Abstract

The thesis analysed whether it is possible to improve on time-series forecasting models used to predict prices and volatility of government bonds by adding online search data. Previous research showed that Google trends data are an useful source of an additional information which could improve various forecasting or nowcasting models. Our research expanded the area into government bonds and tested if the Google trends data could be of any use on this kind of data as well.

We have analysed most of the government bond tenors of all the main English speaking countries and the Czech Republic and focused on one-day-ahead forecasting of yields and weighted volatility. To forecast the next day values, we have set up ARIMA-GARCH, GARCH(1,1), AR(1), mean, median and lagged values and compared their performance with the realized values. In addition, we have set-up augmented versions of ARIMA-GARCH, GARCH(1,1) and AR(1) that included online search data. The subsequent findings can be sometimes inconclusive but we have observed quite significant improvements for some of the models and tenors of United States, United Kingdom and Australian government bonds.

We have arrived at the conclusion that Google trends data could be used to improve some of the models. It is also possible that the usability depends on some kind of a minimal number of searches that is higher than the minimal number used by Google to make its’ index greater than zero.

JEL Classification G17, G11
Keywords Google Econometrics, Government Bonds, Wikipedia, ARIMA, GARCH

Author’s e-mail krecma@gmail.com
Supervisor’s e-mail roman.horvath@fsv.cuni.cz