High Dimensional Nonstationary Time Series

IRTG 1792
Short Course

Dacheng Xiu

Predicting Returns with Text Data

We introduce a new text-mining methodology that extracts sentiment information from news articles to predict asset returns. Unlike more common sentiment scores used for stock return prediction (e.g., those sold by commercial vendors or built with dictionary-based methods), our supervised learning framework constructs a sentiment score that is specifically adapted to the problem of return prediction. Our method proceeds in three steps: 1) isolating a list of sentiment terms via predictive screening, 2) assigning sentiment weights to these words via topic modeling, and 3) aggregating terms into an article-level sentiment score via penalized likelihood. We derive theoretical guarantees on the accuracy of estimates from our model with minimal assumptions. In our empirical analysis, we text-mine one of the most actively monitored streams of news articles in the financial system|the Dow Jones Newswires|and show that our supervised sentiment model excels at extracting return-predictive signals in this context.

February 4, 2021 | 16:00-17:30 | Online via Zoom

Dacheng Xiu's research interests include developing statistical methodologies and applying them to financial data, while exploring their economic implications. His current work focuses on developing machine learning solutions to big-data problems in empirical asset pricing.

Xiu's work has appeared in Econometrica, Journal of Political Economy, Journal of Finance, Review of Financial Studies, Journal of the American Statistical Association, and Annals of Statistics. He is a Co-Editor for the Journal of Financial Econometrics, an Associate Editor for the Journal of Econometrics, Journal of Business & Economic Statistics, Management Science, Journal of Applied Econometrics, and Journal of Empirical Finance.

Xiu earned his PhD and MA in applied mathematics from Princeton University, where he was also a student at the Bendheim Center for Finance. Prior to his graduate studies, he obtained a BS in mathematics from the University of Science and Technology of China.

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