

Understanding Today's Low Interest Rate Environment A Q&A With Equity Methods and Chatham Financial

The United States is in a prolonged low interest environment. What does this mean for derivatives accounting, hedging, and financial instrument valuation? Industry experts from Chatham Financial and Equity Methods trade observations.

The current interest rate environment has already persisted longer than many expected. Have we seen anything like this historically?

AMOL DHARGHALKAR, *managing director, Chatham Financial*: Markets used to view Japan in the 1990s and 2000s as an outlier—a developed economy with near-zero interest rates, low inflation, and low unemployment. But now the world has roughly \$7 trillion worth of securities trading at *negative* yields. Now, we see news every day that countries like Japan are bringing their central bank rates below zero or that the Fed is considering holding off on rate hikes.

JOSH SCHAEFFER, PhD, *director, Equity Methods*: The federal funds rate was at its lowest level ever between December 2008 and December 2015, with a target rate of 0 to 0.25 percent. Not only is this seven-year stretch historic due to the near-zero rate being the lowest, but also the fed has pretty much never gone this long without raising rates, regardless of level.

What are negative interest rates, and how are they possible?

MIKE SCULLARD, PhD, *quantitative research analyst, Chatham Financial*: When someone lends money at a negative interest rate, they're actually paying interest instead of receiving it. To most, this doesn't make sense. Who would pay for the privilege of lending someone money when you can just hold cash?

But for a commercial bank, holding reserves in cash has its own downside. Among other issues, cash needs to be stored and guarded, and from a logistical point of view, large cash deposits are hard to transfer.

You could also ask why a bank wouldn't lend to someone offering a positive rate. Commercial banks often want to, or even have to, hold reserves in the extremely safe hands of a central

bank. Even depositing the money in a foreign central bank at a positive interest rate is at risk from currency movements.

To central banks, negative rates are a way to discourage savings and spur investment in a stagnant economy. But even with negative rates, central banks are not short on deposits, as many commercial banks view negative interest as simply a cost of keeping money safe.

JOSH: As an aside, there continues to be an interesting dynamic at work here. There is clearly the desire or obligation to hold government obligations. Part of this is that these are perceived to be extremely safe. When the S&P downgraded the U.S. from AAA, the safest credit rating, there was concern that U.S. debt, usually seen as one of the world's safest holdings, might be riskier than previously thought.

In the short term, in the wake of the downgrade, investors bought more U.S. bonds, in part because they saw no safer investments. But if more turmoil hits, we might find out just how much of a price investors are willing to bear to keep money safe.

How widespread are negative interest rates? Are we likely to see them in the U.S.?

MIKE: Negative interest rates aren't a first, but we've never seen them so widely used before now. The Swiss Central Bank first started using them in 2013, followed in 2015 by the central banks of Sweden, Denmark, and the European Union. Then the Central Bank of Japan announced it would also adopt negative rates. This is unprecedented. Fed chairman Janet Yellen did say she wouldn't take negative interest rates "off the table." Then again, the Fed actually raised rates in December 2015.

JOSH: To a large extent it's government, not the market, that controls these interest rates. The government looks at factors including the overall economic growth, inflation, and unemployment in making these decisions.

Any lessons about low interest rate environments that we should take from the past?

AMOL: Maybe the greatest lesson is that it's hard to escape low interest rate regimes unless a lot of factors align. This is especially true for inflation, which has stayed pretty tame.

JOSH: I agree. U.S. rates are finally on an upswing, which is evident in the government benchmark rates as well as corporate securities. But between low inflation and all the Fed comments, I think growth in rates is going to be very slow. If the analogy is pulling a Band-Aid off the economy, I think it will be a very slow pull instead of a rip that gets it over with. The key result is that interest rates become a lagging rather than leading indicator, since they'll always be subject to government intervention.

Given the compression of investment margins in this environment, what have firms done to try to increase returns on their money?

AMOL: We have seen a number of companies take advantage of low interest rates to issue debt to fund buybacks or dividends. In addition, companies have bought lower rated debt securities with their investment balances in order to increase yields.

