

GTAnet

Introduction

Welcome to *GTAnet*, a newsletter published nine times a year for clients and friends of Greenwich Treasury Advisors. This first issue focuses on FX hedging and FAS 133 and discusses two effectiveness methods for cash flow hedges of forecast FX exposures:

- The “dual PV” method, in which we use present value to calculate the changes in fair value of both the underlying exposure and the forward contract hedge.
- The “dual spot” method, in which we use the spot rate to calculate changes in fair value of both sides.

We predict that the dual spot method will become the method of choice for most companies because its P&L impact is remarkably similar to pre-133 FX hedge accounting and it also best manages forecast error risk. The latter is a major concern because the FX impact of hedges terminated due to forecast error are immediately reported in P&L (FAS 133 ¶32). Also, the cumulative FX gain and loss on all hedges terminated due to forecast errors must be reported in the footnotes (¶45.b.).

With dual spot you can have nearly 100% effective hedges using a longer hedge period — three or six months or more — rather than the exact month needed for the dual PV method. With a longer period for the expected transaction to happen, forecast error risk is minimized. However, if the forecast transaction date is known for certain, then the dual PV will be better because there is no P&L impact related to the forward points.

Finally, for our European readers under International GAAP, many of the points made in this article are equally applicable to IAS 39.

Dual PV Method

In the dual PV method, we assess hedge effectiveness by comparing changes in the present value of the forecast’s expected future cash flows to all of the hedging derivative’s gain or loss. For example, if the exposure is expected to occur in June 2002 and we hedge that exposure with a forward to that month, then changes in present value on both sides are equal. By having the same maturity, critical terms are the same and there’s no hedge P&L ineffectiveness. All changes in the forward’s fair value are posted to AOCI with no P&L impact until the AOCI is amortized.

See Example 6 of Appendix B of FAS 133, ¶140-143, and also DIG Issue H15. DIG Issues can be downloaded from the Derivatives Implementation Group section under Technical Projects at www.fasb.org.

Dual Spot Method

In the dual spot method, we assess hedge effectiveness by comparing changes in the spot value of the forecast future cash flows with changes in the “effective portion” of the derivative. Example 9, ¶162-164, illustrates the dual spot method for options in which the effective portion is intrinsic value (IV), where IV is the difference between the strike and spot rate. Changes in IV are thus changes in spot, and fully offset the changes in spot value of the hedged exposure. Per ¶63.a, the option time value is excluded from the effectiveness test and changes in time value go to P&L.

The dual spot method for forwards is exactly analogous, using the forward points exclusion per ¶63.c, which states:

“If the effectiveness of a hedge of a forward contract is assessed based on changes in fair value attributable to changes in spot prices, the change in the fair value of the contract related to the changes in the difference between the spot price and the forward price would be excluded from the assessment of hedge effectiveness.”

First, let's deal with the underlying exposure. As Example 9 shows, *for effectiveness testing purposes*, to calculate the changes in fair value on the hedged forecast exposure based on spot, we apply the change in spot rates over the period to the notional amount of the forecast. There's no present valuing, there's no use of actual forward rates. Whether the forecast is expected to occur in June 2002 or 2005, the change in fair value based on spot is the same.

In other words, unlike the dual PV method, when we use dual spot, we do not have to specify the month the forecast will occur to calculate the change in its fair value. Instead, we have the freedom to specify a long period for the forecast to occur. DIG Issue G16 discusses how even a period of five years may be appropriate, and quotes ¶460's example of a six month hedge period. Dual spot gives treasuries a welcome amount of flexibility to manage forecast timing error risk.

Second, we need to calculate the changes in fair value on the forward contract using spot prices. Under 133, regardless of the effectiveness tests used, derivatives must be always booked on the balance sheet by using current forward rates and discounting. However, for *effectiveness testing purposes* we use ¶63.c to "fair value" the forward contract using today's spot rate. This is the "effective portion" of the forward and is calculated assuming that the forward is closed out at maturity at today's spot rate, and then present valuing the resulting net future flows.

The effective portion is used in the actual effectiveness test and, if that is passed, is then used to calculate any ineffectiveness that goes to P&L. The attached example of a nine-month hedge of a forecasted CHF-settlement of an inventory purchase shows the calculations used to apply the 80-125% dollar-offset ratio effectiveness test and the related P&L and balance sheet impact.

Under the dollar-offset ratio, we divide the cumulative change in the value of the effective portion by the cumulative change in the spot value of the forecast. Since the effective portion is simply the present value of the changes in spot, dividing it by just the change in spot will result in the ratio almost always being within the 80-125% range. In our 9-month hedge example, we see the ratios ranging between 99.7% and 100.7%.

