



BOARD OF GOVERNORS  
OF THE  
**FEDERAL RESERVE SYSTEM**  
WASHINGTON, D. C. 20551

ALAN GREENSPAN  
CHAIRMAN

November 28, 2005

The Honorable Jim Saxton  
Chairman  
Joint Economic Committee  
Washington, D.C. 20510

Dear Mr. Chairman:

I am pleased to enclose my responses to the additional questions you forwarded in connection with the November 3 hearing.

I also wanted to thank you, and the other members of the committee, for your kind and generous comments at the hearing and in your letter. It has been a pleasure appearing before the Joint Economic Committee over the years.

Sincerely,

A handwritten signature in black ink, appearing to be "Alan Greenspan", with a long horizontal line extending to the right.

Enclosure

Chairman Greenspan subsequently submitted the following to written questions received from Chairman Saxton in connection with the Joint Economic Committee hearing on November 3, 2005:

**Q.1. Since the “neutral” rate is not observable, how do you know when you’ve reached the “neutral” rate? What variables do you monitor to make judgments as to how close to neutral the fed funds rate is? As the fed funds rate is ratcheted up, and given the lags that exist, does the possibility of raising it above a neutral level increase?**

A. 1. Although the concept of a “neutral interest rate” is a useful theoretical construct, difficulties in implementing it in practice limit its usefulness as a framework for monetary policymaking. For one thing, a variety of definitions of a neutral real interest rate are possible. For another, quantitative estimates of the level of such a rate are subject to considerable uncertainty. Also, such estimates can vary widely depending on the type of measure and the prevailing and projected economic conditions. In particular, all variables that contribute to making a macroeconomic forecast are relevant for estimates of neutral interest rates, greatly complicating such assessments. Thus, it is impossible to know with any certainty when the neutral rate has been reached. Moreover, the use of neutral real rates in the formulation of monetary policy is not necessarily straightforward. For instance, in some circumstances, attaining a “neutral” federal funds rate would in principle be an appropriate objective for monetary policy, but in others--particularly when inflation is too high or too low--aiming for a neutral funds rate in the near term would not be appropriate. These uncertainties and complications suggest that reliance on a single summary measure such as a neutral real interest rate would be unwise as a strategy for formulating monetary policy. Rather, a full consideration of current and prospective economic developments, and of the risks to the outlook, is essential for the conduct of monetary policy.

**Q.2. Over the last year and a half, the Federal Reserve has raised the federal funds rate by 3.0 percentage points and indicated that further increases are likely in order to check inflation. Yet long-term interest rates, including mortgages, are lower now than when the FOMC began tightening. In past comments, you have termed this situation a “conundrum” without recent precedent. What explains the low level of long-term interest rates?**

A.2. As I noted in my monetary policy testimony before the Congress in July, two distinct but overlapping developments appear to be at work in explaining the low level of long-term interest rates: a longer-term trend decline in bond yields and an acceleration of that trend over the period since mid-2004. Both developments are particularly evident in the nominal interest rate applying to the one-year period ending ten years from today that can be inferred from the U.S. Treasury yield curve. In 1994, that so-called forward rate

exceeded 8 percent. By mid-2004, it had declined to about 6-1/2 percent--an easing of about 15 basis points per year on average. Over the past year, that drop steepened, and the forward rate fell 130 basis points to less than 5 percent.

Some, but not all, of the decade-long trend decline in that forward yield can be ascribed to expectations of lower inflation, a reduced risk premium resulting from less inflation volatility, and a smaller real term premium that seems due to a moderation of the business cycle over the past few decades. As I noted in my testimony before the Joint Economic Committee in February, the effective productive capacity of the global economy has substantially increased, in part because of the breakup of the Soviet Union and the integration of China and India into the global marketplace. And this increase in capacity, in turn, has doubtless contributed to expectations of lower inflation and lower inflation-risk premiums.

In addition to these factors, the trend reduction worldwide in long-term yields surely reflects an excess of intended saving over intended investment. This configuration is equivalent to an excess of the supply of funds relative to the demand for investment. Because intended capital investment is to some extent driven by forces independent of those governing intended saving, the gap between intended saving and investment can be quite wide and variable. It is real interest rates that bring actual capital investment worldwide and its means of financing, global saving, into equality. We can directly observe only the actual flows, not the saving and investment tendencies. As best we can judge, *both* high levels of intended saving and low levels of intended investment have combined to lower real long-term interest rates over the past decade.