JOSH: Debt-funded buybacks in particular are allowing companies to return value to shareholders while also incrementally shifting their capital structure towards cheaper debt and away from more expensive equity. You can't just sit on a pile of cash and expect to do too well in this market, so we're seeing a lot of firms acquiring other firms, dividending out cash or buying back shares, and the like.

One thing I've found interesting is that some firms are hoarding cash even if they have debt they could feasibly pay down. Last year we learned that Apple was holding over \$200 billion in cash while still issuing bonds. In this case, the bonds are below 4% for 30 years, so this may be some interesting long term planning at play.

What have investors done to try to lock in higher returns?

JOSH: Investors certainly won't get great returns out of straight corporate or government debt in this environment. Some may try to improve yield by using floating debt or periodic resets, incorporate equity features like convertibility or warrants to produce some upside, or just walk away from the bond market and move to higher risk securities like stocks. Unfortunately the cost of these items may be even lower returns in the meantime, until the benefits of these features kick in.

Also, companies that pay dividends might see their yield of the stock go over that of their bonds, at least in the short term. Of course, as dividends are paid, the stock price will trend downward unlike bonds which have a stated value at maturity. And companies can always lower their stock dividends if they are low on cash, something they can't do for bonds.

How does the interest rate affect derivatives accounting?

DAN GENTZEL, CPA, managing director, Chatham Financial: First of all, many companies can choose between borrowing at one, three, six, or twelve month LIBOR. More are considering changing the interest payment election under their existing borrowing agreements to take advantage of low rates. Companies that hedged their LIBOR interest expense on their debt with an interest rate derivative, and chose to apply cash flow hedge accounting, need to make sure any interest rate changes do not lead to unexpected accounting results.

Hedged transactions have to be formally documented so that it's clear when they occur. Otherwise it might be hard to know that interest payments stemming from the newly elected interest rate index still meet the definition of the hedged transactions. As a result, changing the LIBOR tenor election could have adverse accounting consequences, which could negatively affect some hedging relationships.

Second, since last year we have seen a rise in the number of 0% floors on the floating rate in loan agreements and credit facilities. The 0% floor is not a problem by itself. However, if the floor is included in the loan but not the interest rate swap that is used to hedge that debt, hedge ineffectiveness is likely to result—which is another term for unwanted or unexpected earnings volatility stemming from a hedging relationship.

Companies that try to buy the 0% floor and embed it into the interest rate swap find that, although the floor has no intrinsic value, it's quite expensive to buy. That's probably at least partly attributable to the high volatility associated with the current interest rate environment, especially for longer dated options. As a result, many companies are reluctant to purchase the floor and embed it into the interest rate swap.

As I said, the cost of failing to embed the floor in the swap is hedge ineffectiveness, which is hard to predict and can be quite volatile from period to period. Companies sensitive to earnings volatility should consider buying the floor and embedding it in the interest rate swap, trying to have the 0% floor removed from the loan altogether, or modifying the interest rate language in the loan agreement to exempt any hedged portion of the loan from the 0% interest rate floor provision.

How does the interest rate affect option valuation in bonds?

MIKE: Negative interest rates have resulted in derivatives appearing in contracts which are not ostensibly derivatives. For example, many loan agreements prevent the lender from paying the borrower when interest rates go negative. In the past, this clause was typically ignored when pricing the loan. But the possibility of negative rates means that such an agreement is actually a loan plus a common derivative instrument known as a floor.

To price a floor derivative, you need a model for the underlying interest rates. The most common one, a modified Black-Scholes model, does not allow for negative rates. So you would either need further changes to the Black-Scholes model, or apply an entirely different one. An additional difficulty arises when pricing derivatives that are especially valuable when interest rates are at or near zero. Since these instruments are not always liquid in every currency, valuation requires specialized modeling to obtain prices in line with the market.

Discuss how a rise in interest rates, which is somewhat controlled by the Fed, is a driver, but also will follow the economy as a whole.

