Cryptocurrency-specific lexicon, sentiment and option pricing

Date: 31 October 2018 (Wednesday)
Time: 2:30pm to 3:30pm
Venue: P7510, 7/F, Yeung Kin Man Academic Building (YEUNG), City University of Hong Kong

Enquiries: 3442 9321
All are welcome

Guest Speaker’s profile

Cathy Yi-Hsuan Chen is professor at School of Business & Economics in Humboldt-Universität zu Berlin, and Mercator Fellow of International Research Training Group 1792 – High Dimensional Non-Stationary Time Series. Her research interests include “textual analysis in financial or economic context” and “statistical learning models”. She has published her research in Journal of Econometrics, Journal of Business Economics and Statistics, Journal of Banking & Finance, Journal of Empirical Finance and so on. She has dedicated herself to text mining techniques and statistical learning models in order to distill sentiment from news media and social media. Using Machine Learning methods, Lexicon Projection, Latent Semantic Analysis, Latent Dirichlet Allocation and Topic Modelling, she analyzes the news impact and sentiment effect on the financial markets. She has accumulated extensive teaching experience for data analytics courses, and particularly created a joint online course with National University of Singapore since 2015. She had been invited by Italian central bank for the short course “Text analysis and sentiment analysis” in July 2018. She had organized data science conference with University of Cambridge in 2017.09.12-13, “A Cambridge-INET and Humboldt-IRTG conference: Text, Herding and Sentiment”. She is the PI of research project “Regulatory Risk Index for Cryptocurrency” in SKBI Singapore Management University. She is heading a transfer project between Humboldt-Universität and Deutsche Bank, and focusing on credit risk modelling and stress testing. She is an associate editor of Digital Finance and also Computational Statistics. She is currently in charge of a special issue “Machine learning in Finance” appeared in Digital Finance.

Abstract

Cryptocurrency draws a great attention to a particular subset of investors who possess higher risk preference in order to ride the trend. Due to limited knowledge for its fundamental value, investor sentiment in this digital asset class could convey incremental information in terms of price discovery. Using a novel dataset of 1069K messages related to 375 cryptocurrencies posted on the microblogging platform Stocktwits during a 4-year period, we construct “crypto-specific lexicon” in order to precisely measure semantic orientations and avoid misspecification. The results show that in comparison with the financial lexicon by Loughran and McDonald (2011) the crypto-specific lexicon achieves 32% higher accuracy in terms of out-of-sample classification. A time series return predictability further suggests sentiment positively predicts volume-weighted Cryptocurrency index up to 3 days without return reversal. We design a long-short sentiment trading strategy and show its profitability. The constructed sentiment sheds a light on pricing the cryptocurrency options. We postulate that sentiment governs the shapes of weighting functions in the ranking dependent expected utility framework, causes a distorted belief and impacts the pricing kernel. We present a mechanism for pricing cryptocurrency options in the presence of a distorted belief.