



## Is the Bond Market Irrational?

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Recently, financial commentators and central bankers have labeled the failure of long-term rates to rise in the face of an upward trending federal funds rate a “conundrum.” Because consumption decisions by households and investment decisions by firms depend on long-term interest rates, the ability to control these rates has been considered an important policy-making tool. The implicit assumption is that bond yields ought to react to changes in yields of short-term instruments. In fact, a common benchmark model holds that simple market forces should make long-term interest rates a weighted average of the short-term interest rates expected to prevail during the period covered by the bond.

I analyze data on 1- and 10-year bond yields and a notion of the short-term rate controlled by the Fed for the period January 1962–May 2005. I find a number of episodes in which long-term rates failed to adjust to changes in short-term rates. Events similar to those in 2004–05 occurred in 1975–78 and 1986–89. Therefore, although unusual, the recent behavior of long-term rates is far from unprecedented.

Scatter plots in the chart show the reaction of both short-term (left panel) and long-term (right panel) bond yields to changes in the Fed target: Each circle corresponds to a change in the Fed target, matched to a measure of the bond market within a period of five trading weeks. Regression lines capture the average reaction.

One would expect to find circles only in quadrants I and III: Changes in the short-term Fed operating target ought to cause changes of the same sign in bond yields.

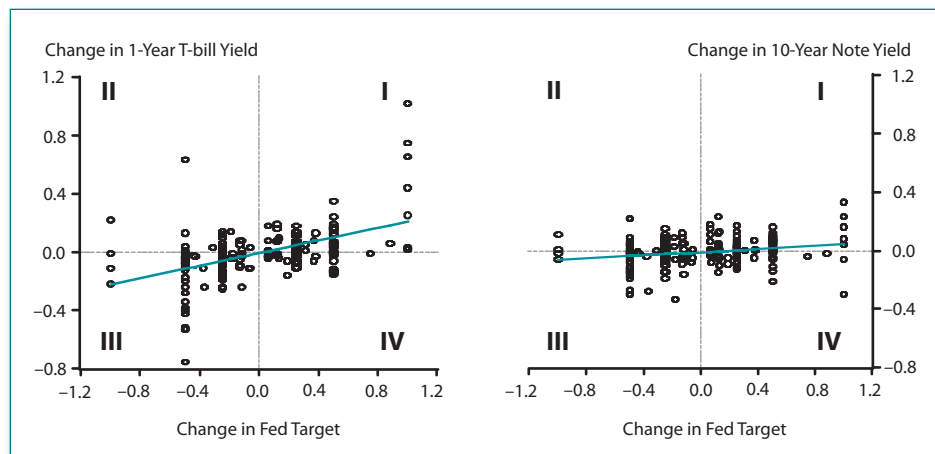
Moreover, since long-term bond yields should equal weighted averages of current and future short-term rates, such an effect should be stronger on money market instruments than on long-term bonds. The chart shows that short-term interest rates react more to changes in the Fed target than long-term rates do, but, unexpectedly, quadrants II and IV contain many observations. In particular, for more than a third of 204 target changes, the 10-year Treasury note yield moved in the opposite direction of the Fed target.

Should the recent failure of long-term interest rates to react to changes in short-

term rates cast a shadow on the prospects of the U.S. economy? An analysis of the data is reassuring. Periods in which there is a concentrated lack of response do not precede any particular phase of the business cycle or specific trends in inflation. Per se, a lack of reaction in long-term yields does not imply an inverted term structure or an impending recession. Moreover, neither the level nor the volatility of interest rates correlates or reacts to periods in which bond markets fail to react.

Does this mean that U.S. bond markets are irrational? A simple extension of the benchmark model of the term structure of interest rates recognizes that investors are averse to risks. In this extended model, long-term rates are a weighted average of expected short-term rates plus a compensation for risk. A policy change may then raise current and future expected rates but, at the same time, reassure investors by implying smaller perceived inflation risks. In these situations the Fed target and long-term yields may move in opposite directions.

In fact, the data suggest that recent volatility in long-term bond markets has been low, between one-half and one-third of historical levels, exactly what one would expect in a framework in which anti-inflationary hikes of Fed target rates cause compensation for risk to be revised downward. Perhaps this is a virtuous mechanism in which trust in long-run price stability immediately translates into stable bond prices. The recent behavior of U.S. bond markets may rationally reflect markets’ understanding and trust in the Fed’s goal of long-run price stability. ■



*Views expressed do not necessarily reflect official positions of the Federal Reserve System.*