

One Good Turn Deserves Another

Window dressing is a tradition honored by time. Why it should be honored by anyone or anything else is unclear. But our duty as traders is to anticipate the events produced by the calendar or by policy, such as the end-of-quarter buying of winning stocks or the rebalancing of stocks indexes (see "Constitution And Reconstitution," *Futures*, April 2003).

Commercial banks are not immune from the pressures created by the calendar and by the Federal Reserve's reserve requirements. They must hold 10% in reserve on deposits greater than \$41.3 million; the number is 3% for deposits less than that amount and 0% for non-personal time deposits and eurocurrency liabilities.

In reality, the percentage reserve requirement is one of the more potent and least used tools of monetary policy. The 10% requirement was lowered from 12% by the Fed in April 1992 to stimulate bank lending. The monetary multiplier, or $1/(1-\text{reserve level})$, jumped from 8.33 to 10. Even though commercial bank lending has diminished as an overall component of U.S. corporate funding in recent years as corporations moved to the commercial paper and eurodollar markets, the ability to change the overall credit supply with this single policy decision is formidable.

Unsurprisingly, the most important reserve reporting period is the end of the calendar year. The overnight federal funds rate can jump strongly in this period as reserve-short banks bid up the price of reserves. But is there any evidence for systematic changes in federal funds levels or volatility based on the calendar, and are there any reliable seasonal trades in the eurodollar market based on such patterns?

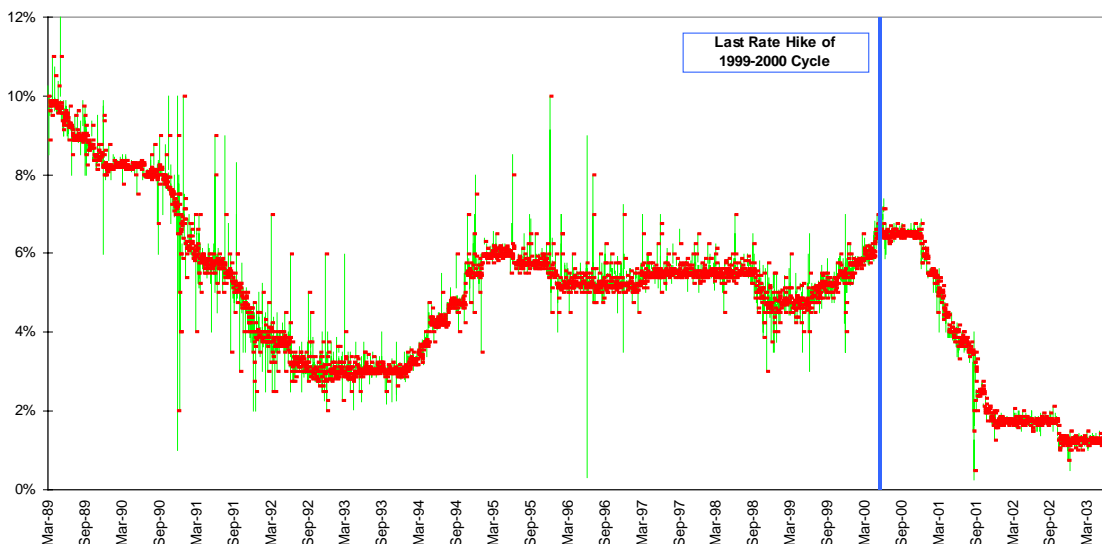
Overnight Volatility

No interest rate in the U.S. is more volatile than the overnight fed funds rate, which can be counterintuitive on several levels. First, while the interest rate is volatile, the dollar impact is low by virtue of the short maturity. Second, you have to be a bank to participate in the fed funds market, and while the dollar amounts traded are huge and affect all other interest rates, the changes are less visible to you as a trader than are the more familiar fluctuations of notes and bonds.

Third, this is the only interest rate subject to active price-fixing. The Federal Reserve buys and sells Treasury securities in an attempt to peg the rate. We should note, however, that the Federal Reserve actively bought longer-dated Treasury securities to cap interest rates throughout World War II and well into the early 1950s. That's right: At the height of the McCarthy era of fighting communism abroad we suppressed a free market in Treasury securities at home.

