IAQF Student Competition2024

Current prices of assets can be observed from current transactions. But investors and policymakers want to know what's going to happen in the future. In 1978, Doug Breeden and Bob Litzenberger proposed a way of using traded options to infer (compute) those future probabilities (*i.e.*, to construct the probability distributions of future returns). These market-based probabilities are known as risk-neutral probabilities.

The Minneapolis Fed has been computing these probabilities and their descriptive parameters roughly twice a month for a number of assets since 2007 (https://www.minneapolisfed.org/banking/current-and-historical-market--based-probabilities). One of the assets in the Fed's dataset is the S&P500, for which they develop estimates for the risk-neutral probabilities over both a six-month and a twelve-month horizon.

The question is, how useful are these estimates for telling investors about the future? Do they contain information that helps to predict future returns, volatilities, reversals? Are there effective trading strategies based upon the estimates? Can they be combined with additional data/approaches to enhance the effectiveness of a trading strategy?