Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Internal and external influence in the US stock market[1]
STANISLAV BORYSOV, Nordita, KTH Royal Institute of Technology and Stockholm University, Roslagstullsbacken 23, SE-106 91 Stockholm, Sweden, YASSER ROUDI, The Kavli Institue for Systems Neuroscience, NTNU, 7030 Trondheim, ALEXANDER BALATSKY, Nordita, KTH Royal Institute of Technology and Stockholm University, Roslagstullsbacken 23, SE-106 91 Stockholm, Sweden — We analyze the multivariate distribution of the US stock returns using pairwise interaction models, inspired by Ising models in glasses and neural networks. Using the inference methods from neural networks analysis we find unique descriptors of the dynamics of stock returns in periods of crisis. Our findings suggest that the near crash dynamics is primarily governed by external factors (external fields), while internal network structure (J couplings) are not significantly affected.

[1]This work is supported by Nordita and VR VCB 621-2012-2983.

Alexander Balatsky
Nordita, KTH Royal Institute of Technology and Stockholm University,
Roslagstullsbacken 23, SE-106 91 Stockholm, Sweden

Date submitted: 14 Nov 2013 Electronic form version 1.4