

BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

DIVISION OF MONETARY AFFAIRS

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**Date:** May 11, 2001  
**To:** Governor Gramlich  
**From:** Antulio N. Bomfim  
**Subject:** What do simple averages and yields on Treasury Inflation-Indexed Securities tell us about equilibrium real interest rates? (Update)

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This memorandum summarizes two approaches to measuring equilibrium values of short-term real interest rates. The equilibrium concept examined here can be thought of as being primarily related to the medium-run dynamics of the economy, a time frame that seems most relevant for the conduct of monetary policy. In particular, while the equilibrium real rate measures discussed below are not intended to capture the full long-run (steady-state) equilibrium of the economy, they are not designed to reflect short-run economic imbalances either. Indeed, such imbalances may well lead the FOMC to temporarily set the intended funds rate at a level consistent with a non-zero spread between actual and equilibrium real rates.

*Historical averages.* Perhaps the simplest proxy for the equilibrium value of the real fed funds rate—measured here as the nominal federal funds rate minus a proxy for expected core PCE inflation—comes from computing historical averages. Table 1 shows mean values of an estimated real federal funds rate over various subsamples. Under the assumption that the economy fluctuates around a unique steady-state path, so should real interest rates. Thus, the equilibrium level of the real federal funds rate can be proxied by its mean value over a sufficiently long time period. By this measure, the real fed funds rate is currently a bit below its historical average of about 3-1/4 percent—Chart 1, upper panel. However, the historical averages approach has two main limitations: First, the resulting equilibrium real rate value is best described as a steady-state (long-run) notion of equilibrium, and thus it tells us little about equilibrium real rates over the intermediate

term. Second, the assumption of a constant long-run path for the economy may not hold. For instance, the higher trend productivity growth of recent years would tend to raise the equilibrium real rate.

*Asset prices.* Yields on the Treasury's inflation-indexed securities (TIIS) can be used to construct another measure of medium-term equilibrium real rates. In particular, the forward real rate implied by yields on ten- and thirty-year TIIS yields should—in the absence of term, liquidity, and convexity premiums—correspond to market participants' expectations of average short-term real interest rates ten to thirty years from now. As shown in the middle panel of Chart 1, both the ten- and thirty-year TIIS yields are below the implied forward rate, suggesting that, if the various premiums are roughly offsetting, market participants expect the short-term real rate to dip below its equilibrium level in the near term. By this measure, equilibrium real rates have been relatively stable in recent years, rising from 3.6 percent in early 1998 to around 4 percent in the second half of 1999, and falling back, on net, since then.

One can adjust the TIIS-implied equilibrium real rate for tax and risk premium effects to make it comparable to the real fed funds rate. As shown in the lower panel of Chart 1, TIIS yields suggest that the policy easings of 1998 drove the real fed funds rate below its equilibrium, but the tightenings of 1999 and 2000 more than reversed those earlier actions. More recently, while the TIIS-based measure suggests that policy was relatively tight at the end of 2000, the easings to date have brought the real funds rate below its medium- to long-term equilibrium.

**Table 1: Average Values of the Real Federal Funds Rate**  
(effective annual yield)

1962-2000	1962-1979	1980-1986	1987-2000	1995-2000	Current (2001:Q2)
3.2	2.1	6.0	3.2	4.0	2.7

Note. The real federal funds rate is measured as the difference between the annualized nominal rate and estimated expected inflation, where the latter is proxied by a four-quarter moving average of actual core PCE inflation. Numbers for 2000:Q2 are based on the Greenbook forecast.

Chart 1

What do Financial Markets tell us about Equilibrium Real Rates?

