

July 17 Update

Braedyn

Updates

- Added portfolio cash and value attributes
- Price Change
- Variance vs weight plots
- Cosine similarity heatmaps
- Distinguishing Cascades

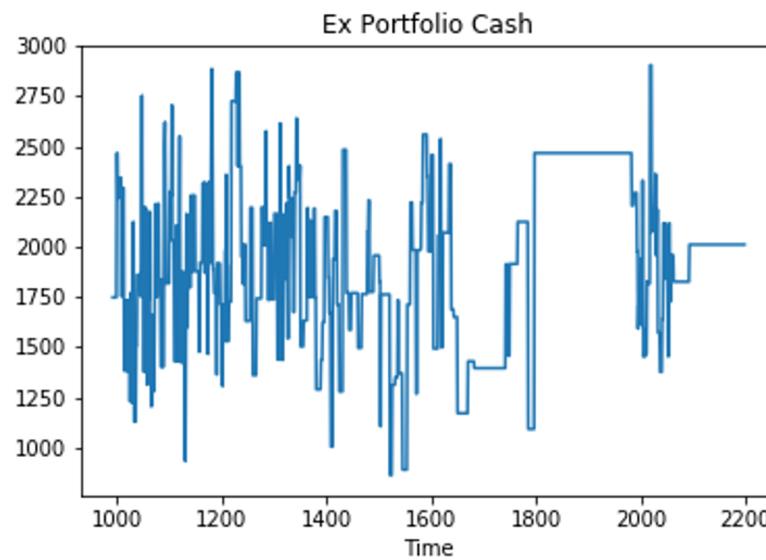
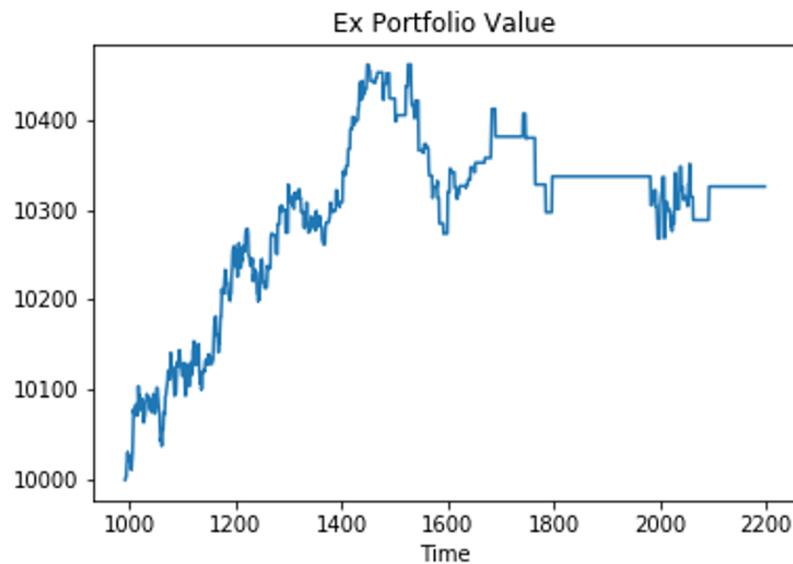
Cash and Value

- .Cash and value added to fix bug with stock weight calculation
- .Cash included in sharpe ratio calculation with the risk free interest rate

	ID	time	value	cash
0	mucrq	991	10000.000000	1515.849079
0	mucrq	992	10000.000000	1515.849079
0	mucrq	993	10000.000000	1515.849079
0	mucrq	994	10000.000000	1515.849079
0	mucrq	995	10079.094591	1294.041593
...
0	mucrq	2194	11047.491173	1427.804866
0	mucrq	2195	11047.491173	1427.804866
0	mucrq	2196	11047.491173	1427.804866
0	mucrq	2197	11047.491173	1427.804866
0	mucrq	2198	11047.491173	1427.804866

1208 rows × 4 columns

Cash and Value



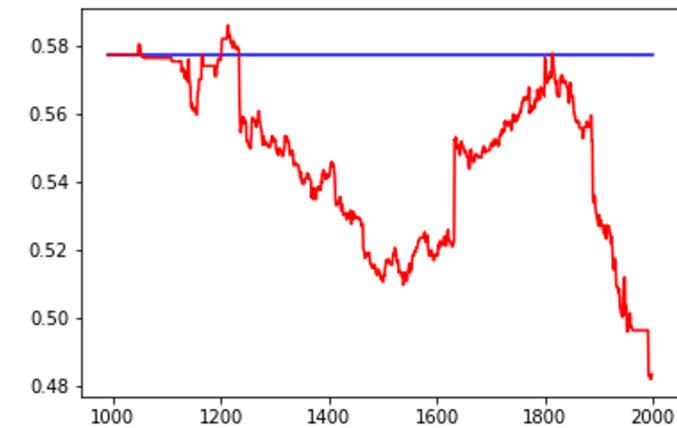
Price Change

Chooses a random number within

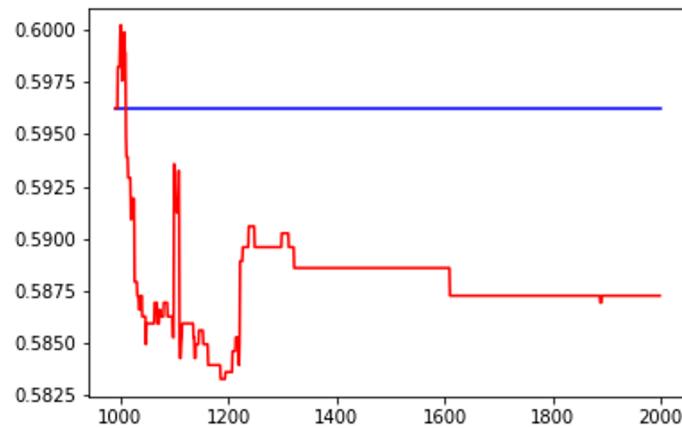
$$\left[\frac{-volume\ buy/sell}{1000}, \frac{volume\ buy/sell}{1000} \right]$$

