April 17th, 2017
KAP 414
2:00 P.M. – 3:00 P.M.

Professor Nils Detering

(University of California, Santa Barbara)

"Managing Default Contagion in Financial Networks"

Abstract: To quantify and manage systemic risk in the interbank market, we propose a weighted, directed random network model. The vertices in the network are financial institutions and the weighted edges represent monetary exposures between them. Our model resembles the strong degree of heterogeneity observed in empirical data and the parameters of the model can easily be fitted to empirical data. We derive asymptotic results that, based on these parameters, allow to determine the impact of local shocks to the entire system and the wider economy. At this, our model captures that the impact depends on the systemic importance of the defaulted institutions. Furthermore, we characterize resilient and non- resilient cases. For networks with degree sequences without second moment, a small number of initially defaulted banks can trigger a substantial default cascade even under the absence of so-called contagious links. Paralleling regulatory discussions, we determine minimal capital requirements for financial institutions sufficient to make the network resilient to small shocks. The capital requirements are robust with respect to a miss-specification of the dependency structure of in- and out-degrees in the network.

It is joint work together with Thilo Meyer-Brandis, Konstantinos Panagiotou and Daniel Ritter (all University of Munich).