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Building Large Financial and Economic Networks.

The study of high dimensional networks has increased dramatically. Group wise information from large datasets can be used to build networks where nodes represent variables and edges represent the conditional dependency between two variables. Economic policy makers use these networks to measure impulse responses and determine how an economy will react over time. Networks can be used to illustrate the trade and exchange of goods in non-centralized markets, the provision of mutual insurance in developing countries, alliances among corporations, and trading agreements. Two approaches for determining grouping information to build networks are large covariance matrix estimation and regularization. The purpose of this research is to investigate whether large covariance matrix estimation or nodewise l_1 -regularization will give more interpretable results when building a high dimensional network through group wise information. (Received August 21, 2015)