



CREDIT RISK MANAGEMENT FOR GOVERNMENT AND CORPORATE BONDS BASED ON NEWS RELEASES

1 *Machine learning methods are used to index news from different media and divide it into specific categories.*

The aim of the SenRisk project is to develop a credit risk management system in cooperation with one domestic and two foreign industry partners. Project funding is provided through Eurostars, a program for SME driven research of EUREKA and the European Commission. In addition to market data and macroeconomic information, current news reports (press, tickers, blogs, etc.) are also assessed to improve forecasting quality.

Machine learning classifies messages

Data providers specializing in data processing provide preprocessed, enriched, and machine-processed messages. Specifically, this means messages are given a classification using the techniques of machine learning, for example, auto-encoding methods. These classifications

- by reference (e. g., country, industry, company, etc.)
- by topic (e. g., management decisions, product market launch, profit warnings, etc.)
- by the assessed severity or relevance
- allow the user to filter out or limit the relevant news about a particular bond.

We use non-linear regressions and time series approaches as well as neural networks to combine these recently provided explanatory variables to forecast future price changes (spread changes) or, at a minimum, to develop better risk indicators. These are integrated into an information system to assist traders and portfolio managers.

The methods are applicable to government and corporate bonds. Due to different maturities, there is a maturity structure, which is not the case with equities. In addition, large parts of the market are less liquid than the equities or derivatives markets and price movements are driven by a complex combination of currency, interest rate and economic momentum.



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