**Q.3. I was intrigued by your response to my question relating to the yield curve and associated yield spread between the fed funds rate and the 10-year bond yield. In particular, your response to the spread question was as follows:**

**“...that used to be one of the...most accurate measures we used to have to indicate when a recession was about to occur and when a recovery was about to occur. It has lost its capability of doing so in recent years...it has significant financial impacts, it’s no longer useful as a leading indicator to the extent that it was.”**

**In pondering this comment, three considerations appear to be especially relevant: (1) First, the importance of a yield spread for monetary policy has been long recognized by classical economists. Both Henry Thornton and Knut Wicksell recognized that when the central-bank-controlled short-rate moves relative to a long-term market rate, relative prices, incentives, and behaviors change. (2) Second, the recent (2005) extensive review and summary of the literature pertaining to research on the yield spread (published by the Federal Reserve Bank of New York) concludes that the weight of the evidence supports the potency of the yield spread. (See Estrella, October 2005). (3) Third, the Conference Board includes a yield curve spread**

variable in its index of leading economic indicators. The Conference Board conducts an ongoing evaluation of these indicators and an especially thorough, major reevaluation of the composite was made last July. The bottom line is that the yield spread remains a key component of this composite.

**In light of these considerations, what available evidence or other factors support the view that the yield spread is no longer especially useful? Has the Board staff assessed this relationship recently?**

A.3. Although the slope of the yield curve remains an important financial indicator, it needs to be interpreted carefully. In particular, a flattening of the yield curve is not a foolproof indicator of future economic weakness. For example, the yield curve narrowed sharply over the period 1992-1994 even as the economy was entering the longest sustained expansion of the postwar period.

Three basic factors affect the slope of the yield curve--the current level of the real federal funds rate relative to the long-run level, the level of near-term inflation expectations relative to expected inflation at longer horizons, and the level of near-term risk premiums relative to risk premiums at longer horizons.

Statistical analysis indicates that the first factor--the gap between the current and long-run levels of the real federal funds rate--is the key component from which the yield curve slope derives much of its predictive power for future GDP growth. When the level of the real federal funds rate is pushed well below its long-run level, economic stimulus is imparted and the yield curve steepens. The economic stimulus influences output growth with a lag; as a result, the steepening of the yield curve in this scenario is a predictor, albeit not the cause of, stronger economic activity ahead. Conversely, when the level of the real federal funds rate is pushed above its long-run level, economic restraint is imparted and the yield curve flattens. Once again, the economic restraint influences output growth with a lag, so the flattening (inversion) of the yield curve in this scenario would signal weaker economic growth ahead, but would not itself be the cause of the weakening.

The connection between future output growth and the other two factors affecting the slope of the yield curve--the gap between near-term and long-term inflation expectations and the difference between near-term and long-term risk premiums--is far less certain and likely to depend on economic circumstances. For example, a rise in near-term inflation expectations above long-term inflation expectations would tend to flatten the yield curve and might also signal a prospective weakening in aggregate demand. This configuration in inflation expectations might reflect adverse supply factors that have pushed up inflation expectations in the near term but that are expected to dissipate over time. In this case, the flattening of the yield curve might well be a signal of an improving inflation picture that could also be accompanied by a favorable outlook for economic growth.

The connection between output growth and risk premiums is also quite uncertain. A fall in distant horizon risk premiums would flatten the yield curve and might signal a weakening in economic activity if, for example, the drop in risk premiums in fixed-income markets was associated with a “flight to safety” on the part of global investors seeking a safe haven from turbulence in equity markets and other risky assets. But it is also possible that a decline in distant horizon risk premiums could be a sign that investors are generally more willing to bear risk. In this case, a flattening of the yield curve stemming from this factor could be an indicator of an easing in financial conditions that would stimulate future economic activity.

In summary, many factors can affect the slope of the yield curve, and these factors do not all have the same implications for future output growth. In judging the indicator value of any particular change in the slope of the yield curve, it is critical to understand the underlying forces that may be affecting the yield curve at that moment. As the 1992-1994 episode attests, simply relying upon an average statistical relationship estimated over a very long sample can be quite misleading.

**Q.4. One of the strategies or institutional changes that you have supported in recent years relates to the increased transparency of the Federal Reserve. This increased Federal Reserve transparency has, for the most part, been associated with more benefits than costs. Doesn't this increased transparency work to the benefit of both the Federal Reserve and the public?**

A.4. Greater transparency with regard to Federal Reserve actions encourages public discussion and informed scrutiny, important aspects of accountability in a democratic society. Transparency also enables financial markets to better predict monetary policy decisions, which can contribute to improved policy outcomes. However, providing more complete information about policy decisions is not without cost. Transparency requires careful attention by policymakers, and so constrains the time they have for actually making decisions. More importantly, excessive transparency could inhibit policymakers, making them less spontaneous in their remarks and less willing to explore new ideas. Such an outcome would have adverse effects on policy decisions. The Federal Reserve's current practices strike a reasonable balance between transparency and the degree of confidentiality appropriate to support the policy process.