The new world under FAS 133:
Cross-Currency Interest Rate Swaps

As many US listed companies are fast realizing, the accounting requirements under Financial Accounting Standard No. 133 generate reported income effects that differ from the economic objectives of a hedger. **Ira Kawaller**, a New York GARP member and founder of Kawaller & Company, examines the cost burdens that FAS 133 creates for synthetic funding strategies and offers advice on how to avoid them.

Without question, the adoption of FAS 133 will have an impact on the way firms use derivatives. One application that will certainly be affected is the use of currency swaps in conjunction with funding in a currency other than the functional currency. In the past, synthetic instrument accounting ruled. Under that regime, the accounting did not distinguish between issuing fixed rate debt directly and using derivatives to achieve the same goal. In certain cases, the synthetic instrument result may still be achieved, or at least approximated; but not always.

Synthetic funding strategy

When a company borrows in a currency other than its functional currency, and then adds a currency swap transaction as an overlay to this funding, three respective cash flows must be considered:

• the foreign currency cash flows of the loan (i.e. interest and principal)
• the foreign currency receipts of the currency swap

• the payments in the functional currency of the currency swap.

If the first two of these cash flows offset perfectly, the consequence of the combined position (i.e. the loan plus the swap), leaves the company with a net obligation in the functional currency. Because firms typically borrow at spreads above benchmark interest rates, however, some "financial engineering" is generally required to arrange the desired offset. Specifically, an up-front cash adjustment is needed to compensate for the difference between the actual funding rate and the benchmark interest rate underlying the currency swap. When the company borrows at a rate higher than the benchmark rate -- either fixed or floating – the initial cash adjustment would represent a cost to the firm; whereas if it funds below the benchmark rate, the initial adjustment would be a receipt.

To illustrate, consider the case where the company's objective is to borrow dollars on a fixed rate basis. Instead of issuing dollar-denominated debt, it borrows in euros at a spread of 125 basis points

above the euribor benchmark interest rate and then enters a cross-currency interest rate swap.

An at-market currency swap will only offset the interest expense associated with the benchmark interest rate. So, if an at-market swap were used, the offset would be incomplete. The shortfall would reflect the 125 basis point spread. To arrange the perfect offset, at the initiation of the swap, the company would have to *buy* the prospective cash flows associated with the 125 basis point spread for each period over the horizon

of the debt. The cost would be equal to the present value of these cash flows.

Ultimately, the effective interest expense realized by this strategy will be the interest associated with the functional currency cash flow of the swap, plus an allocation of the up-front cash payment. Generally accepted accounting principles (GAAP) dictate that this allocation should be determined using the interest method.

For example, suppose a US company wants to borrow $100 million for two, 90-day quarters. All relevant interest rates and exchange rates required for the analysis are presented in Table 1.

Table 1: Assumed interest rates and exchange rates

	Starting Conditions
Spot 3-month $-LIBOR	5.00%
Spot 6-month $-Swap	6.00%
Spot 3-month €-LIBOR	4.00%
Spot 6-month €-LIBOR	4.50%
Fixed rate on €-denominated 6-month debt	5.75%
Currency swap	
Fixed rate on $-denominated cash flow	6.00%
Fixed rate on €-denominated cash flow	4.50%
Spot exchange rate (U.S. terms)	$0.8500/€

Given the spot exchange rate of $0.8500 per euro, the company must borrow €117.6 million to meet the $100 million objective.[1] The term rate on this loan is 5.75%, which translates to an interest expense of €1.691 million per quarter. The at-market fixed-to-fixed currency swap, however, stipulates a fixed rate of 4.50% for the euro-denominated cash flow of €1.324 million, versus a 6.00% or $1.500 million for the dollar-denominated cash flow.