Ex. 2 stocks sold => Hurst Parameter changes by a random number between [-0.002,0.002]

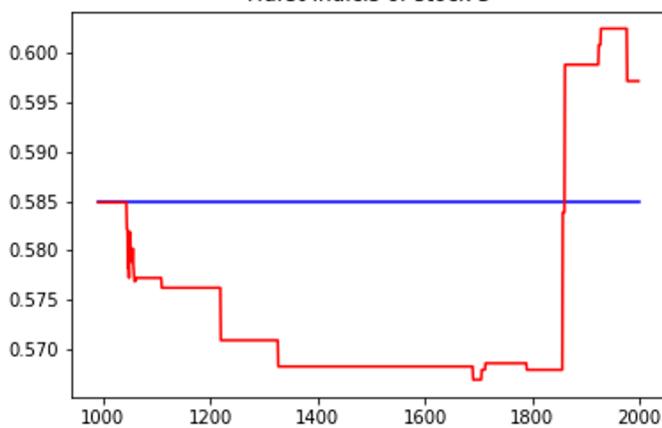
Hurst indicis of stock 1



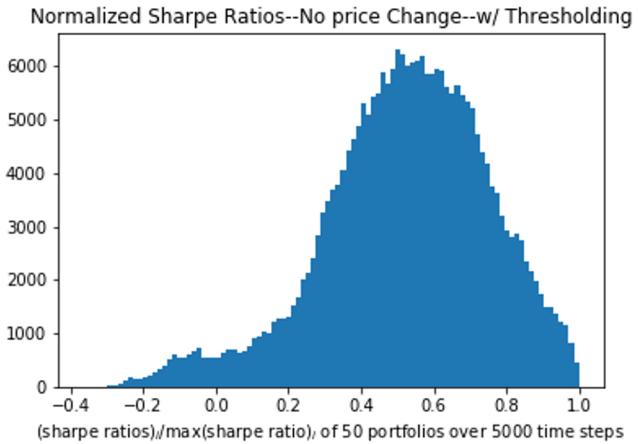
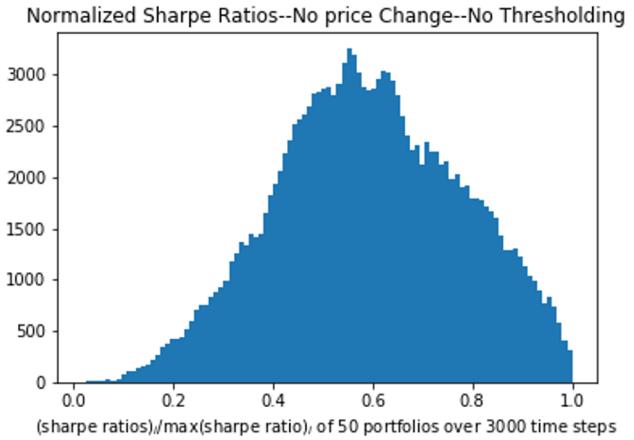
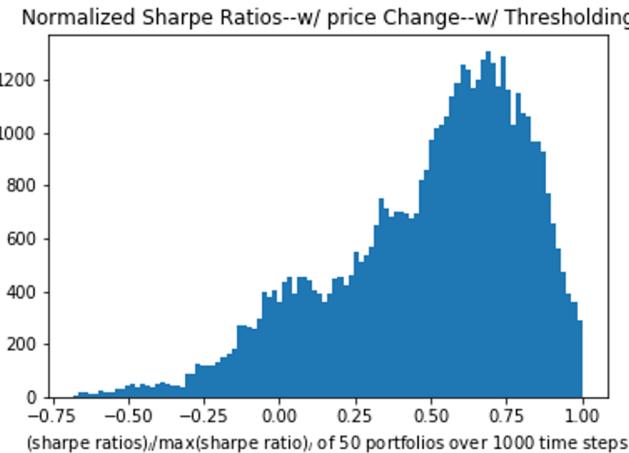
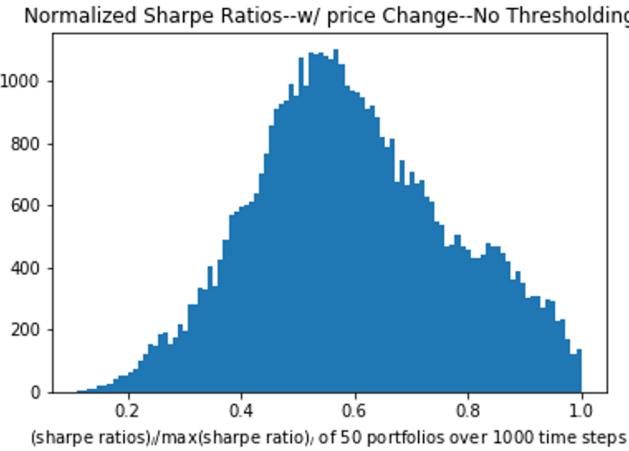
Hurst indicis of stock 2



