

# **BOND INDEX CHOICE IN THE EMPIRICAL INVESTIGATION OF INTEREST RATE RISK**

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## **ABSTRACT**

Paper examines the choice of bond index in estimating the interest rate beta. Estimating interest rate beta using short-term T-bill returns as the second factor accounts for the changes in short-term inflation whereas estimating it using T-note returns accounts for the unexpected changes in long-term inflation as well as maturity risk. The inflation expectation horizon approximates that of the maturity of the debt security. Estimating interest rate beta using BAA bond returns as the interest rate factor explains the fluctuations in bank stock return due to unexpected changes in long-term inflation, maturity-risk premium, default-risk premium or a combination of risk-premia.

## **INTRODUCTION**

Interest rate sensitivity of commercial bank stock returns has been the subject of considerable academic research. Stone (1974) proposed a two-factor model incorporating both the market return and interest rate variables as return generating factors. While some studies have found the interest rate factor to be an important determinant of common stock returns of banks [Fama and Schwert (1977), Lynge and Zumwalt (1980), Christie (1981), Flannery and James (1984), Booth and Officer (1985)], others have found the returns to be insensitive [Chance and Lane, (1980)] or only marginally explained by the interest rate factor [Lloyd and Shick (1977)]. A review of the early literature can be found in Unal and Kane (1988). Sweeney and Warga (1986) used the APT framework and concluded that the interest rate risk premium exists but varies over time. Flannery, Hameed and Harjes (1997) tested a two-factor model for a broad class of security returns and found the effect of interest rate risk on security returns to be rather weak. Bae (1990) examined the interest rate sensitivity of depository and nondepository firms using three different maturity interest rate indices. His results indicate that depository institutions' stocks are sensitive to actual and unexpected interest rate changes, and the sensitivity increases for longer-maturity interest rate variables. Song (1994) examined the two-factor model using time-varying betas. His results show that both market beta and interest rate beta varied over the period 1977-87. Yourougou (1990) found the interest rate risk to be high during a period of great interest rate volatility (post-October 1979) but low during a period of stable interest rates (pre-October 1979). Choi, Elyasiani and Kopecky (1992) tested a three-factor model of bank stock returns using market, interest and exchange rate variables. Their findings about interest rate risk are consistent with the observations of Yourougou (1990).

The issue of interest rate sensitivity remains empirically unresolved. Most of the studies use a variety of short-term and long-term bond returns as the interest rate factor without providing any rationale for their use. The choice of bond market index seems to affect the pricing of the interest rate risk. Yet, there is no consensus on the choice of the interest rate factor that should be used in testing the two-factor model. In this paper, we provide a plausible explanation of why pricing of interest rate risk differs with the choice of interest rate variable.