Understanding ASC 815: Accounting for Derivative Instruments and Hedging Activities

Introduction: What is Hedge Accounting?

In June 1998, the Financial Accounting Standards Board (FASB) released Statement ASC 815, formerly FAS 133. This statement established new standards for accounting for derivatives and other hedging activities. A derivative is a financial contract whose value is based on, or derived from, a traditional security (such as a stock or bond), an asset (such as a commodity), or a market index. Derivatives are commonly used to hedge, or eliminate, risks involved in transactions, such as interest rate risk, commodity price risk or foreign exchange risk.

ASC 815 requires that all derivatives be carried at fair value on the balance sheet. Fair value is defined by FASB under ASC 820 as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.

To qualify for special hedge accounting treatment, ASC 815 requires entities to assess effectiveness both at inception of the hedging relationship and in subsequent periods. The hedging entity must also properly document the hedge at inception (the requirements for documentation will be discussed later in this paper). If the documentation requirements are not met, or the derivative is not "highly effective" in hedging the identified risk(s), hedge accounting cannot be utilized and the gain or loss resulting from the derivative's change in value is recognized currently in earnings. Entities wishing to apply hedge accounting must carefully adhere to the guidelines set forth by ASC 815.

Who Uses Hedge Accounting?

The use of hedge accounting is optional and applies to all FASB reporting entities. However, not all entities are significantly affected. Entities that do not hedge and do not have any derivatives are unaffected by ASC 815. Investment companies and others who report substantially all of their assets/liabilities at fair value are also unaffected.

Methods of Determining Hedge Effectiveness

The Shortcut Method

The shortcut method allows for an entity to assume that a hedge will be perfectly effective if it meets certain criteria. When these criteria are met, the accounting is simplified significantly.

In order to qualify for the shortcut method, the following conditions must be met:

A. The notional amount of the interest rate swap matches the principal amount of the interest-bearing asset or liability being hedged.
B. If the hedging instrument is solely an interest rate swap, the fair value of that interest rate swap at the inception of the hedging relationship must be zero.

C. If the hedging instrument is a compound derivative composed of an interest rate swap and mirror-image call or put option, the premium for the mirror-image call or put option shall be paid or received in the same manner as the premium on the call or put option embedded in the hedged item based on the following:
    1. If the implicit premium for the call or put option embedded in the hedged item is being paid principally over the life of the hedged item (through an adjustment of the interest rate), the fair value of the hedging instrument at the inception of the hedging relationship shall be zero.
    2. If the implicit premium for the call or put option embedded in the hedged item was principally paid at inception (through an original issue discount or premium), the fair value of the hedging instrument at the inception of the hedging relationship shall be equal to the fair value of the mirror-image call or put option.

D. The formula for computing net settlements under the interest rate swap is the same for each net settlement. That is, both of the following conditions are met:
    1. The fixed rate is the same throughout the term.
    2. The variable rate is based on the same index and includes the same constant adjustment or no adjustment. The existence of a stub period and stub rate do not preclude application of the shortcut method if the stub rate is the variable rate that corresponds to the length of the stub period.

E. The interest-bearing asset or liability is not prepayable, that is, able to be settled by either party before its scheduled maturity, with the following qualifications:
    1. This criterion does not apply to an interest-bearing asset or liability that is prepayable solely due to an embedded call (put) option if the hedging instrument is a compound derivative composed of an interest rate swap and a mirror-image call (put) option.
    2. The call option embedded in the interest rate swap is considered a mirror image of the call option embedded in the hedged item if all of the following conditions are met:
        i. The terms of the two call options match exactly, including all of the following:
            a. Maturities
            b. Strike price (that is, the actual amount for which the debt instrument could be called) and there is no termination payment equal to the deferred debt issuance costs that remain unamortized on the date the debt is called
            c. Related notional amounts
            d. Timing and frequency of payments
            e. Dates on which the instruments may be called.
        ii. The entity is the writer of one call option and the holder (purchaser) of the other call option.

F. The index on which the variable leg of the interest rate swap is based matches the benchmark interest rate designated as the interest rate risk being hedged for that hedging relationship.

G. Any other terms in the interest-bearing financial instruments or interest rate swaps meet both of the following conditions:
    1. The terms are typical of those instruments.
    2. The terms do not invalidate the assumption of no ineffectiveness.

Additional criteria apply specifically to fair value hedges (ASC 815-20-25 paragraph 105) and cash flow hedges (ASC 815-20-25 paragraph 106).

The Long Haul Method

If the shortcut method's criteria are not met and the entity elects to use hedge accounting, the entity must use the long haul method to determine hedge effectiveness. The long haul method involves periodic testing to determine if the hedge has been effective and to support the expectation that the hedge will continue to be effective. There are several methods available to test effectiveness. However, for interest rate swaps (the most common hedging instrument), regression analysis is often preferred.