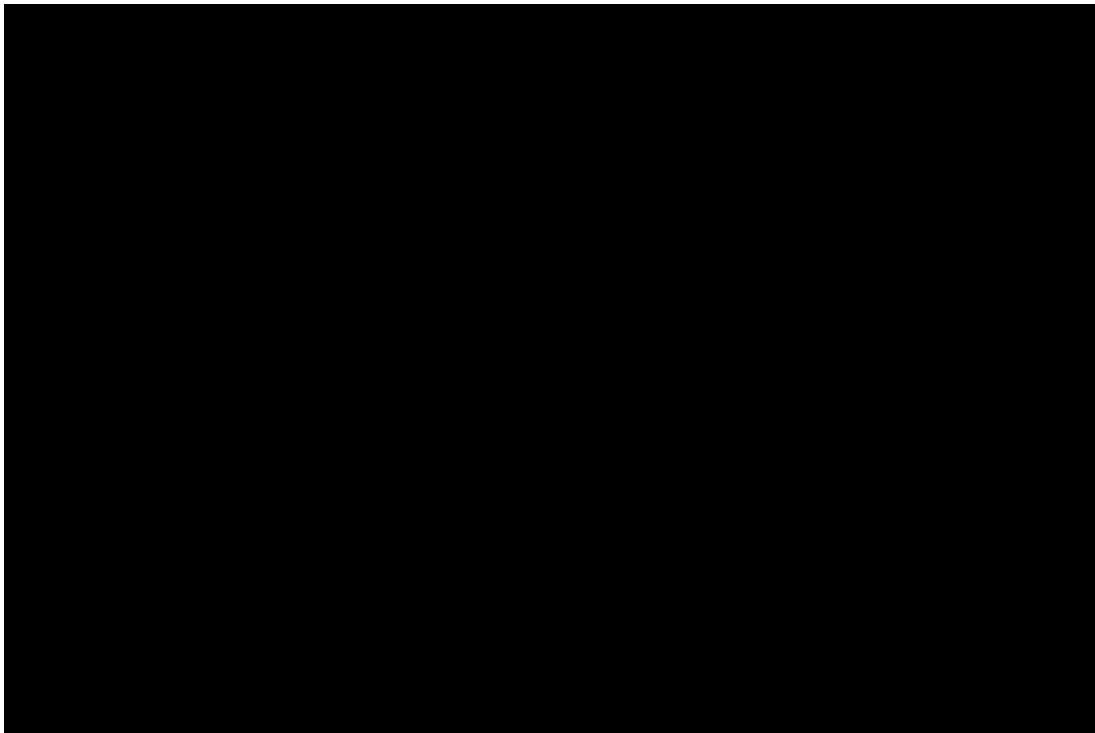
Hurst indicis of stock 3



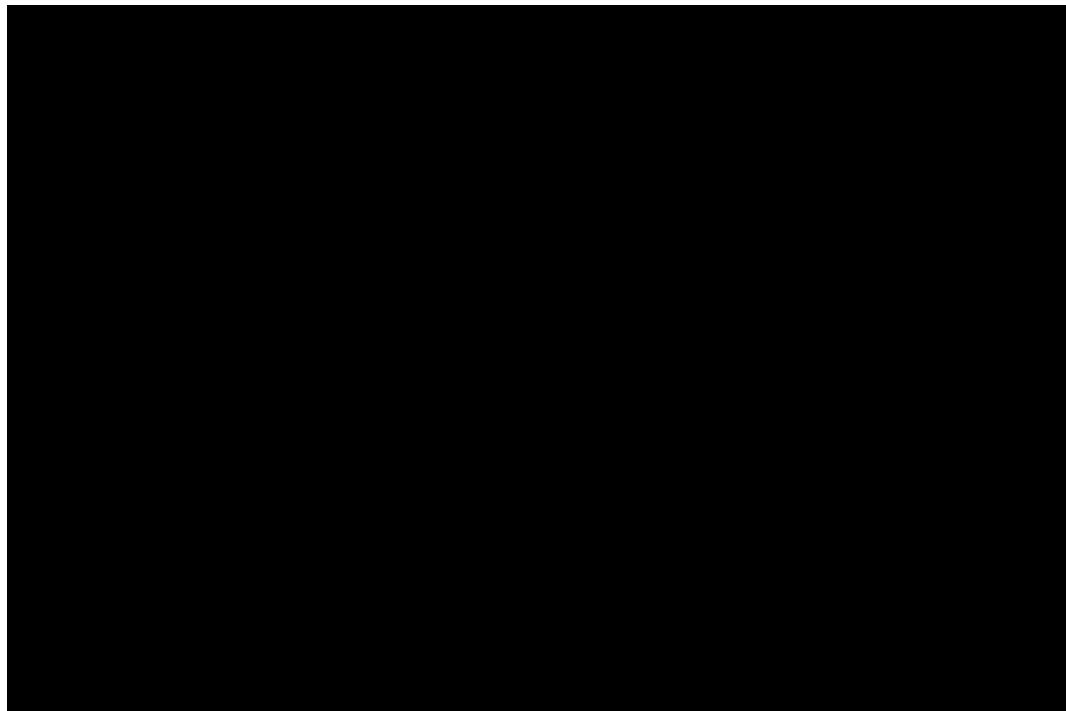
Sharpe Ratios (Change vs No Change)