AMOL: When the Fed raised rates in December, the market environment and global economy seemed to be in a different place. Coming into 2016, the market and Fed had both expected four rate hikes during the year. Today, the market ascribes nearly zero probability to another rate hike in 2016—and the Fed has even spoken of the possibility of bringing negative rates to the U.S., following the Eurozone, Sweden, Denmark, Switzerland, and Japan. Of course, expectations could rise again as quickly as they've come down. Many firms are taking advantage of the current environment to lock in low rates primarily through interest rate swaps on floating rate debt.

For floating rate assets, is there any drive to hedge before rates rise to lock in part of the rise now?

AMOL: Not really. Most firms are not that concerned about the effect of rising rates on their short-term investment portfolios.

Is there a drive to issue fixed rate debt, or hedge liabilities at low rates before the increases come?

AMOL: Yes, a lot of firms are locking in low rates, especially since it now seems the Fed won't raise rates again very soon. The flattening of the yield curve has reduced many of the costs of hedging, and firms are taking advantage today.

How does the current rate environment affect direct investments in other companies?

JOSH: The low rates can produce some potentially attractive acquisitions, because if you can't get money from cash deposits but you can borrow money cheaply, it may be a good time to make a purchase. But the economy and the business being acquired may still be unstable. If this is the case, a company might consider an earn-out, which will help prevent paying too much for an acquisition that subsequently doesn't deliver results, while still providing the seller with upside.

Companies doing a buyout, however, should make sure that low interest rates aren't throwing off their values. Companies using discounted cash flow may see inflation in values due to the drop in discount rate, so they should carefully consider their assumptions and whether to use a different technique to validate their values.

Are any types of hedges particularly well suited to different economic environments?

AMOL: Rather than try to get hedging strategies to perform well regardless of rate movements, firms should treat hedging as a way to reduce their overall level of risk. Of course, hindsight is perfect. Everyone regrets hedging when trades become liabilities. The lesson? Always approach hedging as a way to reduce risk rather than make money.

Are there any instruments which aren't technically hedges but still do the job, and what risks do they expose the company to?

AMOL: One thing large, credit-worthy companies try to do is convert fixed rate debt back into floating using interest rate swaps. This doesn't necessarily seem like a hedge since the firm is increasing its floating rate risk. But it is one if the firm has a matching floating rate asset base in the form of short-term investment portfolios invested in treasuries, agencies, or similar high grade securities. This is the asset-liability management technique that financial institutions often use.

What kinds of firms are hedging? Who is leaving risk unhedged?

AMOL: The most common type of risk that firms face is interest rate risk, followed by currency then commodity risk. While interest rate risk is much more commonly hedged, today's market volatility in FX and commodity prices is also leading multinationals to evaluate their programs to mitigate these risks.

JOSH: Of course, oil prices have moved into some pretty historic lows, so airlines and other companies reliant on fuel are certainly thinking about their hedges and how they can minimize their long term input costs. But that's a discussion for another day.

About Equity Methods

[Equity Methods](#) provides valuation, financial reporting, and human resources advisory services related to equity compensation and other complex securities. At Equity Methods, we believe in the power of equity-based compensation to advance a company's strategy. Since 1998, we have assisted 29 Fortune 100 companies and over 400 clients with their most pressing equity compensation valuation and reporting challenges. From pre-grant Monte Carlo modeling for relative TSR awards to fully outsourced financial reporting, we're dedicated to bringing insight, control, and expanded capability to financial reporting.

About Chatham Financial

[Chatham Financial](#) is an independent full-service risk management advisory and technology firm specializing in interest rate, FX and commodity risk management, hedge accounting, regulatory compliance and debt and derivatives valuations. Chatham brings deep derivatives expertise, operational services and technology solutions to its clients through a global team of risk management professionals, CPAs, quantitative analysts and technology developers. Founded in 1991, Chatham serves over 1,800 companies globally across multiple industries and sectors.

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