Exercise 18 - Granger Causality for hourly data
March 06, 2018

Lag order	1	2	4	8	16	24	32	48	64
BTC-DASH	P = 0.0472	P = 0.0503	P = 0.1847	P = 0.3186	P = 0.0156	P = 0.0680	P = 0.0138	P = 0.0005	P = 2e-05
DASH-BTC	P = 0.3998	P = 0.4198	P = 0.6798	P = 0.6784	P = 0.1486	P = 0.0139	P = 0.0005	P = 0.0001	P = 2e-05
BTC-ETC	P = 0.0257	P = 0.0383	P = 0.1676	P = 0.0532	P = 0.0430	P = 0.0672	P = 0.0127	P = 0.0285	P = 0.0297
ETC-BTC	P = 0.8937	P = 0.7360	P = 0.2392	P = 0.5189	P = 0.1208	P = 0.0052	P = 3e-05	P = 0.0001	P = 0.0048
BTC-ETH	P = 0.3592	P = 0.3525	P = 0.4710	P = 0.6431	P = 0.3268	P = 0.5799	P = 0.2900	P = 0.0579	P = 0.0622
ETH-BTC	P = 0.6061	P = 0.7977	P = 0.4227	P = 0.5109	P = 0.5513	P = 0.0174	P = 0.0122	P = 0.4e-05	P = 0.0001
BTC-XMR	P = 0.0531	P = 0.1229	P = 0.2731	P = 0.1229	P = 0.3052	P = 0.2895	P = 0.0519	P = 0.0108	P = 0.0012
XMR-BTC	P = 0.6297	P = 0.4747	P = 0.8175	P = 0.2966	P = 0.0284	P = 0.0001	P = 2e-06	P = 7e-05	P = 8e-06
BTC-LTC	P = 0.0050	P = 0.0025	P = 0.0057	P = 0.0084	P = 0.0349	P = 0.0141	P = 0.0033	P = 0.0065	P = 0.0019
LTC-BTC	P = 0.2937	P = 0.3091	P = 0.4444	P = 0.6376	P = 0.1098	P = 0.0454	P = 0.0404	P = 0.0152	P = 0.0133

Table 1 - Hourly Frequency Granger Causality tests for different lag orders up to 2 days (1500min of **rising** data, 3000-4500)

Lag order	1	2	4	8	16	24	32	48	64
BTC-DASH	P = 0.1784	P = 4e-06	P = 2e-05	P = 6e-05	P = 2e-05	P = 3e-05	P = 4e-07	P = 5e-07	P = 6e-06
DASH-BTC	P = 0.3764	P = 6e-03	P = 3e-03	P = 0.0092	P = 0.0093	P = 8e-04	P = 4e-03	P = 1e-05	P = 9e-04
BTC-ETC	P = 0.6798	P = 0.5658	P = 0.6917	P = 0.2294	P = 0.2497	P = 0.2208	P = 0.5916	P = 0.7965	P = 0.7302
ETC-BTC	P = 0.5073	P = 0.6175	P = 0.8754	P = 0.9402	P = 0.9587	P = 0.0901	P = 0.1343	P = 0.1457	P = 0.1099
BTC-ETH	P = 0.0262	P = 0.0214	P = 0.0146	P = 0.0028	P = 0.0009	P = 0.0015	P = 0.0037	P = 0.0022	P = 0.0050
ETH-BTC	P = 0.0132	P = 0.0164	P = 0.0725	P = 0.0314	P = 0.2952	P = 0.1236	P = 0.0569	P = 0.0349	P = 0.0137
BTC-XMR	P = 0.0016	P = 5e-06	P = 5e-05	P = 7e-05	P = 0.0024	P = 0.0064	P = 0.0018	P = 0.0006	P = 0.0873
XMR-BTC	P = 0.0818	P = 0.0199	P = 0.0400	P = 0.0160	P = 0.4904	P = 0.2101	P = 0.1115	P = 0.0935	P = 0.0886
BTC-LTC	P = 0.9075	P = 0.7197	P = 0.8371	P = 0.5048	P = 0.3444	P = 0.3158	P = 0.2606	P = 0.3161	P = 0.7443
LTC-BTC	P = 0.7579	P = 0.8596	P = 0.5212	P = 0.2997	P = 0.0745	P = 0.0081	P = 0.0063	P = 0.0005	P = 0.7449

Table 2 - Hourly Frequency Granger Causality tests for different lag orders up to 2 days (1500min of **falling** data, 4500-6000)
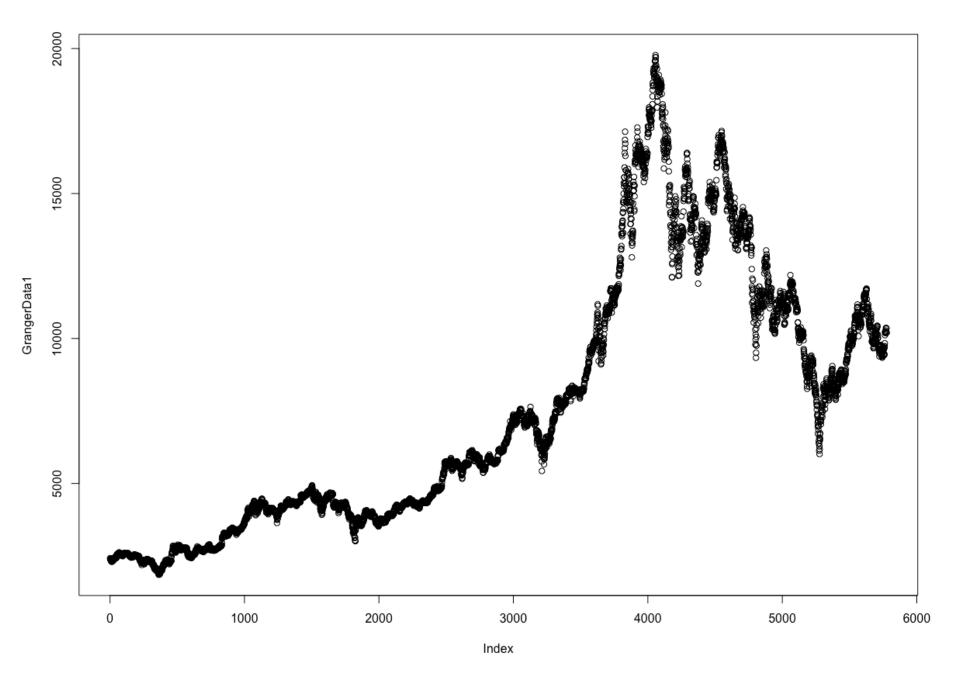
BOLD CURRENCY LEADING

Figure 1 - Rising and falling data used for causality