Weight vs Variance

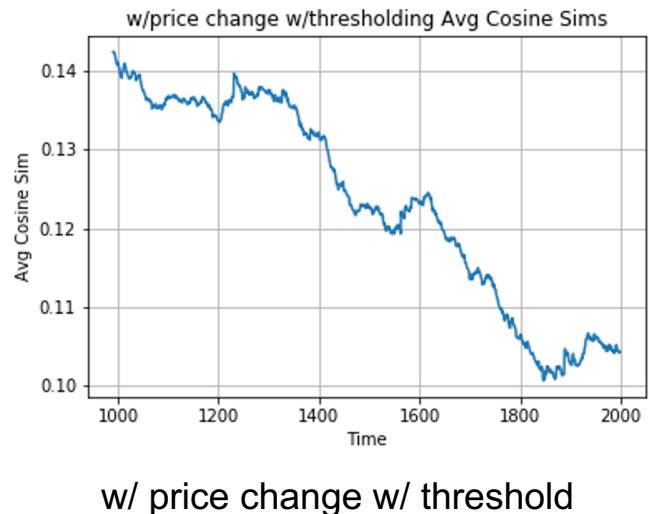


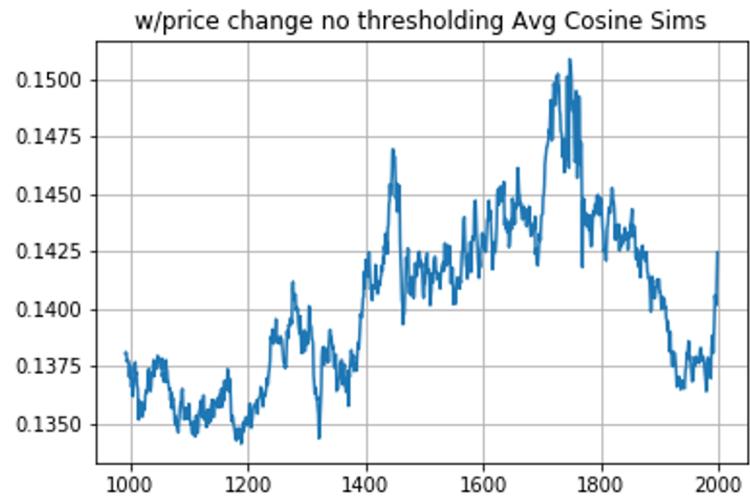
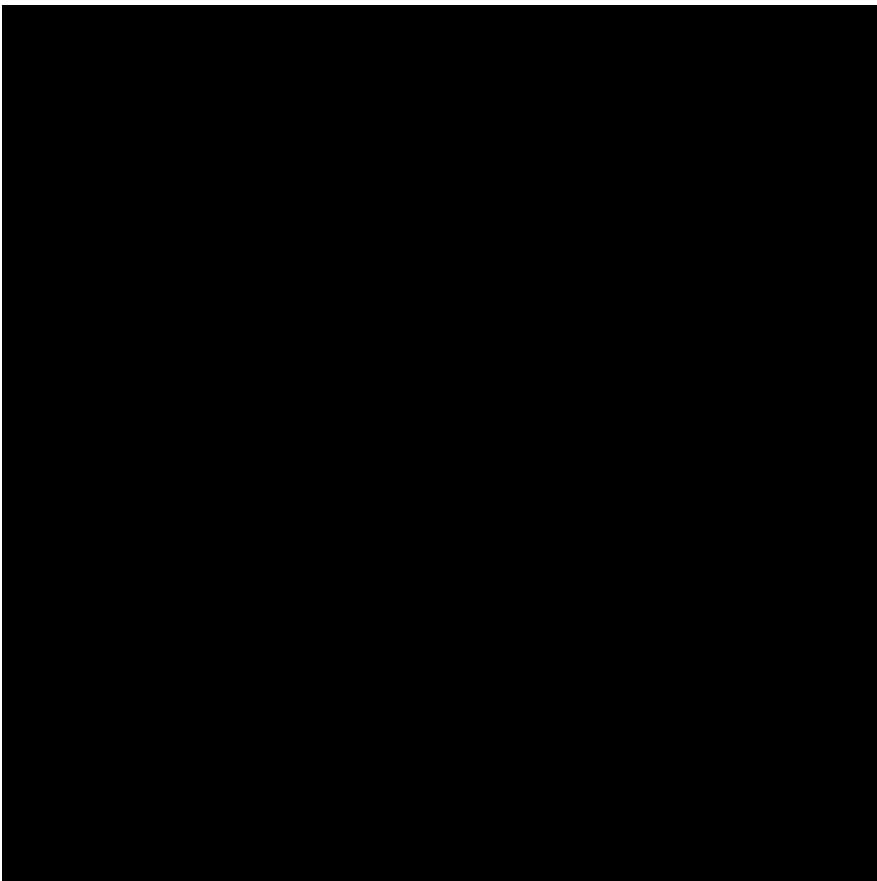
Weight vs Variance