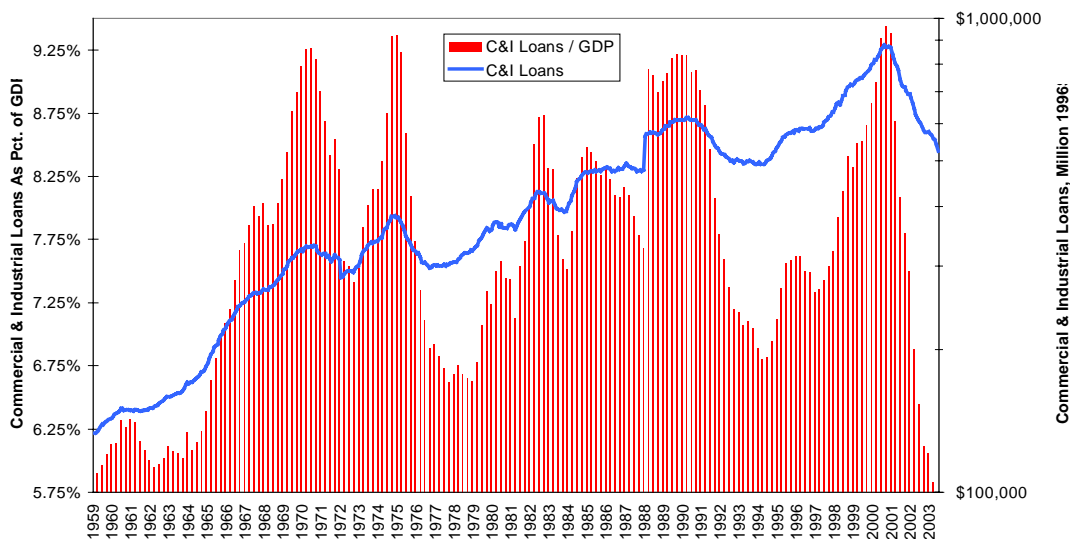
Not only are fed funds volatile on an interday change basis, they have large and erratic intraday ranges reflecting the relative panic levels of borrowers and lenders.

Overnight Fed Funds



The variance of the overnight fed funds rate started to fall after the Fed's last rate hike in May 2000, and remained low throughout the rate-cutting cycle of 2001-2003; the immediate aftermath of September 11, 2001 standing as a notable exception. This decline in variance is not necessarily a welcome sign, however. It coincided with a precipitous drop in commercial and industrial lending by banks, one that mirrored the stock market from 1995 onwards.

Where Have All The Bank Loans Gone?

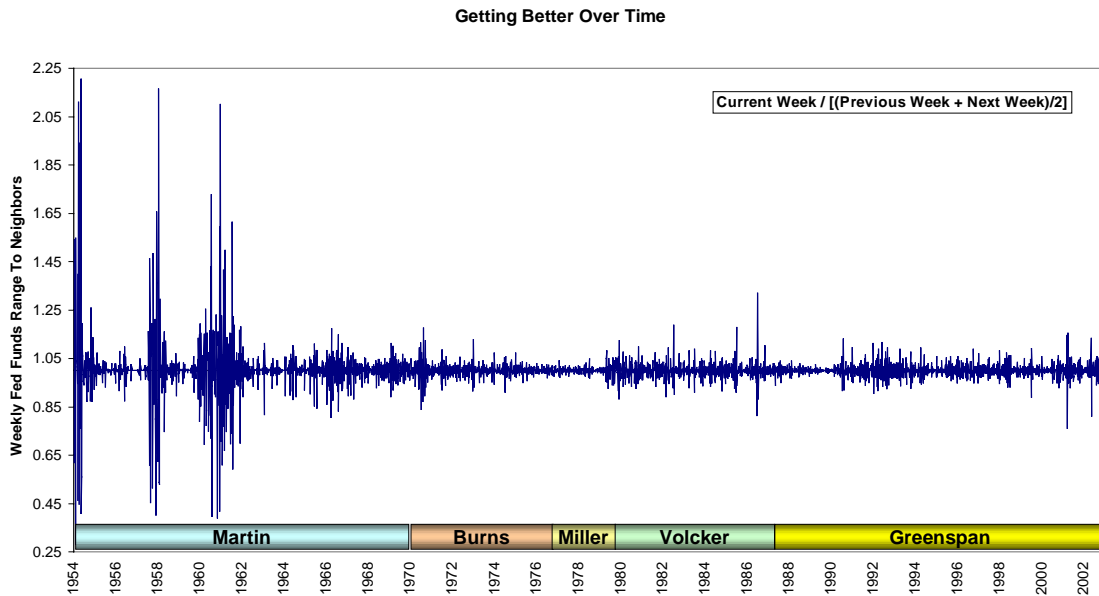


The extension of bank credit often is accompanied by the issuance of standby facilities that borrowers can tap on short notice. These arrangements create moving targets for bankers and contribute to the volatility of the overnight fed funds rate.

