

## US Economics Weekly

Editor: Ian Shepherdson



### Interest Rates and the Taylor Rule

- Page 2 It is some time since we last used the Taylor Rule to examine the question of interest rate policy. With the next FOMC only a week or so away, it seems appropriate now to revisit the numbers in an effort to pin down the parameters within which the Fed's decision will be made. We conclude that **the Taylor Rule points to a need for only a very modest increase in interest rates, even if growth remains above trend**, and that our forecast of only one more 25bp hike this year (which we still expect next week) still looks about right.

### Economic Previews

- Page 4 *Retail sales - April:* Weak car sales and falling gas prices could result in a sharpish drop in retail sales.
- Page 5 *PPI - April:* Producer prices should be unchanged this month.
- Page 7 *Inventories - March:* Businesses built inventories in earnest through the entire first quarter.
- Page 7 *CPI - April:* Falling gasoline prices should hold the CPI to no rise at all.
- Page 9 *Industrial production - April:* Manufacturers are pulling out the stops to keep up with demand.
- Page 10 *Philly Fed - April:* The March drop in the Philly Fed index was not confirmed by the NAPM index, hence, it may have been a fluke.
- Page 10 *Housing starts - April:* Homebuilders are playing catch up, which implies a rise in starts in April despite the floods.

### Economic and Financial Databank

- Page 11 Recent trends in the most important economic and financial indicators.

HSBC Markets, Inc.  
140 Broadway, 6 Floor  
New York, NY 10005  
Tel: 212 658-5734  
Fax: 212 658-5558

**Chief Economist**  
*Ian Shepherdson* Tel: 212 658-5734  
e-mail: [ian\\_shepherdson@hsbcsecuritiesinc.com](mailto:ian_shepherdson@hsbcsecuritiesinc.com)  
**Economist**  
*Jonathan Basile* Tel: 212 658-1369

**Senior Economist**  
*Christopher Low* Tel: 212 658-1427  
e-mail: [christopher\\_low@hsbcsecuritiesinc.com](mailto:christopher_low@hsbcsecuritiesinc.com)  
**Research Assistants**  
*Julia Kupchik* Tel: 212 658-5621  
*Christina Roldan* Tel: 212 658-1181

## Interest Rates and the Taylor Rule

Ian Shepherdson

It is some time since we last used the Taylor Rule to examine the question of interest rate policy. With the next FOMC only a week or so away, it seems appropriate now to revisit the numbers in an effort to pin down the parameters within which the Fed's decision will be made. We conclude that **the Taylor Rule points to a need for only a very modest increase in interest rates, even if growth remains above trend**, and that our forecast of only one more 25bp hike this year (which we still expect next week) still looks about right.

### A brief Taylor Rule recap

Stanford Professor John Taylor's eponymous rule is based on the simple premise that, under most circumstances, deviations in official short-term interest rates from the neutral level should be prompted by only two factors: a deviation in GDP from its trend level and/or a deviation in inflation from its target level. The basic specification of the rule gives equal weight to each factor, and the neutral level of short rates (in the US case) is set at 4% - the long-term average real Fed funds rate plus the (presumed) inflation target of 2%.

This is not the place to present a detailed critique of the Taylor Rule, but it is worth drawing attention to a couple of its more obvious limitations. First, it is heavily dependent on the estimation of trend GDP, where there is plenty of scope for argument. Second, the appropriate level of interest rates suggested by the rule depends on the chosen measure of inflation - GDP deflator, CPI, core CPI, wage inflation - the list is long.

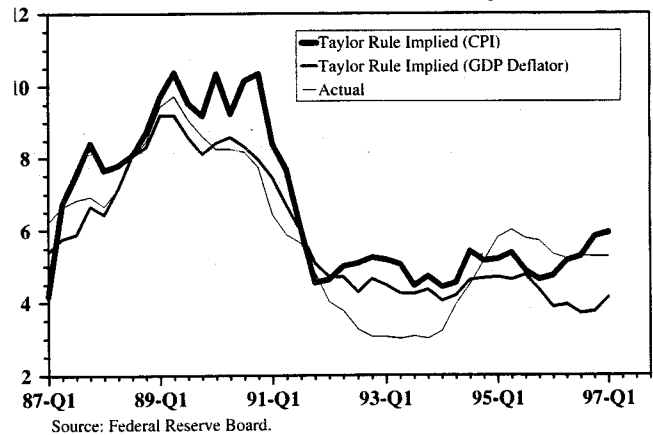
### What does the rule say about rates now?