The shortfall is €0.368 million per quarter for two quarters. The present value of these two prospective cash flows is €0.724 million,[2] which translates to a dollar-equivalent of $0.615 million. Put another way, $0.615 is the present value of a currency swap having a notional amount of $100, where the fixed rate on the euro (receive) side is 5.75% versus the fixed rate of 6.00% on the dollar (pay) side. Thus, for a perfect hedge, the company must structure a swap with the following features:

- The firm makes an initial payment of $0.615 million
- At the end of each quarter, the company receives €1.691 million and pays $1.500 million.
- At the termination of the swap, the company also receives €117.6 million and pays $100 million.

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[1] Values presented in the text reflect some degree of rounding error.
[2] The present value calculation relies on the eurocurrency zero-coupon rates that pertain to the euribor-based swap valuations.

The combined euro-denominated cash flows (inclusive of interest and principal of the loan along with the euro-denominated component of the swap) will be offset perfectly. Thus, the combined position leaves the company with a quarterly interest expense denominated in dollars equal to $1.5 million and a repayment of $100 million notional on the swap.

Again, the effective cost of funding must also reflect the initial up-front cash payment. In this example, $0.615 million up-front payment, divided between the two quarters translates to an "all-in" effective interest expense of $1.807 million per quarter, or 7.23%. Whether or not this strategy makes sense would depend on how this rate compares to the direct funding alternative. That is, if funding directly in U.S. capital markets would cost more than 7.23%, this synthetic strategy would offer a savings.

Assuming the economics warrant proceeding with the synthetic strategy, the accounting treatment now becomes relevant. FAS 133 stipulates two different treatments, depending on whether the objective is to leave the company with a fixed rate outcome or floating interest. Each is considered in turn.

Swapping into fixed rate debt

When the objective is to synthesize fixed rate funding – whether or not the original funding is undertaken on a fixed or variable rate basis – the application of cash flow hedge accounting is appropriate. Under such a strategy, a perfectly structured swap generates

accruals in the non-functional currency that exactly offset the loan accruals (fixed or floating).

These accruals, as well as the accruals in the functional currency, are recorded in earnings. All other gains or losses on the currency swap, however, go to other comprehensive income (OCI). Reclassification of OCI will be of an amount corresponding to the allocation of the initial cash payment, based on the interest method.

The reported cost of funds will differ from the economic intent of the synthetic strategy only to the extent that the allocation of the initial cash payments differs from a linear allocation of the amount over the horizon of the loan/swap. Put another way, with properly designed cash flow hedges, unless the up-front cash transfer is unusually large, the reported interest expense would be close to that which is reported with synthetic instrument accounting.

In many cases, hedgers may choose to trade a swap *other than* the perfect swap. For example, when the difference is judged to be inconsequential, the hedger might opt to trade an at-market swap instead of one that required an up-front cash adjustment. With this, some portion of the hedge gains or losses associated will necessarily be "ineffective." Consequently, the realized cost of funds would differ somewhat from that which would otherwise occur with a perfectly tailored currency swap. These differences will be more (less) exaggerated when the non-functional

currency borrowing occurs at larger (smaller) spreads over the benchmark interest rates, and when the horizon of the funding is longer (shorter).

Swapping into variable rate debt

With the objective of synthesizing a variable rate funding, the accounting treatment depends on the structure of the initial borrowing. That is, two different treatments would be in order, depending upon whether the original borrowing mechanism is floating or fixed.

First, consider the case where the original non-functional currency borrowing is arranged on a variable rate basis. The carrying value of this debt must be adjusted on the balance sheet to reflect the prevailing spot exchange rate at the end of each period, with changes recorded in earnings. Because changes in the swap's market value are due only to currency exchange rate moves, a natural offset occurs without relying on any special hedge accounting treatment. [3]

Even so, in the general case, when an up-front cash payment (receipt) is required to adjust for any discrepancy between the variable interest rate on the loan and the variable interest rate on the non-functional currency component of an at-market currency swap, the same phenomena is at work here as was discussed earlier. That is, the accounting outcome will differ from the synthetic instrument result only to the extent that the interest method of allocating the up-

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[3]On all cash flow settlement dates, the present value of each of two respective components of the swap would be equal to the notional par amounts of the respective currency obligations. Thus, variability of the swap's market value would be due solely to changes in the currency exchange rate.

front cash payment (receipt) over the life of the loan/swap differs from a linear allocation.

