Estimating Mean-Standard Deviation Ratios of Financial Data

The relation between signal (in terms of centrality) and noise (spread) has long been considered in statistics. Its reciprocal value has also been frequently used in various fields. For example, according to the theory of finance, an investor is compensated by increased expected returns for taking higher risks (i.e. variance of the investments returns), which is sometimes represented by the ratio of the mean value to the standard deviation. The talk discusses estimators of the systematic relation between the standard deviations and mean values of a large number of heterogeneous variables in financial data. These are characterized by the properties that the number of assets in the cross-section \((n)\) and the number of observations over time \((T)\) are usually of comparable size and that the data follow a factor structure as determined by the pricing theory of financial assets (APT).