To calculate the P&L ineffectiveness, per ¶30 and illustrated in ¶141, we subtract the cumulative change in the spot value of the underlying exposure from the cumulative change in the effective portion using the "lesser of the two cumulatives" process. As our example shows, it is only when the ratio is greater than 100% do we report any P&L ineffectiveness. Even when we do so, it is a small amount caused by present valuing one set of spot changes and not the other.

Finally, identical to Example 9's accounting for option time value, per ¶63.c, the excluded portion due to the forward points is the difference between the forward's booked balance sheet fair value and the effective portion. As with time value, changes in the ¶63.c excluded portion go to P&L. For options, changes in time value are unpredictable and volatile. However, for forward contracts, assuming that the forward yield curve does not significantly change, changes in excluded amount is equivalent to amortizing the forward points under FAS 52!

In fact, at maturity, the cumulative change in the excluded amount plus any reported P&L ineffectiveness equals the cumulative reported amortized premium/discount that would have been reported under FAS 52. There are only interim timing differences. Please see our example for how closely the changes in the excluded amount can track FAS 52 straight-line amortization.

Dual Spot Hedging of Settlements

In an important variation on the theme, the dual spot method can be combined with DIG Issue H15, as we have actually done in our example. H15 shows the accounting for a forward contract hedge of an expected settlement of a forecast purchase of inventory on credit using the dual PV method.

H15 also has a complicated amortization of the forward points. However, the H15 forward points amortization is not needed using the dual spot method because it has already excluded the forward points.

Summary

So the more things change, the more they remain the same. Prior to FAS 133, many companies hedged forecast FX settlements with deferral accounting, and straight-line amortized the forward points to the P&L. Now with the dual spot method and H15, we can pick a wide period for the forecast settlement to occur and minimize timing risk. As we have shown, the dual spot method allocates to P&L in the form of hedge ineffectiveness and changes in the excluded amount the equivalent of 52's forward points amortization. We only have minor timing differences caused by changes in the forward curve and time decay.

Please note that ¶162 requires that hedges of similar exposures with similar instruments must have similar effectiveness tests. You can't use both the dual spot and the dual PV methods. Since most companies can forecast a quarter or six months with more accuracy than a month, we predict that most companies will chose the dual spot method for their forward contract and option hedging of forecast FX exposures.

This article was written by GTA partners Jeff Wallace and Jim Hodge.

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Please see our website for free articles on FX and FAS 133 topics. These include *The Group of 31 Report: Core Principles for Managing Multinational FX Risk* (AFP, 1999), which is based upon our FX benchmarking study for General Motors. The address: <http://www.greenwichtreasury.com/>

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Dual Spot Methodology Used for a Forecasted Settlement under DIG Issue H15

TRANSACTION ASSUMPTIONS

- 1) At 2/01/2001 Company has a forecasted purchase of CHF 1,000,000 on 7/31 which it expects to pay on 11/01/2001.
- 2) On 2/1/2001 Company hedges the forecasted payment by forward contract buying CHF 1,000,000 at CHF 1.6104/USD maturing on 11/01/2001.
- 3) The inventory is has a standard cost FX rate of CHF 1.54. It is sold on 11/15/2001 for US\$900,000 and the accumulated AOCI is immediately reclassified to P&L COGS
- 4) Company elects to use the "dual spot" method for effectiveness testing and the measurement of ineffectiveness. It will:
 - a. Measure the hedged FX risk on a spot-to-spot basis
 - b. Measure the change in fair value of the forward contract excluding the forward points per the FAS 133 paragraph 63.c. exclusion
 - c. Specify that the forecast settlement will occur in the three month period ending 12/31/01.
 - d. Use the dollar offset ratio using the 80-125% range for determining whether the hedge was highly effective
 - e. Use DIG Issue H15 as its basis for accounting for the period between the purchase date and settlement date, modified for the dual spot method
- 5) Dollar appreciates over the period, using the FX assumptions given below

FX RATE ASSUMPTIONS

	SPOT RATE	FORWARD TO 11/1/2001	DISCOUNT RATE FOR FV
2/1/01	1.6360	1.6104	5.53%
4/30/01	1.6500	1.6320	5.60%
7/31/01	1.7000	1.6900	6.05%
10/31/01	1.8000	1.8000	6.05%
11/1/01	1.8100	1.8100	0.00%

