

*Monetary Policy, Time-Varying Risk, and the Bond Market Debacle of 1994**

Stock and bond prices plummeted in early 1994. These losses occurred while the Fed was raising interest rates. Campbell (1995) argues that the Fed could have triggered the losses either by increasing the risk premium associated with monetary policy uncertainty or by communicating information about incipient inflation. This paper uses a multi-factor model to choose between these two hypotheses. The evidence indicates that both greater monetary policy uncertainty and especially news about inflation explain the asset price declines of 1994.

1. Introduction

Bond and stock prices plummeted in early 1994. During February and March, total returns on 20-year Treasury securities equaled -8.45% . Losses over these two months caused Treasury bonds in 1994 to return their second worst annual performance (-7.77%) over the 70-year period for which Ibbotson Associates provides data. Stocks also performed badly, with total returns on the Standard and Poors' 500 Index during February and March equaling -7.05% .

These losses started at the same time that the Federal Reserve began contracting monetary policy. As Campbell (1995) discusses, the Fed had lowered short-term rates repeatedly between 1990 and 1992 and held short rates constant in 1993. In February 1994 the Fed raised its federal funds rate target by 25 basis points. It then raised its target again by 25 basis points in March and April and by 50 basis points in May. In February and March the rates on long-term Treasury bonds reacted violently, increasing twice as much as the funds rate target. In April and May Treasury yields exhibited less volatility, increasing one-for-one with the funds rate hike in April and not responding to the increase in May.

Campbell (1995) presents two explanations for the puzzling observation that increases in the one-day rate on interbank loans were correlated

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with increased yields on long-term Treasury bonds of twice as much. First, investors might have believed the Fed had private information about incipient inflation and pushed yields up in response to news of higher inflation. Second, investors might have increased the excess return required to hold long-term bonds because of increases in risk that were ultimately due to uncertainty about Fed policy.¹

The effect of risk on excess required returns can be modeled using a multi-factor asset pricing model. In such a framework excess returns depend on an asset's exposures to systematic factors and on the risk premia associated with these factors. Chen, Roll, and Ross (1986) report that unexpected inflation, the change in expected inflation, economic activity, the corporate default premium, and the term structure premium are priced risk factors. Thorbecke and Alami (1992) present evidence that monetary policy has a statistically significant risk premium associated with it.

It is possible that the risk premium associated with uncertainty about monetary policy increased in 1994.² Multi-factor models do not predict that the risk prices associated with macroeconomic factors are either time- or state-invariant. Ferson and Harvey (1991) report that the risk premia on economic factors vary over time, much more than do the sensitivities. Figure 1, taken from Taylor (1998), presents evidence that monetary policy uncertainty might have increased in 1994. Taylor proposes a simple rule for the federal funds rate target that gives equal weight to the output gap and to deviations of inflation from its target.³ Taylor and others have found that this

¹A third explanation for the large bond market reaction is that investors might have taken the initial increase in the funds rate target as a signal that further increases would happen in the near future. The problem with this interpretation is that forward rates in February and March at maturities of 5- and 10-years rose by about a full percentage point (see Campbell 1995). If short-term rates were expected to increase over the next year or so, this should affect forward rates at maturities of 1 year or less but not at maturities greater than 5 years.

²One factor militating against the argument that uncertainty about monetary policy increased in February 1994 is the fact that the Federal Open Market Committee began announcing its policy decisions immediately after the meeting at this time. This should have reduced monetary policy uncertainty. However, as the *Wall Street Journal* (February 7, 1994, p. C19) discusses, the announcement did not make clear what would happen to policy in future months. Thus, notwithstanding the announcement, it is possible that the Fed's initial rate increase raised monetary policy uncertainty. Ultimately it is an empirical question whether uncertainty about future monetary policy decreased due to the Fed's statements or increased due to the funds rate hike.

³The rule used in Figure 1 is

$$R = R^* + p + 0.5y + 0.5(p - p^*) ,$$

where R is the nominal federal funds rate recommended by Taylor's rule, R^* is the equilibrium

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