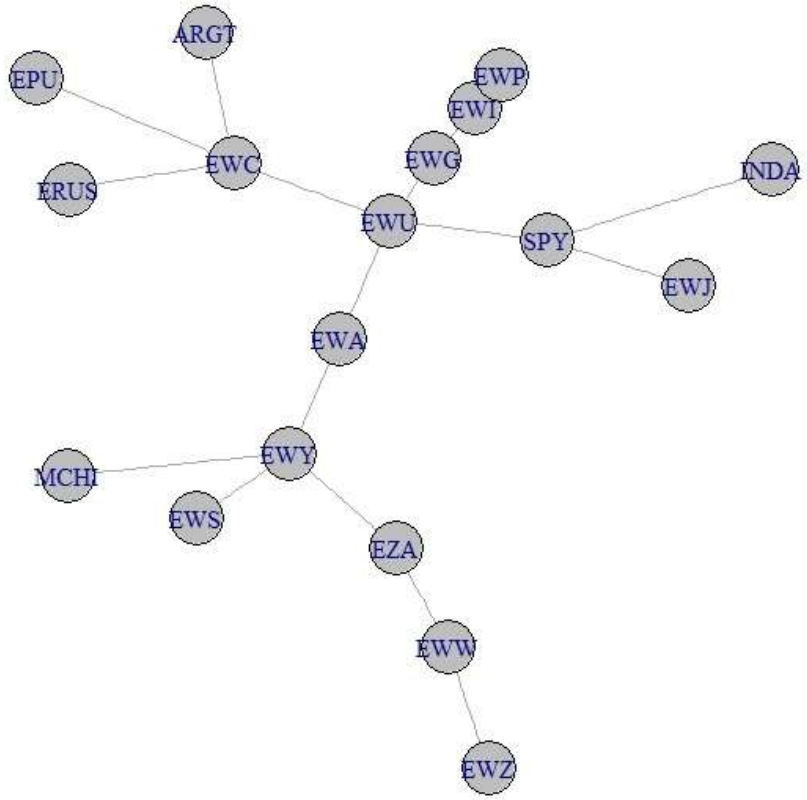
Visualizing Correlation Structure of Country Exchange Traded Funds (ETFs)

Minimum Spanning Tree Graph of Country ETFs



Nodes:

ETF symbol	*Country*
SPY	USA
EWC	Canada
EWW	Mexico
EWU	UK
EWG	Germany
EWI	Italy
EWP	Spain
EPU	Peru
EWZ	Brasil
ARGT	Argentina
ERUS	Russia
EWY	South Korea
EWJ	Japan
MCHI	China
EWS	Singapore
EWA	Australia
INDA	India
EZA	South Africa

Desctiption

Each node represent a country ETF.

Edges indicate the strength of correlation between two ETFs' daily return during 05/01/2015-30/06/2017 . Edge weight between node A and B calculated as (1-abs(cor(ret(A),ret(B)))). The stronger the correlation (either negative or positive) the shorter the edge.

Minimum Spanning Tree (MST) is constructed with R package igraph from the entire correlation space. MST algorithm creates a tree with minimum sum of edge weights (maximum absolute correlation) on the subgraphs. This helps visualizing the relationship between the nodes and identifying clusters.

References

- Github page with correlation table and code to produce graph: https://github.com/tamasveress/Graph_Stock_MST
- R package for creating MST and plotting graph: http://igraph.org/r/doc/mst.html
- Visualizing stock correlations with MST: https://mktstk.com/2015/03/04/stock-market-visualization-minimum-spanning-trees/