



University of Zurich
Swiss Banking Institute

Bachelor Thesis

Bond Risk Premia – Tent Shape

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EXECUTIVE SUMMARY

INITIAL SITUATION

Basis of this work is the paper Bond Risk Premia written by John H. Cochrane and Monika Piazzesi and published by the American Economic Review in March 2005, in which Cochrane and Piazzesi (2005) analyse the power of excess return predictability, using U.S. government bonds. By extending Eugene Fama and Robert Bliss' (1987) classical regression of forecasting excess returns, they constructed a modified regression, with the ability to reach R^2 up to 0.44, which are more than twice as high as examined by Fama and Bliss (1987). Further they notice, that out coming regression coefficients draw a curvature similar to a tent. Intentions of this thesis are to determine, (i) if the tent shape pattern can also be constructed and if a similar power of predictability can be reached using other data, namely German government bonds and (ii) if this model can provide enough informations to a investor to generate money, by only consulting the predictive power concerning excess returns.

APPROACH

In a first step, same data and analytical proceedings will be used to reconstruct results and the tent shape curvature of the regression coefficients, provided by Cochrane and Piazzesi (2005). In a second step, data from German Bundesbank will be taken to analyse them, using the Cochrane and Piazzesi (2005) regression. Prices will be derived out of the term structure of interest rates. This analysis contains three blocks, each with an other range of maturities. The first one contains bonds with one- to five-year maturity, the second one: one- to six-year and finally the third one: one to seven-year. The country, of which the analysis reaches the highest power of predictability for excess returns will serve as basis to implement an investment strategy. Computing expected excess returns with the Cochrane and Piazzesi (2005) regression for each different maturity, will display the bond with the corresponding maturity to invest in it. Lastly the affiliate Sharpe Ratio will demonstrate, weather the strategy is able to generate money or not.



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RESULTS

The German government bond analysis reaches R^2 up to 0.18, which implicates a much lower power of predictability comparing to the U.S. government bond analysis. Furthermore drawing a tent shape curvature with the regression coefficients does not lead to a tent shape pattern. According to Dai et al. (2004) tent shape curves result out of analyses using un-smoothed yields. Smoothed yields, which is the case by the German government bond analysis, lead to wavy forms.

Because of their higher power of predictability, data from the Cochrane and Piazzesi (2005) analysis are used to implement an investment strategy. The question, whether it is profitable or not to invest in the implemented strategy, can not be clearly answered. Comparing the maximum average Sharpe Ratio of 0.445200 to important indices on U.S. asset markets, as it is the S&P500 or the Dow Jones, the investment strategy is a worthy competitor.