Chart I presents our Taylor Rule estimates using both headline CPI and the GDP deflator. (Both measures use a 2.33% per year trend GDP estimates.) The former suggests that the appropriate Fed funds level is now around 6%, while the latter suggests only 4¼%. The key reason for the discrepancy is that energy prices, which rose sharply last year, tend to push up the CPI but (initially at least) push *down* the GDP deflator. Import prices are subtracted from the GDP deflator, so when world oil prices rise, the GDP deflator falls. Over the course of this year we expect more stable energy prices to bring the measures closer into line, but for now they generate very different results from the Taylor Rule calculation.

One obvious way around the energy price problem is to look at the core CPI, which strips out energy (and food) prices. In Q1 this year, the core CPI Taylor Rule suggested that Fed funds should be at 5¼% - exactly the level at which they stood until the Fed hiked rates to

5½% on March 25th. Perhaps this is what Governor Meyer had in mind when he said that "...the traditional specification of the Taylor Rule does not provide a justification for tightening in March". He then addressed the obvious question of what *did* justify the tightening by describing a "forward-looking" version of the rule, which uses forecasts rather than historic data.

Chart I: Fed Funds & the Taylor Rule



Governor Meyer also argued that Taylor Rule calculations need not always be based on estimates of trend GDP; other measures of resource utilization, such as the difference between the actual unemployment rate and its so-called natural rate (the rate believed to be associated with stable inflation), can also be used. The natural rate of unemployment cannot be observed directly and there is some debate as to what it might be, but discussion usually centres around a range from 5% to 6%. (We will address the issue of whether the natural rate is a meaningful concept at all in the near future; what matters for now is that there is clearly a great deal of support for the idea on the FOMC.)

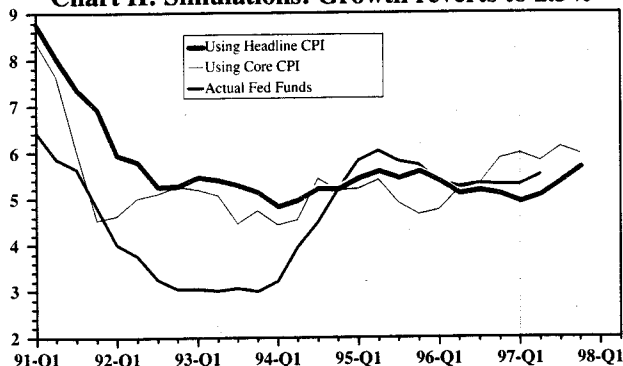
### Taylor Rule simulations

Accordingly, Charts II-V set out some Taylor Rule estimates using both GDP and unemployment trend measures, under varying assumptions about the pace of economic activity. Charts II and III assume that the economy reverts to trend (2.3% GDP growth for Chart II, the unemployment rate stable at 5¼% for Chart III) for the remainder of this year. We have used our own inflation forecasts, which show headline inflation near to 3% for the remainder of the year, with core inflation nudging up to 2¾% by the year-end. Charts IV and V allow for robust 3½% growth (Chart IV), bringing down the unemployment rate by 0.3 percentage points per quarter. (Chart V.)

The key point about all the Charts is just how similar

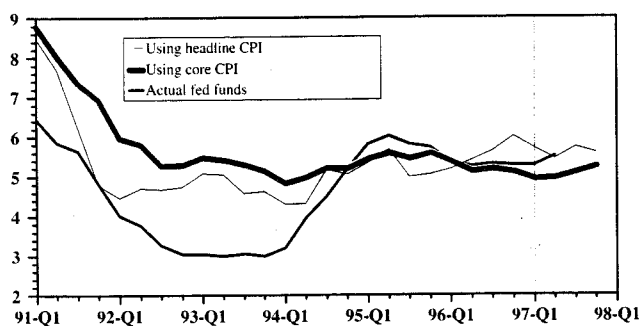
# Interest Rates and the Taylor Rule

**Chart II: Simulations: Growth reverts to 2.3%**



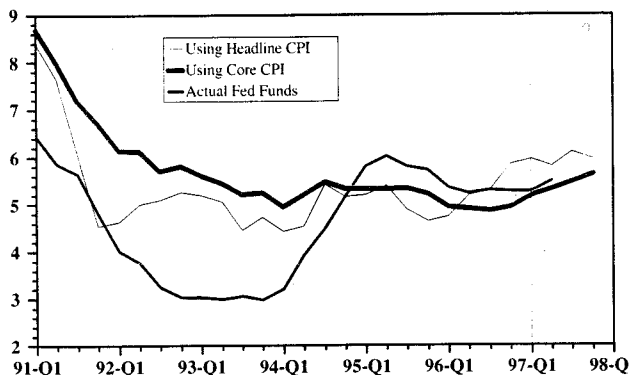
Sources: Federal Reserve Board and Bureau of Labor Statistics.

