Dynamics of Risk Aversion in Financial Markets

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- Problematics: Risk/Attitude toward risk are not well understood and most of the time explained ex-post

- Common proxy by practitioners: VIX Index, put-call ratio, realized volatility, …

- Common measures by academics: Utility function

- Challenges of this research:
  - Characterize the dynamics of risk aversion
  - Link it to the expected future returns

- Intuition of the research: estimate two distributions of future returns
  - A first one including all of investors' biases (Q)
  - A second one without biases (P)

- Option: financial asset giving you the right (but not the obligation) to buy/sell an underlying asset at a given maturity, at a given price
- Estimation of Q: extracting the information using Neural Networks
- Estimation of P: extracting the information using GMM/GARCH-like models

- Output: Risk Aversion in function of the final price and the maturity
- Comparison of different dimensionality reduction algo and forecast of the dynamics