

Considering Derivatives? Some Questions to Answer First

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There are a variety of ways to mitigate risk for a potential rising rate environment. The use of derivatives (e.g., swaps, swaptions and caps) is one such way. For definitions of each please refer to the end of this article.

Derivatives can be an effective risk-mitigating tool, but before purchasing a derivative we encourage credit unions to thoroughly understand the accounting and financial implications. There are a number of writings that address the accounting aspects of derivatives; therefore, the main objective of this article is to raise questions about the **financial impact and potential unintended consequences** that a credit union board and management should consider before implementing a derivatives program.

The questions raised assume the credit union would be evaluating derivatives in preparation for a rising rate environment. Our questions for consideration will use a swap as an example; however, the questions could also be used when considering an interest rate cap or swaption.

Before taking *any* action – be it a swap, term borrowing or selling assets – to reduce interest rate risk in a rising rate environment, make sure your credit union's decision makers are on the same page with respect to the rate environments for which protection is desired. The options and the cost of buying protection for a 200 or 300 basis point (bp) increase can be very different than the options and cost of buying protection for a 400 or 500 bp increase in rates. The best way to ensure that decision makers are on the same page is to establish

risk limits that encompass your *entire financial structure*.

A few questions to consider when evaluating whether derivatives are right for your situation

How high would rates have to go before there is an improvement in income from the derivative? How fast would rates have to increase?

If rates stay the same or go down does our management and board understand the potential cost of the swap and agree to take that risk?

How long of a term should the swap have? 4 years? 5 years? 10 years? Generally, the longer the commitment, the more expensive it will be, but – in theory – the more protection you will receive.

Does our credit union have the appropriate expertise and tools to effectively address the accounting issues? What are the related costs of acquiring and/or maintaining the appropriate expertise and tools?

How much time would we need to invest to ensure that our ALCO and board members have an appropriate understanding of the derivatives tools we are using?

What needs to be addressed in our policies and procedures regarding derivatives?

What methodology(ies) will we use to analyze the risk/return tradeoffs of a particular derivative?

If income simulation is your evaluation methodology, understand the impact to your earnings over time in different rate environments

EXAMPLE

4-year swap, notional amount \$10 million
The credit union pays fixed 4.10%¹ and receives 3-month LIBOR (assume 1.30%¹)

A) Rates don't change

| | You Pay | You Receive | Income |
|--------|------------|----------------|----------|
| Year 1 | 410k | 130k | (280k) |
| Year 2 | 410k | 130k | (280k) |
| Year 3 | 410k | 130k | (280k) |
| Year 4 | 410k | 130k | (280k) |
| Total | 1,640k | 520k | (1,120k) |

The day you purchase this swap the value will be at par; but note that if rates don't change it will cost the credit union about \$1.1 million.

B) Rate shock—increase 300 bps instantaneously (Ironically, even though this has never actually occurred, it's a popular test)

| | You Pay | You Receive | Income |
|--------|------------|----------------|--------|
| Year 1 | 410k | 430k | 20k |
| Year 2 | 410k | 430k | 20k |
| Year 3 | 410k | 430k | 20k |
| Year 4 | 410k | 430k | 20k |
| Total | 1,640k | 1,720k | 80k |

If you're protecting against an instantaneous 300 bp shock, you would need to decide if the opportunity to make \$80k is worth the risk of losing about \$1.1 million if rates don't change.

C) Rates increase 300 bps over 12 months (This time frame is more reflective of what has happened in history than is an instantaneous rate change)

| | You Pay | You Receive | Income |
|--------|------------|----------------|--------|
| Year 1 | 410k | 243k | (167k) |
| Year 2 | 410k | 430k | 20k |
| Year 3 | 410k | 430k | 20k |
| Year 4 | 410k | 430k | 20k |
| Total | 1,640k | 1,533k | (107k) |

If the financial evaluation assumes rates increase 300 bps over 12 months, the credit union would have lost \$107k over four years. An instantaneous rate change will show that the break-even point on the swap is at a materially lower rate environment than a more realistic rate change speed would show. If rates were to increase 300 bps over a period of 24 months the loss would be even larger.

¹ Rates and rate relationships change frequently. A flatter yield curve requires less of a rate change to break even.

When evaluating swaps assuming a rising rate environment, an instantaneous rate increase is misleading because it produces the most optimistic view. If, for example, your financial evaluation assumes that rates will go up 300 bps the day after you enter into the agreement, then your analysis typically will show that there is no disadvantage to the swap.

Let's look at the impact to earnings from an example swap position in a few different scenarios (see example at left).

If Net Economic Value (NEV) is your evaluation methodology

The day you purchase a swap it is at par (appropriately priced). Therefore, because it has no gain or loss, the swap has no impact on your current NEV. *Note that while the NEV in the current rate environment shows no change, the impact to earnings if rates don't change will be about a \$1.1 million loss over four years, as shown in the example at left.*

However, if rates increase merely 25 bps this swap will show a gain and, thus, an improvement in NEV. To get the same type of swap for which you are paying 4.10%, someone else would now have to pay 4.35%; therefore, you have a better deal.

Question: Since you can now show that the swap has a gain, does that mean you are making money?

Answer: No. It simply means that it is costing you a little less money today than it would if you were to purchase the swap at the new rate. Remember, as the example shows, no rate change caused negative earnings of about \$1.1 million. If LIBOR goes up 25 bps the negative earnings would be about \$1 million.