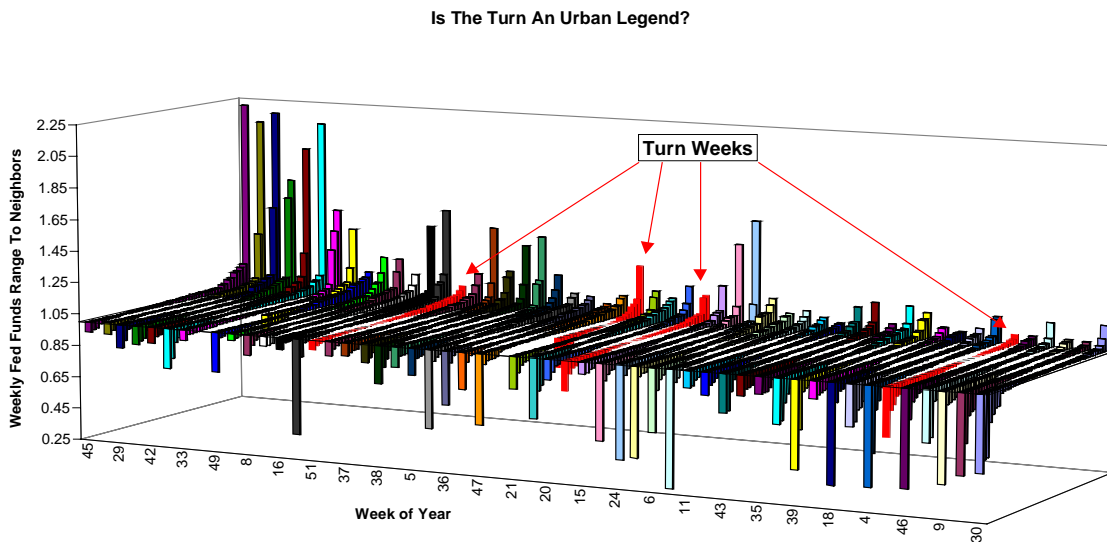
Weekly Volatility

The pattern of declining fed funds volatility over time can be seen in the weekly data as well. The Federal Reserve itself reports a weekly fed funds number reported on Wednesdays on its Web site. If we compare each week's datum against the average of the previous and succeeding weeks' rates, we can see how much less erratic the central bank has been since the William McChesney Martin era. Each Federal Reserve chairman has a distinctive volatility

pattern - Paul Volcker was far quicker on the trigger than either G. William Miller or Alan Greenspan, for example - and this should be of concern to all those who favor rule-based monetary policies.



We can rearrange all of these weekly data points into a visual test of whether the end-of-year turn trade actually exists or not. If fed funds are predictably higher at the end of the year, then we should see higher ratios of weekly fed funds to their neighbors in weeks 50, 51, 52 and 53 of the year. Even if these weeks' average values are not high, their extreme values should be high.



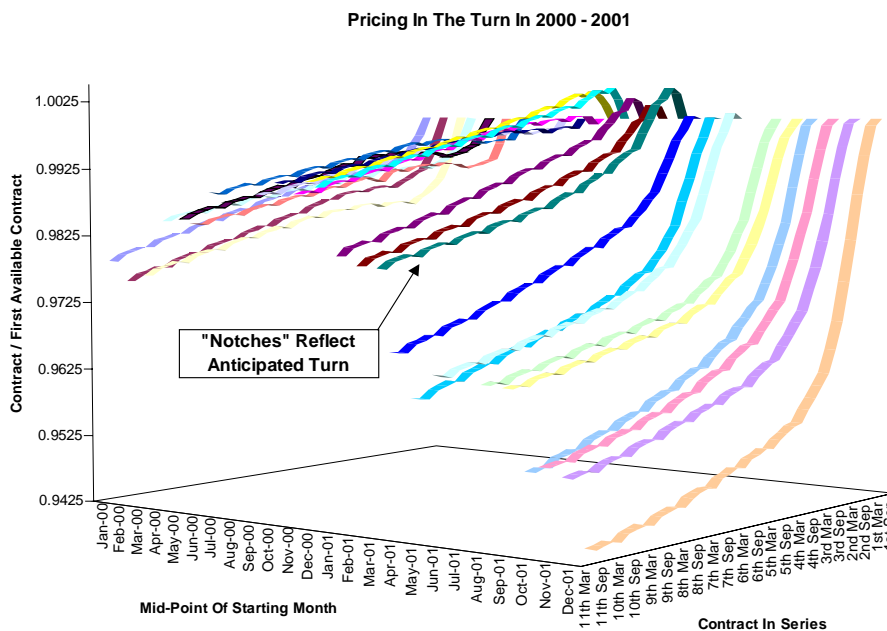
The data do not support the notion of a predictable spike in federal funds in December. In fact, the highest fed fund spikes occur not in December, but instead are bunched in October, a month far more famous for stock market mishaps than for surges in overnight interest rates. We would have to conclude on the data presented so far that there are no systematic volatility patterns in fed funds. But, are there systematic trades in the eurodollar market based on misperceptions?