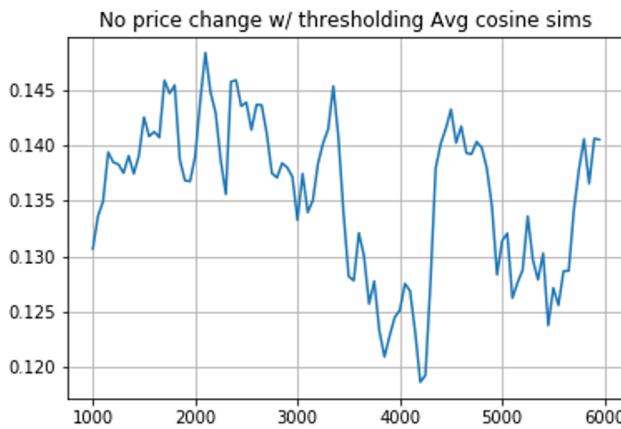
Cosine Similarity

Average cosine similarity
fluctuates
Haven't ran full 5 day period yet





*Different initial simulation than before
w/ price change No threshold

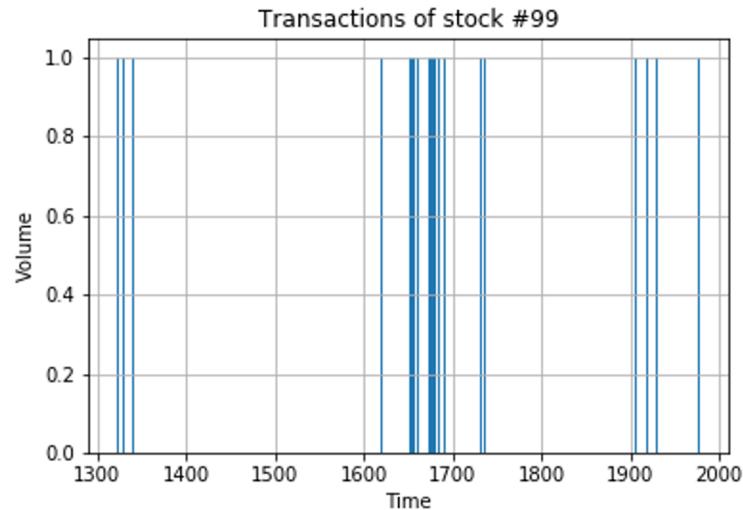


Rebalance Cascades

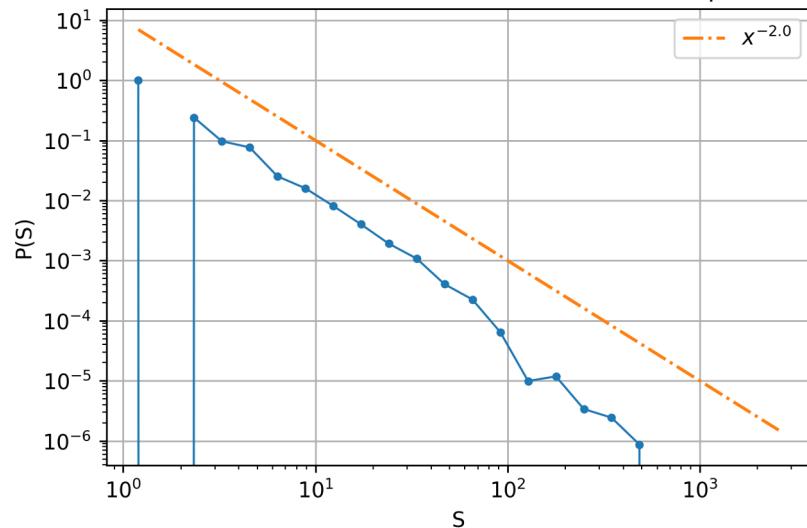
- 1) Cascades of individual stock trades compiled together
- 2) Cascades of traders making any change to their portfolio

Individual Stock Cascades

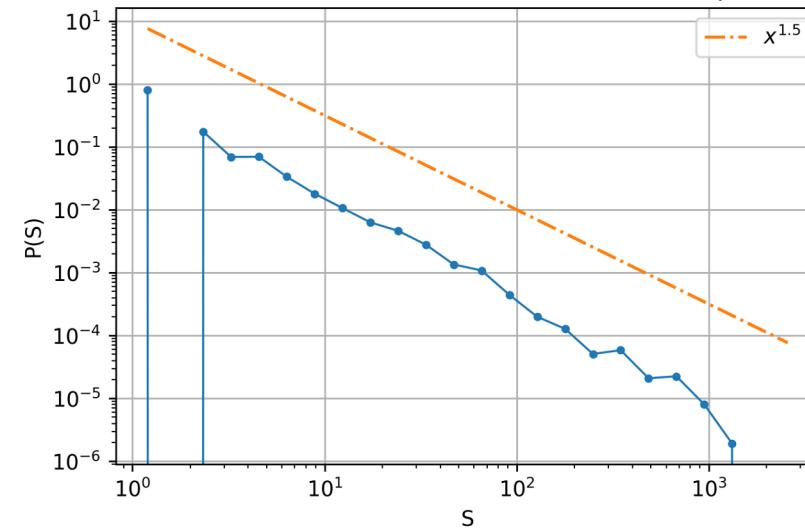
- For each stock, find temporally separated cascades of activity
- Compile all the cascades of each stock for a total Cascades list
- Volume of stock not accounted for



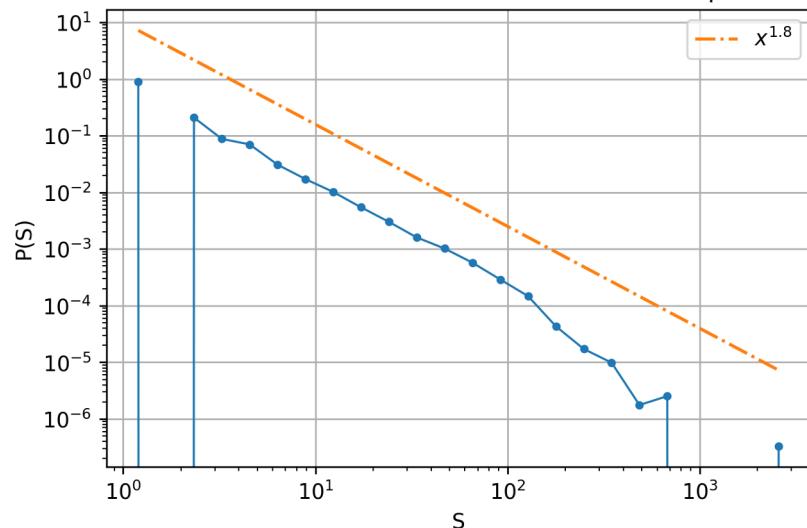
Cascade size distributions with max time sep : 1