To recap, using NEV as the basis for your decision, by default you will conclude that:

- There is no reason *not* to purchase the swap today
- The swap helps your credit union in *every* rate environment higher than the one in which you made the purchase

In fact, however, it would be very expensive to be on the pay-fixed side of the swap if rates don't change, or don't change materially.

If you decide that your evaluation tool is NEV, keep in mind that you are not purchasing a swap for trading or speculation. The derivatives program for credit unions is designed to avoid the purchase of derivatives for these purposes. If the intent of the program is to hold the swap to reduce risk in a rising rate environment, then only in situations where it is producing *positive earnings* can it be a real benefit to the credit union.

Keep in mind NEV will not show the potential long-term negative impact on earnings – and that is dangerous. Earnings directly affect your net worth. Minimum net worth ratios are required by law (PCA); minimum NEV ratios are not.

The hedge must be continually proven

SFAS 133 (Statement of Financial Accounting Standards: Accounting for Derivatives and Hedging Activities) allows institutions to apply hedge accounting. The benefit – as long as the hedge proves effective – is that changes in fair value of a derivative do not have to be included in earnings, which helps to avoid earnings volatility related to the swap. However, hedge accounting can require extensive documentation to prove the hedge. According to NCUA's *Standards for Participating Credit Unions and Third-Party Derivative Pilot Program Applicants*, "Shock analysis will not demonstrate correlation. Hedge effectiveness requires correlation

through time, must be set prospectively, and effectiveness must be assessed retrospectively."

In order to continually prove a liability hedge, consider the following: As rates are increasing, what would you have to pay on the selected money market account to continue to prove the hedge versus what you would pay if you continued to have discretionary control over your pricing?

Could the tail wag the dog? It could – for example, to continue to prove the hedge as rates increase you may have to price a segment of your money market accounts higher than your competitors. How would you control the growth in the particular money market account so you don't experience uncontrollable or undesirable growth in relatively hot money?

If you develop a plan to control the growth, at what point would you begin to implement the plan?

- What are the related negative outcomes for members or of members' perceptions?
- Are both management and board willing to deal with real or perceived negative outcomes if growth has to be slowed materially?

Other considerations

Make sure you get an independent, unbiased opinion on accounting issues and determination of hedge effectiveness – two independent opinions would be better. Here's why: As Jonathan Weil and John D. McKinnon reported in "Fannie Mae Seeks an Ally in SEC" (*Wall Street Journal* [October 12, 2004] C1), two very different opinions were given on Fannie's hedge accounting:

In its report, OFHEO [Office of Federal Housing Enterprise Oversight] said Fannie incorrectly had treated the vast majority of its hedges as "perfectly effective...."

"We feel very strongly that these are black-and-white accounting issues," OFHEO's director, Armando Falcon, testified Wednesday. "These are not issues of interpretation." Mr. Falcon said that Deloitte & Touche LLP, which assisted OFHEO in preparing its report, agreed with his agency's findings.

[Fannie Chairman and Chief Executive Franklin] Raines added that the company's independent auditor, KPMG LLP, "reviewed our application of those standards and concurred" that Fannie's accounting was correct.

The article went on to say, "The documentation requirements for hedge accounting have tripped up several companies in recent years."

Understand all related costs of the swap including independent opinion fees, expertise and ongoing effectiveness testing.

Swaps entail credit risk. If a credit union is receiving LIBOR and rates increase to unexpected levels, there is a chance that the counterparty cannot honor its obligation as noted by Frank K. Reilly and Keith C. Brown in *Investment Analysis and Portfolio Management, Sixth Edition* (Orlando: The Dryden Press, 2000), 1050:

An important characteristic of the swap agreement is that it becomes an asset to one participant and a liability to the other as soon as market conditions change after the terms of the contract are set. This means that swaps entail credit risk.... The possibility that the swap counterparty either cannot or will not honor its obligation means that the synthetic floating-rate note carries more credit risk....

Swaps, swaptions and caps:

- Do not affect the credit union's beginning net worth ratio, whereas term borrowings often decrease a credit union's current net worth ratio because assets are immediately inflated
- Do not help with liquidity

Before pulling the trigger on a derivatives transaction, identify and test other alternatives for reducing interest rate risk in a rising rate environment. Derivatives can be a viable alternative for mitigating risks to earnings, but, as with any business decision, it is important to identify and evaluate various options before taking action. Term borrowings, selling loans, shortening investments and increasing fee/other income that is non-rate sensitive are just a few of the options to consider. These typically do not require the same level of expertise at the management and ALCO levels as is needed to implement and maintain a derivatives program. However, just because derivatives are complex does not mean that it is not worth the effort of exploring them as an option for reducing interest rate risk in a rising rate environment.

Definitions²

Cap agreement: A contract that on each settlement date pays the holder the greater of the difference between the reference rate [such as LIBOR] and the cap rate or zero.

Swap (Interest rate swap): An agreement calling for the periodic exchange of cash flows, one based on an interest rate that remains fixed for the life of the contract and the other that is linked to a variable-rate index.

Swaptions: Also known as *swap options*, these contracts give the holder the right, but not the obligation, to enter into an interest rate or currency swap on prearranged terms.

² Reilly and Brown, 1198, 1205, 1211

We welcome your questions and comments

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