Turn, Turn, Turn

Participants in a market are vulnerable to collective irrationality. We accept this elsewhere in life; consider how you are at the mercy of your fellow motorists each and every time you get behind the wheel. Collective irrationality,

which sounds more refined than the madness of crowds, requires us to get out of the way of a moving train. But it also provides us with opportunities to surf the wave back to the beach of common sense.

Let's assume for the sake of argument you are able to locate some traders with big egos. Would any of them be able to tell you with a straight face they knew eurodollar rates were going to be higher in, say, December 2007 than in both September 2007 and March 2008? But the forward curves of the eurodollar futures market regularly reflect such sentiment. If we take each month's middle Wednesday for the years 2000 and 2001 and take the forward curve of the quarterly futures chain, we see a series of notches for December contracts. These notches represent the combination of lower price and higher yield for December contracts relative to their adjoining months. The market regularly prices in higher December interest rates even though no rational person believes themselves capable of making such a forecast.

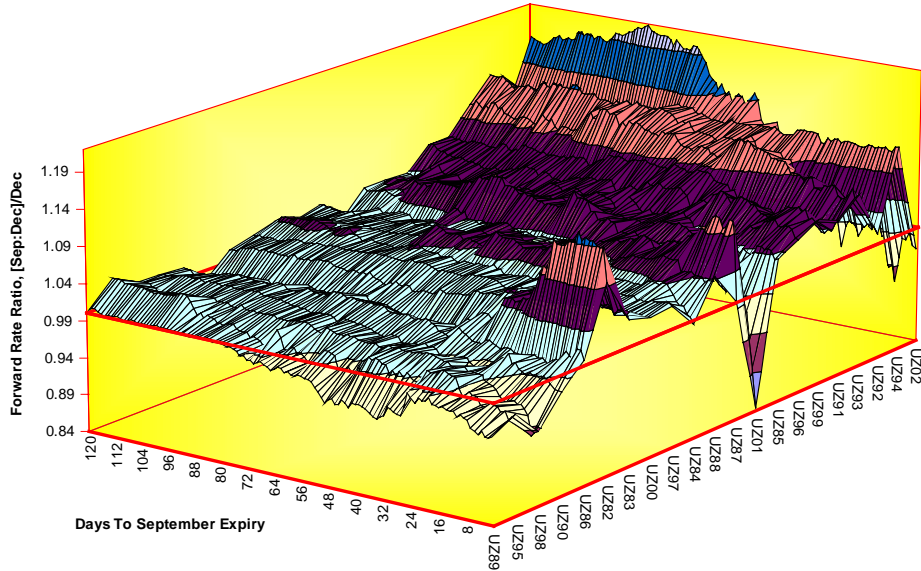


This humility would be justified by the facts. We can look at the turn trade from three different aspects. The first is the movement of the September/December spread going into September's expiration. The second is the movement of the December/March spread going into December's expiration. Both of these can be measured by a ratio of the forward rate between the two contracts to the second contract's rate; the calculation for the December-March forward rate ratio follows.

