



Investor sentiment and bond risk premia[☆]

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Abstract

This article studies the statistical significance of the set of market sentiment variables proposed by Baker and Wurgler (2006) to predict the risk premium on U.S. sovereign bonds. We show that these variables can be summarized in one single market sentiment factor similar in spirit to the single-return forecasting factor proposed by Cochrane and Piazzesi (2005). Our findings reveal that this factor has predictive power beyond that contained in the yield curve and benchmark macroeconomic factors. The predictive power of this variable is time-varying, exhibiting more relevance during recession periods.

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1. Introduction

The expectations theory of the term structure of interest rates states that long yields are the average of future expected short yields. This theory implies that the expected excess returns on bonds should not be forecastable. Despite prominent efforts to provide empirical support to this theory, its failure is largely documented in many studies. Thus, Fama and Bliss (1987) and Campbell and Shiller (1991) using both the forward-spot rate differential and the slope of the yield curve as predictor variables report evidence on the existence of time-varying risk premiums

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in U.S. bond markets, implying that excess returns have a predictable component. [Cochrane and Piazzesi \(2005\)](#) find further evidence on predictability using a tent-shaped linear combination of five forward rates, which succeed at predicting the one-year excess return of the n -year bond ($n=2, \dots, 5$) with an R^2 higher than 35% in most cases. These findings imply that conditional expectations of excess returns on U.S. government bonds across maturities can be expressed in terms of forward rates observed at time t . [Cochrane and Piazzesi \(2005\)](#) introduce this “single-return factor” that appears to be countercyclical and cannot be entirely explained by the level, slope, and curvature of the yield curve. [Dahlquist and Hasseltoft \(2013\)](#) extend [Cochrane and Piazzesi \(2005\)](#) results to international bond markets by allowing for the existence of a local factor that is positively associated with the slope of local yield curves and a global factor correlated with the U.S. bond risk premia, and that have significant forecasting power for international bond returns.

Recent literature has documented the existence of factors that link the countercyclical behavior of bond risk premia with expected excess returns on U.S. government bonds at the highest (lowest) levels during recession (expansion) periods, to variables not directly extracted from the yield curve. [Ludvigson and Ng \(2009\)](#) find that “real” and “inflation” factors, constructed from dynamic factor analysis to 132 monthly economic series, have important forecasting power for future excess returns on U.S. government bonds above and beyond the predictive power contained in forward rates and yield spreads. The macro factors proposed by these authors, combined with the Cochrane and Piazzesi factor reach an R^2 higher than 40% across maturities and also display a countercyclical behavior, implying that bond risk premia are tied to a compensation required by the investor for bearing risks related to recessions. [Cooper and Priestly \(2009\)](#) find that the output gap also has predictive power for excess bond returns beyond that of the term structure. [Duffie \(2011\)](#) documents the presence of a factor that appears to be related to short-run fluctuations in economic activity. This factor has an almost imperceptible effect on the cross-section of yields but has a strong forecasting power for future short-term interest rates and excess bond returns.

Bond prices are also affected by subjective investors' beliefs on the state of the economy. It is surprising however the paucity of empirical studies that assess the impact of investor sentiment for explaining and predicting bond risk premia. This is not the case for asset markets. [Baker and Wurgler \(2006\)](#) show that investor sentiment disproportionately affects securities whose valuations are highly subjective and are difficult to arbitrage away. They find that when beginning-of-period proxies for investor sentiment are low, subsequent returns are relatively high on small stocks, young stocks, high volatility stocks, unprofitable stocks, non-dividend-paying stocks, extreme-growth stocks, and distressed stocks, suggesting that such stocks are relatively underpriced in low-sentiment states. When sentiment is high, on the other hand, the patterns largely reverse, suggesting that these categories of stocks are relatively overpriced in this state. [Baker and Wurgler \(2006\)](#) define an investor sentiment index as the first principal component of the correlation matrix of six variables underlying proxies for sentiment. These proxies, orthogonalized to several macroeconomic variables, are: (1) the closed-end fund discount, which is the average difference between the net asset value of closed-end stock fund shares and their market prices; (2) NYSE share turnover, based on the ratio of reported share volume to average shares listed from the NYSE Fact Book; (3) the number of IPOs; (4) the average first-day returns; (5) the share of equity issues in total equity and debt issues, which is a measure of financing activity; and (6) the dividend premium.

The aim of this paper is to investigate the relationship between market sentiment variables and the existence of a risk premium in bond markets. More specifically, our interest is in assessing

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