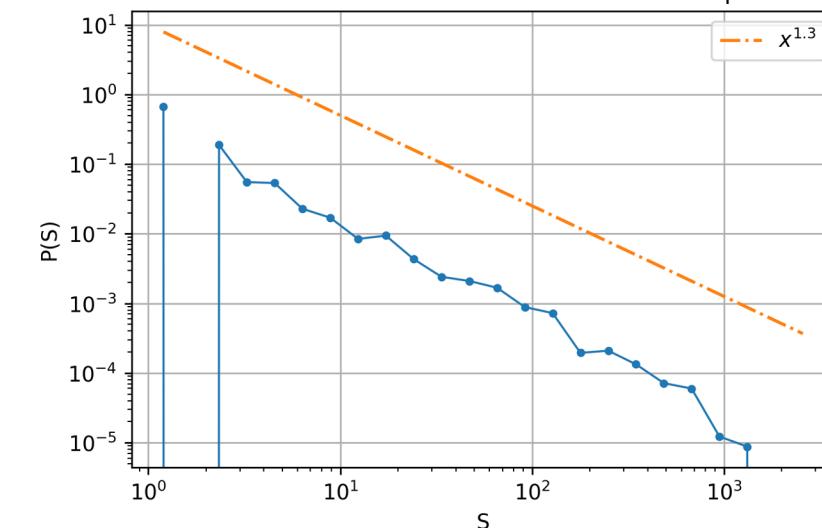
Cascade size distributions with max time sep : 5



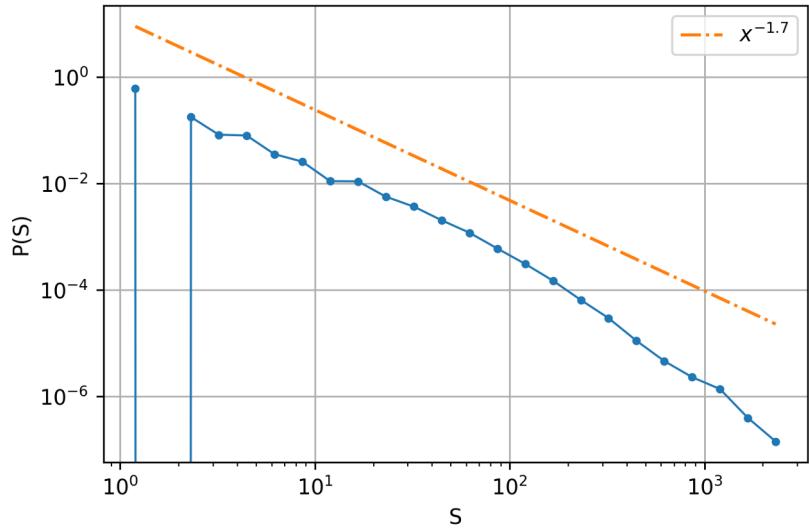
Cascade size distributions with max time sep : 2



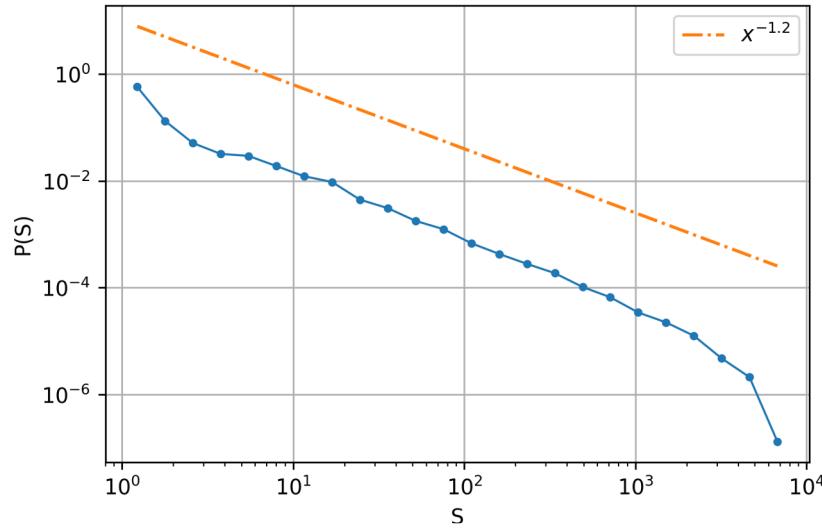
Cascade size distributions with max time sep : 10



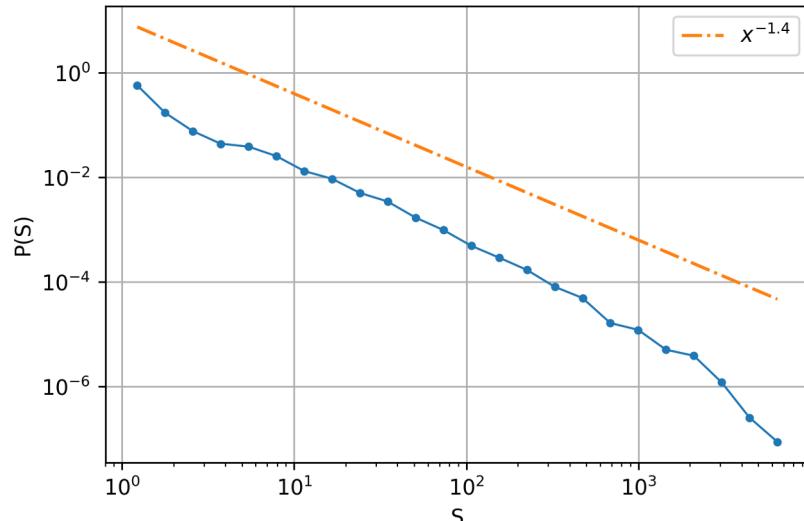
Cascade size distributions (no price change) max time sep : 1



