Discussion of (i) "Is More Data Always Better? Optimal Data Usage in Non-Stationary Systems?, Jakob KRAUSE" and (ii) "The Dispersion Bias?, Alexander SHKOLNIK, Lisa GOLDBERG and Alex PAPANICOLAOU"

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Contributions of Jakob KRAUSE

- $T \to \infty$ or the this time is different approach (θ_t)?
- Dynamic econometric models or dynamics from shifts in latent variables?
- Why linking this with Bayesian hierarchical modelling?
- For historians only?

Some relevant literature

- Fryzlewicz, P., and S. Subba Rao (2014): ?Multiple-change-point detection for auto- regressive conditional heteroscedastic processes,? Journal of the Royal Statistical Society: Series B (Statistical Methodology), 76(5), 903?924.

- Ng, W. L., S. Pan, and C. Y. Yau (2017): ?Inference for multiple change-points in linear and non-linear time series models,? working paper

- Dufays, A., and Rombouts, J. (2018): "Relevant parameter changes in structural break models", working paper

Contributions of Alexander SHKOLNIK, Lisa GOLDBERG and Alex PAPANICOLAOU

- Portfolios require estimated covariance matrix $\widehat{\Sigma}$ to obtain $\hat{w}$
- Impact of $\widehat{\Sigma}$ on optimal porftolios
- $N \gg T$; $\{R_t\}_{t=1}^{T}$ i.i.d.
- Theory and practice is provided
- Did not get the $w = 1/N$
- $\widehat{\Sigma}_t$

Some relevant literature

- Geert Dhaene (2018) Polynomial shrinkage of large-dimensional covariance matrices, working paper

- Lam, C. (2016). Nonparametric Eigenvalue-Regularized Precision or Covariance Matrix Estimator. Ann. Statist., 44(3), 928-953.

- Lam, C. and Fan, J. (2009). Sparsistency and Rates of Convergence in Large Covariance Matrix Estimation. Ann. statist., 37(6B), 4254-4278

- Papers of Matteo Barigozzi, Marco Lippi, and Matteo Luciani on "Non-Stationary Dynamic Factor Models for Large Datasets"