

On Stock Trading: A New Theory Inspired by Robust Control

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Abstract

The motivation for the research to be described is derived from the voluminous body of literature involving the study of stock-trading from a technical analysis point of view. Suffice it to say, much of the work to date on this topic is controversial. Whereas some authors claim that their empirical studies using historical data demonstrate efficacy, critics argue that such studies are flawed. That is, faulty statistical analysis in combination with “data snooping” may lead to unduly optimistic results. With these considerations serving as motivation, in this talk, I will provide an overview of a new research direction inspired by robust control theory. In contrast to existing literature arguing for efficacy of technical analysis based on the use of back-testing with historical data, the focal point will be provable robustness properties of a “closed loop” trading system operating in a frictionless market without transaction costs. One of the takeaways of our work to date is that success of such systems is more rooted in sound money management than predictions about future stock prices.