How Do I Test Hedge Effectiveness?

There are several ways to calculate hedge effectiveness. The three concepts included in this paper are: Dollar Offest analysis, Regression analysis, and alternative method known as Value-at-Risk reduction analysis.

Dollar Offset Analysis

The dollar offset method compares the amount of change in fair value or cash flows of the derivative with those of the hedged item. The perfect hedge will have a difference of zero, with the change in fair value or cash flows having the same value as the change in the derivative. The dollar offset ratio is calculated as the cumulative (or periodic) change in the derivative, divided by the cumulative (or periodic) change in the hedged item.

An example is below:

Month	Derivative Gain/(Loss)	Hedged Item Gain/(Loss)	Periodic Dollar Offset Ratio	Cumulative Dollar Offset Ratio
March 20X0	100	(80)	125%	125%
June 20X0	40	(60)	67%	100%
Sept. 20X0	50	(20)	250%	119%

The cumulative dollar offset ratio is calculated as the total derivative gain (loss) divided by the total hedge item gain (loss). The September 20X0 cumulative dollar offset ratio is calculated as [(100+40+50) divided by (80+60+20)]. 100% indicates a perfect hedge. An acceptable range to qualify for hedge accounting under the dollar offset method is 80% to 125%.

Regression Analysis

Another method for determining hedge effectiveness is regression analysis. Regression analysis is the most common statistical method used by entities to test their hedging relationships. Regression is a technique for determining whether and by how much a change in one variable will result in a change in another variable. The two-variable regression line is represented by the algebraic formula:

$$y = a + bx + e$$

Y is the dependent variable, x is the independent variable, a is the point of intersection on the y-axis, b is the slope, and e is the error term. In practice, the x variable depicts the changes in fair value of the hedging instrument that are used to determine the y variable, or the changes in fair value of the hedged item. Two widely accepted criteria that need to be met to conclude that a hedge is effective are an R-Square of 0.8 or greater and a slope between 0.8 and 1.25. The R-Square is the percentage of the variance in the dependent variable that is explained by the independent variable. A value of 1 means the two variables are perfectly related, while a value of 0 means they are perfectly random (not related at all). The slope represents an estimate of the sensitivity of changes in the dependent variable relative to changes in the independent variable.

The Value-at-Risk (VaR)

The Value-at-Risk (VaR) refers to the theoretical maximum amount that can be lost during the duration of a hedge. Larger losses than the calculated VaR are possible, but have small probability of occurring; if a VaR calculation uses a 95% confidence interval, there is only a 5% chance that more than the VaR will be lost. VaR is calculated for the underlying positions and the derivative positions, and if VaR is reduced by a large enough amount, the hedge is deemed effective.

VaR is calculated based on one of three methods: the historical method, the variance-covariance method, or the Monte Carlo simulation method.

The Historical Method

The historical method uses historical data to determine how much could potentially be lost under the terms of a specific hedge. Historical data is compiled and sorted from best gains to worst losses, with each data point adjusted for projected interest rates and other market changes. The confidence interval is then illustrated on a histogram, which shows us the value for VaR. For example, if over the last 100 days we plot the returns for a portfolio, the sixth lowest return would be the VaR for a 95% confidence interval.

The Variance-Covariance Method

This method is similar to the historical method; the only difference between the two is that the historical method uses actual data, while the variance-covariance method assumes that returns are always normally distributed. Risk is calculated the same way as the historical method, using the value at the 1st or 5th percentile for 99% and 95% confidence intervals, respectively.

The Monte Carlo Simulation Method

A Monte Carlo simulation is a calculation that generates many scenarios based on the risk factors involved in a hedge. The model assumes a normal distribution and produces many simulated scenarios with statistics dictating the most likely based on the assumptions. The results are illustrated on a probability curve. The peak of the curve represents the VaR. The Monte Carlo simulation is beneficial due to its inclusion of underlying risks and multiple scenario sampling, but it involves rigorous calculations.

Retrospective and Prospective Testing

ASC 815 requires an entity to consider hedge effectiveness in two different ways; in prospective considerations and in retrospective evaluations.

Retrospective Testing

Retrospective testing refers to testing whether or not a derivative has been effective and must be done at least quarterly. These tests can be any of the tests mentioned previously, but must follow the method described in the hedge designation memo.

Prospective Testing

Prospective testing is used to support the expectation that a hedge will be effective in future periods. The prospective test can be a different test than the retrospective test, but must follow the method described in the hedge designation memo. It is possible for a hedging relationship to fail the retrospective test but pass the prospective test; in which case hedge accounting cannot be applied in the current period, but can be used in future periods without de-designating/re-designating the hedge.

How Do I Write A Hedge Designation Memo?