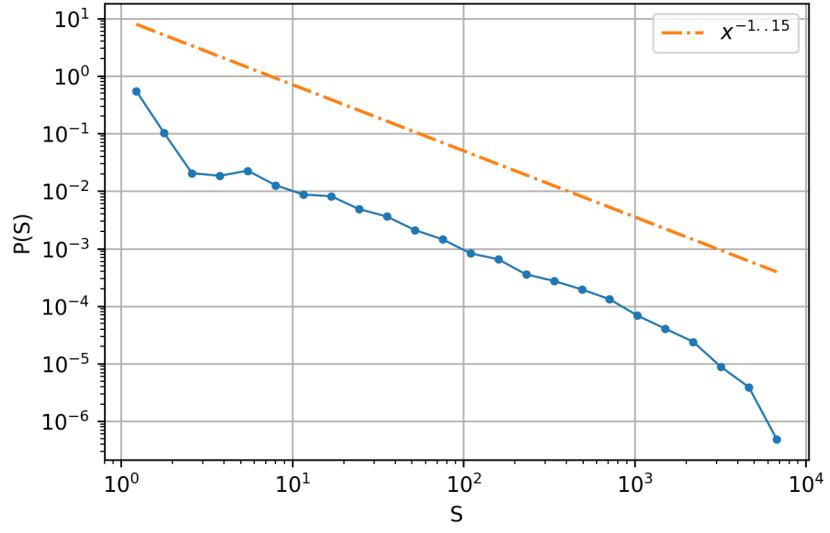
Cascade size distributions (no price change) max time sep : 5



Cascade size distributions (no price change) max time sep : 2



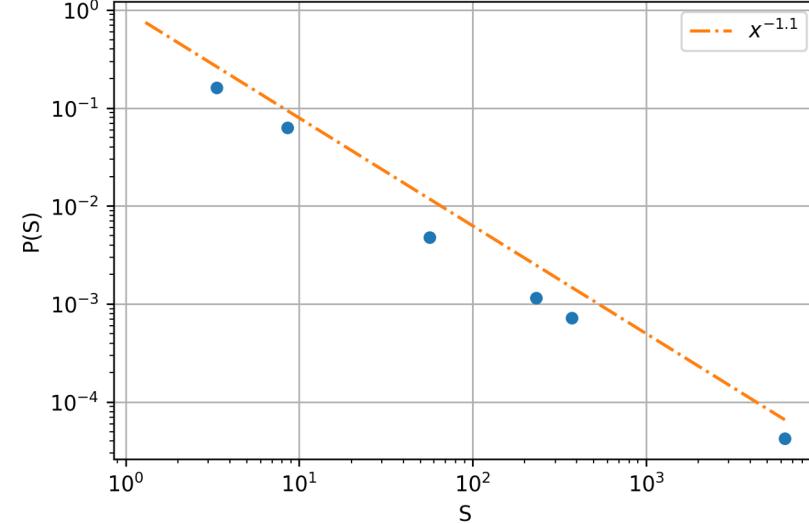
Cascade size distributions (no price change) max time sep : 10



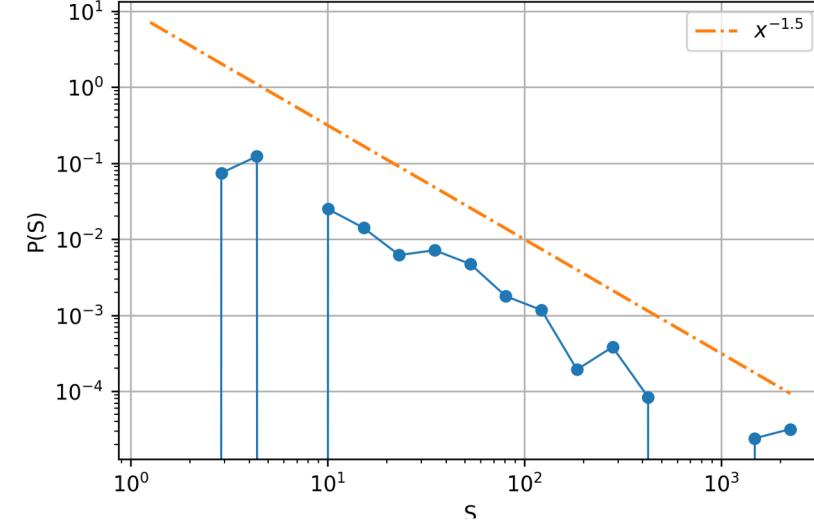
Portfolio Rebalance Cascades

- Similar to stock cascades, but looking at number of portfolios rebalanced as a binary event
- Separate cascades by a minimum number of portfolios rebalanced

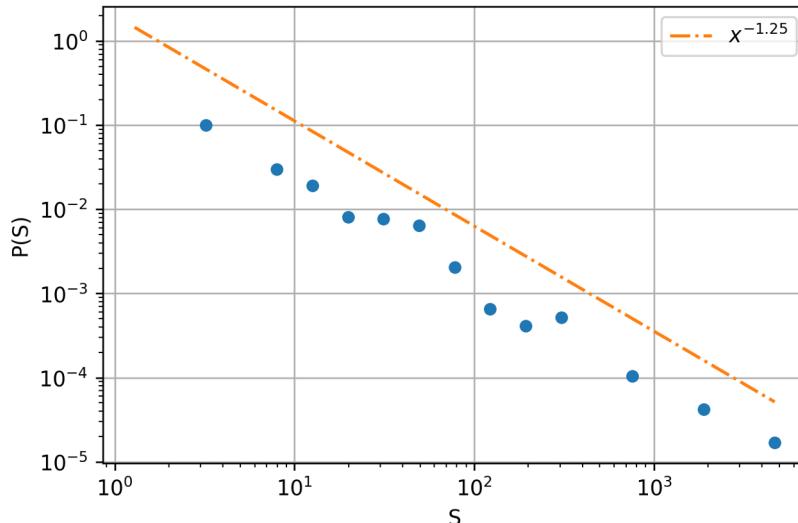
Portfolio Rebalance Cascade size distributions with min activity : 3