MEMO: FAS 52 AMORTIZATION vs. EXCLUDED		
FAS 52 PREMIUM AMORTIZATION	CHANGE IN EXCLUDED AMOUNT	DIF-FERENCE
	(3,132)	(305)
	(3,275)	(200)
	(3,275)	155
	(36)	(36)
	(9,717)	(384)

FAIR VALUE AND EFFECTIVE VALUE CALCULATIONS

CALCULATION OF FORWARD CONTRACT'S FAIR VALUE

	FV OF CHF LEG	FV OF USD LEG	FV OF CONTRACT
2/1/2001	596,395	(596,395)	0
4/30/2001	596,277	(604,275)	(7,998)
7/31/2001	583,090	(611,911)	(28,821)
10/31/2001	555,556	(620,964)	(65,408)
11/1/2001	552,486	(620,964)	(68,478)

CALCULATION OF FORWARD'S EFFECTIVE AND INEFFECTIVE PORTIONS USING PARAGRAPH 63.C. EXCLUSION

FV OF CHF LEG USING SPOT RATE	FV OF USD LEG	EFFECTIVE PORTION	EXCLUDED PORTION	TOTAL FV	CUM. CHANGE IN EFFECTIVE	CHANGE IN EXCLUDED
587,063	(596,395)	(9,332)	9,332	0		
589,772	(604,275)	(14,503)	6,505	(7,998)	(5,170)	(2,828)
579,660	(611,911)	(32,251)	3,430	(28,821)	(22,919)	(3,075)
555,556	(620,964)	(65,408)	0	(65,408)	(56,076)	(3,430)
552,486	(620,964)	(68,478)	0	(68,478)	(59,145)	0

EFFECTIVENESS TESTS

	CUMULATIVE VALUE OF HEDGED ITEM AT SPOT	CUMULATIVE CH IN VALUE OF HEDGED ITEM (A)	CUMULATIVE CH IN EFFECTIVE PORT OF HEDGE (B)	DOLLAR-OFFSET RATIO (B)/(A)
2/1/2001	(611,247)			
4/30/2001	(606,061)	5,186	(5,170)	99.7%
7/31/2001	(588,235)	23,012	(22,919)	99.6%
10/31/2001	(555,556)	55,691	(56,076)	100.7%

P&L INEFFECTIVENESS

	LESSER OF THE TWO CUMULATIVE CHANGES	CUMULATIVE CH IN EFFECTIVE PORT OF HEDGE (B)	P&L HEDGE INEFFECTIVENESS
	5,170	(5,170)	\$0
	22,919	(22,919)	\$0
	55,691	(56,076)	(385)

P&L Accounting

Debit/(Credit)

	REVENUE	CHANGE IN EX-CLUDED PORTION	FAS 133 HEDGE INEFFECTIVENESS	FAS 52 FX ON PAYABLE	FORWARD CONTRACT	COST OF GOODS SOLD	NET P&L	RETAINED EARNINGS	OCI	AOCI
2/1/2001	0	0	0	0	0	0	0	0	0	0
4/30/2001	0	2,828	0	0	0	0	2,828	2,828	5,170	5,170
7/31/2001	0	3,075	0	0	0	0	3,075	5,902	17,749	22,919
10/31/2001	0	3,430	385	(32,680)	32,680	0	3,815	9,717	92	23,011
11/1/2001	0	0	0	(3,069)	3,069		0	9,717	0	23,011
11/15/2001	(900,000)					\$611,247	(288,753)	(279,036)	0	0

Balance Sheet Accounting

Debit/(Credit)

	CASH	ACCOUNTS RECEIVABLE	INVENTORY @ 1.54 STANDARD COST	INVENTORY FX VARIANCE	TOTAL ASSETS	FORWARD CONTRACT	ACCOUNTS PAYABLE	AOCI AOCI	RETAINED EARNINGS	TOTAL L&SHE
2/1/2001	0	0	0	0	0	0	0	0	0	0
4/30/2001	0	0	0	0	0	(7,998)		5,170	2,828	0
7/31/2001	0	0	649,351	(61,115)	588,235	(28,821)	(588,235)	22,919	5,902	(588,235)
10/31/2001	0	0	649,351	(61,115)	588,235	(65,408)	(555,556)	23,011	9,717	(588,235)
11/1/2001	(620,964)	0	649,351	(61,115)	(32,728)	0	0	23,011	9,717	32,728
11/15/2001	(620,964)	900,000	0	0	279,036	0	0	0	(279,036)	(279,036)

This schedule was prepared by James Hodge and Jeff Wallace

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