In contrast to a "variable-to-variable" situation, where no special hedge accounting is needed, converting from "fixed-to-variable" *does* require special accounting. Without it, the income effects of the loan and the swap would not be treated symmetrically.[4] This problem is overcome by electing fair value hedge treatment, which requires three steps:

- Gains or losses of the currency swap (inclusive of accruals) are recorded in earnings.
- The balance sheet's carrying amount of the hedged item is adjusted by the change in its market value – inclusive of interest rate and currency effects.
- Along with the debt's interest accruals, the change in the value of the debt's carrying value is recorded in earnings.

Despite the fact that fair value treatment captures interest rate effects and the currency effects for both the debt and the swap, some ineffectiveness will result, because the discount rate(s) used in loan valuation calculation will typically not be the same as the discount rate(s) used in swap valuation. Thus, even when the

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[4] Changes in the non-functional currency interest rates affect the market values of both the fixed rate loan and the fixed-to-floating currency swap. Standard accounting, however, reflects the full price change for the swap (inclusive of interest rate and currency exchange rate changes) while only the currency effects are captured for the loan.

prospective non-functional currency cash flows are offset perfectly, the two respective present value effects will *not* be the same. These discrepancies can be substantial.

As an example, consider the case of a company that wants to borrow for a five-year term. The firm decides to fund in the euro-currency market at a rate of 6.00%, which happens to be 125 basis points higher than the euribor-based five-year swap rate. For simplicity, assume the currency exchange rate is $1.0000 per euro and the original issue is for €100 million, at par. The perfect swap would have an initial present value calculated by assuming the identical euro-denominated cash flows, but discounted with an original discount rate of 4.75%.

In this case, the swap would have a positive valueof €0.055 million, and therefore it would be recorded as an asset for the company at the inception of the strategy. At the same time, assuming semi-annual compounding, the original market value of the debt would be €100 million. If the bench mark interest rate (i.e., the euribor-based swap rate) were to rise by, say, 50 basis points, the carrying values of the debt would fall to €0.929 million and the swap's fair value would become €0.033 million – a beneficial change of €21,056 for the debt and an adverse change or €22,446 for the swap. The dollar impact would depend on the prevailing currency exchange rate. For example, at an exchange rate of $1.00 = €1.00, the impact on the income statement would be the dollar equivalent of the difference or $1,390 or 56 basis points on an interest rate basis.

This 56 basis point effect would have to be seen as being unexpected (and hence, undesirable) -- and massive. Put another

way, the intention of the synthetic funding strategy is to realize a dollar denominated interest rate, known in advance as a consequence of the fixed interest rate on the dollar side of the cross currency interest rate swap. In this case the accounting result deviates from that objective by 56 basis points. Of course, not all situations will be so severe, as the size of the unintended income effects will depend on the size of the interest rate spread between the rate(s) on the debt versus the rate(s) on the swap and on the magnitude of any interest rate perturbation. Moreover, these income effects will be more (less) exaggerated the longer (shorter) the time horizon of the debt/swap.[5]

Conclusion

The fact that some unintended income effects should now be expected does not necessarily suggest that the use of cross-currency interest rate swaps in synthetic funding strategies should be

discouraged. Even with greater than expected volatility, when the terms of the currency swap are favourable, the synthetic funding offers a savings over the direct funding alternative – irrespective of accounting consequences that may appear to mask that savings in any given period.

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[5] FASB offers an example of this strategy that fails to highlight the potential for serious discrepancies. See Example 1 in "Examples Illustrating Application of FASB Statement No. 138," which can be found on the web at http://www.rutgers.edu/Accounting/raw/fasb/tech/index.html . Even in this example, however, where the interest rate changes are quite confined, the disparities between the annual funding costs realized and the a priori targets are comparable to the overall magnitudes of the interest rate perturbations. Thus, on an interest rate basis, the hedge generates reported costs that differ sharply from the intended outcomes.