- Problematik mit (i) Normalverteilungen, (ii) Standardabweichung als Risikomass, (iii) MV-Optimization mit (i) UND (ii) (keine Abhängigkeit vom Horihzont) (2-3 slides)

- Fitten der beobachteten Marktrenditen durch (i) symmetriesche, (ii) schiefe Student's t-Verteilungen (2-3 slides)

- dazu je 2-3 slides Einführung in symmetrische / schiefe Student's t-Verteilungen

- kurze Diskussion (1-2 Slides) von fat tails vonMarktrenditen

- Ergebnisse der Optimierung: (i) Simulation mit symmetrischen t-Verteilungen und verschiedenen dgf

- Ergebnisse (ii): Optimierung mit GHYP

- Conclusion und Diskussion: Long-term investors can take more left-skewness/kurtosis (also mehr tail risk, nicht zu verwechseln mit Volatilitäts-risk)

1. Introduction
   1. Goals of the Research
2. Normal Distribution
   1. Introduction and Properties
   2. As a Model for Financial Returns
      1. Disadvantages (Thin tails, Symmetry)
3. Standard Deviation
   1. Introduction and Properties
   2. As a Risk Measure
      1. Disadvantages (Movements in both directions weighed equally, No clear indication of the potential loss)
4. Mean-Variance Analysis
   1. Independence of Risk from the Investment Horizon
5. Symmetrical Student’s t-Distribution
   1. Introduction and Properties
   2. As a Model for Financial Returns
      1. Advantages (Fat tails)
      2. Disadvantages (Symmetry)
6. Skewed Student’s t-Distribution
   1. Introduction and Properties (Special Case of GH Distribution)
   2. As a Model for Financial Returns
   3. Advantages (Fat tails, Asymmetry)
7. Fat Tails in Financial Returns
   1. Extreme movements are relatively frequent (compared to normal distribution)
   2. Tail Dependence, Volatility Clusters
8. Optimization Results
   1. With Symmetric Student’s t-Distributed Returns
   2. With Skewed Student’s t-Distributed Returns
9. Conclusion
   1. The assumption of normally distributed asset returns is not valid, especially in the short term
   2. Asset returns modelled with a Skewed Student’s t-distribution show a good fit, also because of the tail-correlation introduced by the t-copula
   3. Long-term investors can (and should) take more tail risks, i.e. assets with negatively (left) skewed returns (if they offer larger return potential)