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## **RateWatch #148 - The Fed's Methods. Taylor Rule.**

May 22, 1999

by Dick Lepre

### **Some Comments About the Fed and Inflation**

Last week we talked about inflation because it was *au courant*. Understand that I am not stating or implying that inflation is about to break out big time. I am stating that it is a good time to look at a couple of things about inflation:

- 1) the Federal Reserve's desire to control inflation and control the economy leads to interesting changes in the way that it interacts with the public.
- 2) the Fed has a "de facto" rule for setting the Fed Funds rate. This is called the Taylor rule.

This past week the FOMC met and decided to leave the overnight rate where it was. They also did one new thing. Instead of waiting until after the next FOMC meeting to announce the policy that they set at this meeting they immediately announced that they had decided go from neutral toward a bias to tightening (raising) rates.

One can look at this from a number of perspectives.

- 1) We are in a wonderful age where our government is willing to share its innermost thoughts and intentions with the citizens.
- 2) the Fed came to the practical realization that it was of diminished value to keep this information secret. If it is announced it will have an effect of making the move less necessary. If folks know that the Fed is leaning toward tightening they will, presumably, act in a manner to ward off inflation and the resulting tightening. The Fed, in this picture, is not an undercover narc trying to bust the I-Monster (inflation) once he shows up. The Fed is a visible uniformed police deterrent saying: "Don't commit inflation around here or we're going to drag your butt off to the land of higher rates."
- 3) the Fed is a sinister force which is trying to gain control over the economy and is very much concerned about the fact that it regulates banks and does not adequately regulate the increasing mass of economic wealth in equity markets. By announcing its intentions it is stretching its ability to "control" markets.

### **The Taylor Rule**

The Taylor Rule is named for Dr. John B. Taylor a professor of economics at Stanford. The Taylor rule is an attempt to formalize how the Fed moves the overnight rate in response to the measurement of two key things 1) inflation and 2) GDP growth. Recall that the assignment given to the Fed is: "Keep the economy growing at a moderate pace while keeping inflation low.

A scholarly presentation of this is available in Acrobat format at <http://www.frbsf.org/econsrch/econrev/98-3/3-16.pdf> (<http://www.frbsf.org/econsrch/econrev/98-3/3-16.pdf>) A somewhat more readable version is at <http://www.frbsf.org/econsrch/wklyltr/wklyltr98/ei98-38.html> (<http://www.frbsf.org/econsrch/wklyltr/wklyltr98/ei98-38.html>) We will present here the Lepre skinny view.

The Talyor rule is best regarded as a scientific explanation attempting to quantify the behavior of the Fed by postulating a mathematical equation of the Fed's "reaction function". That is, if one analyzes the data: interest rates, inflation and GDP can one determine a rule that describes the Feds behavior.

The specific and simple rule is based on the following

$r$  = the equilibrium real fed funds rate (the "natural" rate that is consistent with full-employment)

$I$  = the average inflation rate for the past 4 quarters (note here that inflation is not CPI but the GDP deflator - this was discussed in RateWatch #147)

$I^*$  = the target inflation rate

$y$  = the output gap ( $100 \times (\text{real GDP} - \text{potential GDP}) / \text{potential GDP}$ )

The equation is Fed Funds Rate =  $r + I + 0.5(I - I^*) + 0.5y$

If, for example, the target inflation rate was 2% and inflation (as measured by GDP deflator is 3%) then the Fed funds rate should be  $2 + 3 + 0.5(3-2) = 5.5\%$ .

In addition, if there is an output gap i.e. a difference between real GDP growth and "potential" GDP growth (a somewhat elusive concept) rates must be adjusted accordingly. If GDP growth exceeds "potential" then rates must be increased.

In practice there are several major considerations. The Fed reacts to the data slowly by adjusting the overnight rate slowly. The goal is the goal legislated for our monetary policy - stable prices and full employment.

Dr. Taylor has a web site at <http://www.stanford.edu/~johntayl/> (<http://www.stanford.edu/~johntayl/>)

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