inconsistent with the stated hedge objectives.

Ira G. Kawaller, Ph.D., is founder of Kawaller & Company, LLC — a Brooklyn-based financial consulting practice that specializes in issues relating to derivative instruments. He is also a member of the Financial Accounting Standards Board's Derivatives Implementation Group.
(718.694.6270)
kawaller@kawaller.com

Elie R. Zabal is president and CEO of INSSINC, a worldwide provider of risk management software.

Endnotes

[1] If the hedged item were a purchase of, say, equipment, (as opposed to a sale), the reclassification would be scheduled in a manner consistent with depreciation expenses.
[2] Prior to the posting of G20, in order to pass the "highly effective" hedging qualification, the changes in option values had to be divided between changes in time value and changes in intrinsic value. The former would be posted to earnings, while the latter would be recorded in OCI initially and latter reclassified into earnings, coincidently with the earnings effect of the hedged item. This methodology is still acceptable, but it unnecessarily exposes the reporting entity to the prospect of income volatility during the hedging period, while the approach under G20 does not — assuming the above qualifications are satisfied.
[3] With the opposite risk, the collar would be constructed by combining a long put with a short call.
[4] More complete documentation is available upon request. Option values assume a constant implied volatility of 15 percent over the hedge horizon.