VANDERBILT Ave.
ASSET MANAGEMENT

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Using Fed Funds Futures to Forecast Federal Reserve Moves

As portfolio managers, we strive to outperform our clients' benchmarks using every piece of data that is available in the marketplace. Some information is easily accessible, but may be interpreted in ways that yield different conclusions. Whereas, other information needs to be derived using various calculations and then analyzed to determine what actions should be taken. One piece of data that is critical to the puzzle that portfolio managers are confronted with on a daily basis is ascertaining when and by how much the Federal Reserve will move the Fed Funds rate up or down. This decision enables us to determine how to position our clients' portfolios relative to their benchmarks in order to enhance total return.

In order for us to make an educated decision as to what action the Federal Reserve will take we employ the Fed Funds Futures rates. The Fed Funds Futures "price in" all of the information that is available in the marketplace. By using these rates we can determine what the "expected" Fed Funds rate should be for any particular month. Below is an example of how we use the May 2004 Fed Funds Futures contract to determine the likelihood that the Federal Reserve will tighten interest rates by 25 basis points at its May 4th, 2004 meeting.

EXAMPLE:

Current Fed Funds Yield:	1.00%
May 2004 Fed Funds Futures:	98.99
Implied May 2004 Fed Funds Futures Yield:	**1.01%** [=> 100.00 – 98.99 = 1.01]

The May Futures contract implies that the Fed Funds yield for the entire month of May 2004 will be 1.01%. Since the Federal Reserve meeting will take place on May 4th, then the rate must remain 1.00% during the first three (3) days of May, barring an intra-meeting Fed move. In order for the entire month of May 2004 to have an average rate of 1.01%, we need to determine what the rate should be during the latter 28 days of the month. The equation is:

$(3/31*1.00\%) + (28/31*X) = 1.01\%$

Solving for X: **1.01107%**

Therefore, the Fed Funds rate will have to be 1.01107% on and after the meeting on May 4th, 2004 in order for the average rate during the entire month to be 1.01%.

The probability that the Fed will tighten the rate by 25 basis points is therefore:

(1.01107 – 1.00) / 0.25 = $\boxed{\textbf{4.43\%}}$

Using this methodology we can infer that the probability that the Federal Reserve will tighten rates in May is low and, as a result, we will position the portfolios accordingly. We then take the next step and use the Fed Funds Futures rates for the months of July and August to determine if the probability of a move by the Fed is more likely in the subsequent months so that we can be ready and reposition our clients' portfolios as necessary. Using the Fed Funds Futures contract rates of 98.93 for July and 98.85 for August we can determine the probability that the Fed will tighten rates by 25 basis points at the June 30th and August 10th meetings.

Since the June meeting is on the last day of the month, we look at the July futures rate of 98.93, which would be available for the entire month of July. Therefore the probability of a tightening on June 30th is calculated as follows:

Current Fed Funds Yield:	1.00%
July 2004 Fed Funds Futures:	98.93
Implied July 2004 Fed Funds Futures Yield:	**1.07%** [=> 100.00 – 98.93 = 1.07]

The probability that the Fed will tighten the rate by 25 basis points on June 30th is therefore:

(1.07 – 1.00) / 0.25 = $\boxed{\textbf{28\%}}$

Using the same methodology the probability of a tightening on August 10th is calculated below:

Current Fed Funds Yield:	1.00%
August 2004 Fed Funds Futures:	98.85
Implied August 2004 Fed Funds Futures Yield:	**1.15%** [=> 100.00 – 98.85 = 1.15]

In order for the entire month of August 2004 to have an average rate of 1.15%, we need to determine what the rate should be during the latter 22 days of the month. The equation is:

(9/31*1.00%) + (22/31*X) = 1.15%

Solving for X: **1.21136%**

Therefore, the Fed Funds rate will have to be 1.21136% on and after the meeting on August 10th, 2004 in order for the average rate during the entire month to be 1.15%.

The probability that the Fed will tighten the rate by 25 basis points on August 10th is therefore:

$(1.21136 - 1.00) / 0.25 = \boxed{\mathbf{84.54\%}}$

The above probabilities indicate that there is a strong likelihood that the Federal Reserve will take action by August 2004.

Please refer to the table below for a summary of our results.

Date of Fed Meeting	**Implied Fed Funds Futures Yield**	**Probability of Fed Tightening by 25 bps**
May 4, 2004	1.01%	4.43%
June 30, 2004	1.07%	28.00%
August 10, 2004	1.15%	84.54%

Vanderbilt Research Team