**Chart III: Simulations: Unemployment Stable, Natural Rate 5.75%**



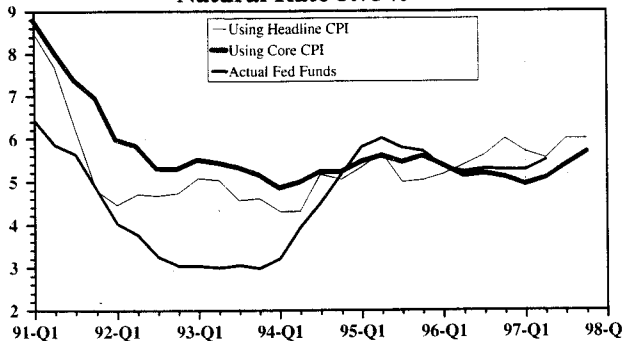
Sources: Federal Reserve Board and Bureau of Labor Statistics.

**Chart IV: Simulations: Growth reverts to 3.5%**



Sources: Federal Reserve Board and Bureau of Labor Statistics.

**Chart V: Simulations: Unemployment Falls, Natural Rate 5.75%**

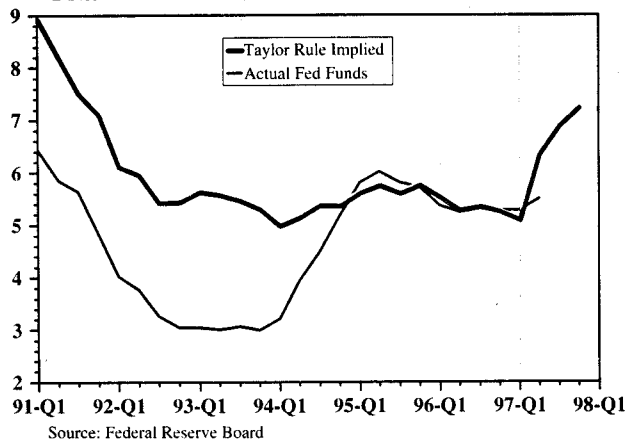


Sources: Federal Reserve Board and Bureau of Labor Statistics.

they are. Indeed at first sight you could be forgiven for thinking that they are all the same. The lowest implied year-end fed funds rate, 5¼% (derived from the natural rate estimate, assuming a steady unemployment rate), is only 100bp below the highest estimate (growth at 3½%, using headline CPI). Given that neither of these extreme scenarios is very likely to materialise, it seems reasonable to conclude that the interest rate argument is realistically centered on the question: “one lump or two?”

While the former would doubtless sweeten the markets over the summer, and it remains our central view, the Taylor Rule does suggest that there is a real risk of rates rising to 6%. But it also suggests that the chance of rates ending the year much higher than that is very small. By way of illustration, consider this ultra-bearish scenario. Using the “natural rate” of unemployment version of the rule, assuming that it stands at 6% (the top of the usual range of estimates), and assuming that the economy propels the unemployment rate down to just 4% by year end, with headline inflation shooting up to 4%, what does the Taylor Rule show? In fact, even under these most inauspicious - and unlikely - circumstances, Fed funds should rise to only around 7¼% (see Chart VI.)

**Chart VI: Simulations: Disaster Scenario**



Source: Federal Reserve Board

## Conclusion

Our estimates clearly suggest that **unless growth is much stronger than currently forecast, the Taylor Rule points to only very modest further rises in fed funds this year - at most, only one or two more 25bp increases are indicated by the most likely scenarios.** Of course, the Fed does not follow the Taylor Rule slavishly, and the analysis is complicated by the multitude of plausible starting assumptions. But there is remarkable uniformity across our results, and they make us more confident that, whatever happens to rates over the next few months - and after Mr Greenspan's latest speech, this week's data are clearly critical to the decision - the tightening cycle will be over by summer's end.