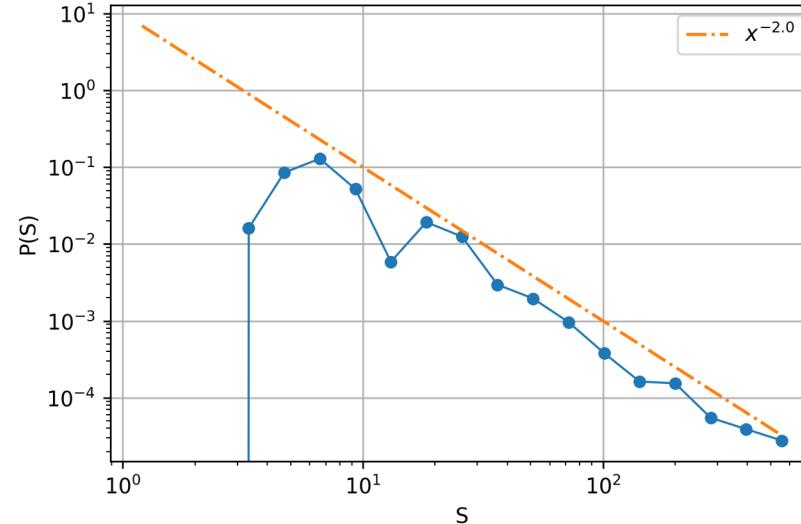
Portfolio Rebalance Cascade size distributions with min activity : 5



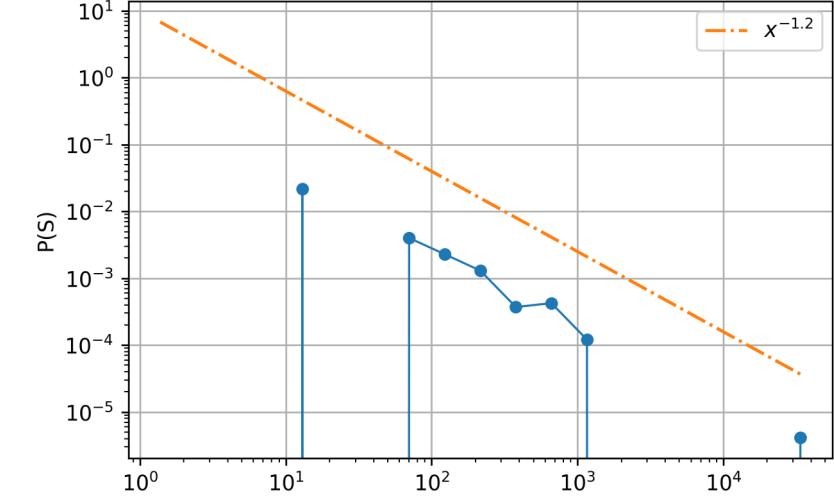
Portfolio Rebalance Cascade size distributions with min activity : 4



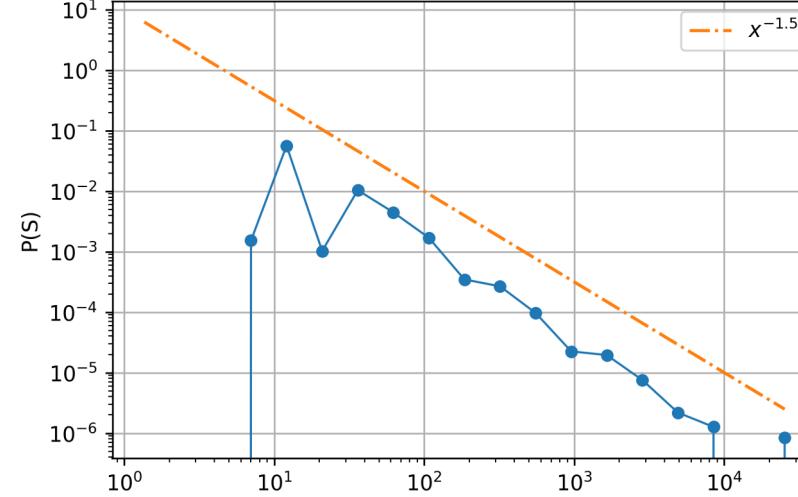
Portfolio Rebalance Cascade size distributions with min activity : 8



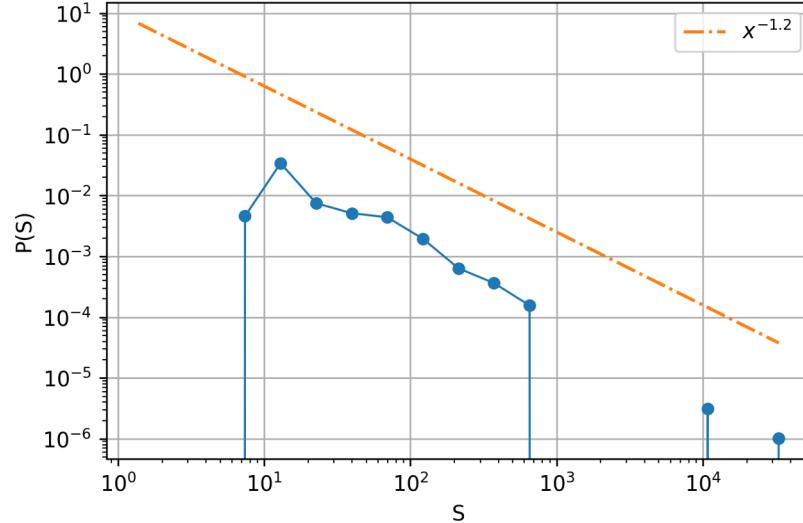
Portfolio Rebalance Cascade sizes (no price change) with min activity : 10



Portfolio Rebalance Cascade sizes (no price change) with min activity : 14



Portfolio Rebalance Cascade sizes (no price change) with min activity : 12



Portfolio Rebalance Cascade sizes (no price change) with min activity : 16