At inception of the hedge, there must be formal documentation of the hedging relationship and the entity's risk management objective and strategy for undertaking the hedge. The following information must be included in the documentation, at a minimum:

- The hedging instrument
- The hedged item or transaction
- The nature of the risk being hedged
- How the hedging instrument's effectiveness will be assessed
- How ineffectiveness will be measured

Describing the transaction is relatively simple, although all relevant information must be present. This includes the notional amount, any fixed and/or floating rates involved, when the transaction takes place and ends, and any other terms of the transaction.

The process of documenting and identifying the hedging relationship, especially in describing how hedge effectiveness has been determined and will continue to be assessed, is a much more extensive requirement and should not be taken lightly. All steps of effectiveness tests should be described and explained. To be sure that enough information is present, a third party should be able to fully understand every aspect of the hedge; the third party should be able to perform the same tests that were/will be carried out.

The following is a sample of a hedge designation memo:

Sample Hedge Designation Memo	
Risk Management Objective and Nature of Risk Being Hedged	The objective of the hedge is to offset the variability of cash flows in the interest payments of the Adjustable Rate Notes due to changes in 1 month LIBOR "1ML". Changes in the cash flows of the interest rate swap are expected to be highly effective at offsetting the changes in overall cash flows (i.e., changes in interest rate payments) attributable to fluctuations in 1ML.
Date of Designation	Monday, March 01, 2010
Hedging Instrument	$4,000,000 notional amount, pay-fixed 93.67%), receive-variable (1ML) interest rate swap, termination March 1, 2015, with settlements starting April 1, 2010 and continuing on the 1st day of each month (modified following business day convention) to and including the termination date. Floating rate Day Count Fraction: Actual/360 Reset Dates: Each Thursday during the calculation perriod Method of Averaging: Weighted Compounding: Inapplicable Business Days: New York
Hedged Transactions	Each of the anticipated interest payments on the $4,000,000 Adjustable Rate Notes, Series 2004, payable on the first day of each month (modified following business day convention) through March 1, 2015. Floating Rate Day Count Fraction: Actual/Actual Reset Dates: Each Thursday during the Calculation Period Method of Averaging: Weighted Compounding: Inapplicable Business Days: New York

How Hedge Effectivess Will Be Assessed	Based on prior history, Client's Adjustable Rate Notes and 1ML rates have been highly correlated and are expected to continue to be highly correlated. Client will assess the effectiveness of the hedge based on a regression analysis (both for the retrospective and prospective assessment) of its own Adjustable Rate Notes and 1ML interest rates. Beacause the approximate time frame for which we've hedge variable interest payments is five years, we will use actual data for histroical, rolling five year time periods as inputs (using 1ML as the independent varibale and Note resets as the dependent variable) in the regression. on March 1, 2010 we performed a regression analysis using actual Note resets compared to 1ML from March 1, 2005 through March 1, 2010. The result was an R Square of 0.994618171; an R Square of 0.8 or greater will be considered highly effective and all the use of hedge accounting.
How Hedge Effectivess Will Be Measured	Client will measure the ineffectivess of the hedge based on the "change in variable cash flows" method from Implementation Issue G7. Accordingly, the calculation of ineffectiveness will involve a comparison of the present value of the cumulative change in the expected future cash flows on the variable leg of the swap and the present value of the cumulative change in the expected future interest cash flows from the adjustable rate notes. on each reporting date we will use the same historical data used in the regression analysis to update our estimate of future interest payments on the Notes: i.e., forecasted debt payments will be calculated as 1ML +/- a spread. On March 1, 2010 we estimate our future intest payments on the Notes as 1ML + 8.8 bps; which is the average spread of where the Notes reset compared to 1ML for the time period March 1, 2015 through March 1, 2010.

Conclusion

Many entities will find ASC 815 difficult to apply. ASC 815 is part of FASB's larger "vision" of having all financial instruments measured at fair value on the balance sheet. ASC 815 is an evolving standard with frequent updates and amendments. The application of hedge accounting is optional; recording derivatives at fair value is not. Entities wishing to apply hedge accounting should give careful consideration to the structure of the hedge, the method used to assess effectiveness, and documentation of the hedging relationship and should consult professionals for up-to-date market standards and calculation methods.

About HedgeStar

HedgeStar is an independent company providing derivative portfolio market valuations, Topic 820 accounting services and hedge accounting services for municipal and corporate clients who use derivatives as part of their asset or liability management. HedgeStar was founded in 2004 when it became apparent that there was a need for an independent, mark-to-market valuation service for derivative instruments and hedging activities. HedgeStar is powered by Reval – a web-based, valuation and hedge accounting system.

As an independent valuation service, HedgeStar is not affiliated with an individual bank, dealer, or financial product. We have no relationships that can influence the integrity of our service or valuations.

Call to speak to a ASC 815 expert today:
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