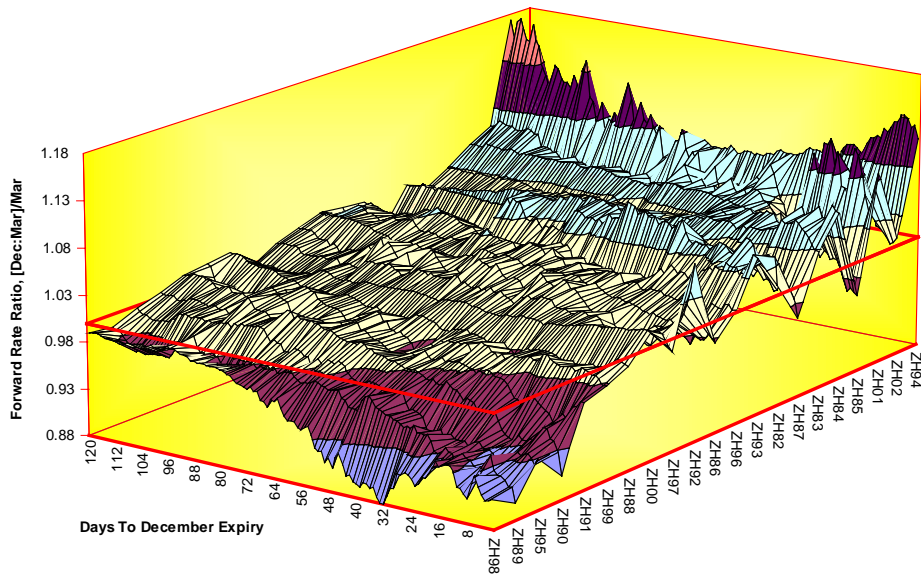
$$\frac{\left[\frac{(1 + Mar)^{-5}}{(1 + Dec)^{-25}} \right]^4 - 1}{Mar}$$

The more positively sloped the yield curve, the greater the forward rate ratio will be. If December rates remained consistently higher than those for September as September expiration approached, we would see a pattern of September to December forward rate ratios rising from or remaining above 1.00 as September expiration approached. The opposite would be expected for the December to March ratios; we should expect to see them decline toward or go below 1.00 as December expiration approached.

The September To December Turn



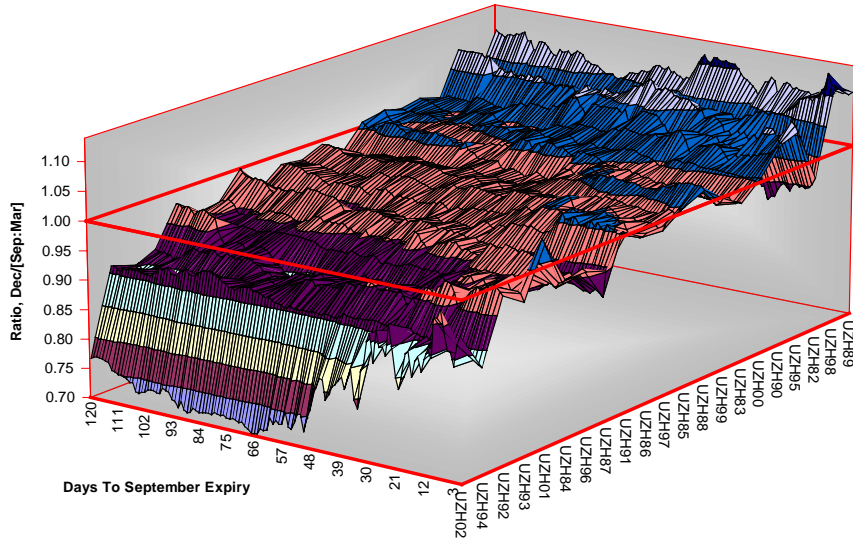
The December To March Turn



In reality, we only see these patterns for a few years out of the entire 1982-2003 history of the eurodollar contract. For the September to December turn, only 1982, 1983, 1986 and 2000 really show the viable turn trade. For the December to March turn, the years (defined by the March contract) 1998, 1989, 1995, 1990 and 1991 show a viable turn trade. On this basis, what was anticipated years before turned out to be a fizzle when the turn actually arrived.

The third way to look at whether the turn trade materialized is to examine the ratio of the December eurodollars rates to the forward rate from September to the following March. Very few years, most prominently 1998 and 1989, exhibit any sort of rising ratio by September's expiration. Several years, most notably the turns ending in March 2002 and March 1994, price in lower December rates. The vast majority have a ratio very close to 1.00; we can interpret this as a smooth forward curve for eurodollar rates over the first three contract quarters.

The December Deformation



Once short-term interest rates begin to rise in the next cycle, it is quite likely that the forward curve of the eurodollar market will once again price in a turn trade. Based on the experience of the past two decades of trading, higher December rates will not materialize, and that will present you with an opportunity to trade the butterfly of selling September and March while buying December eurodollars. When someone asks you what you are doing, just tell them you are anticipating that the anticipated turn will not occur. That is what markets are for, right?