

Sympathy play for correlated stocks

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Outline

- 1 Motivation
- 2 Data
- 3 EDA
- 4 Model Selection and Results
- 5 Conclusion

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- What is sympathy play?
 - Some highly correlated companies within the same sector.
 - One or several companies in this sector have stock price moved up significantly over a period, but there is one company did not move up.
 - Then one may speculate that there is a time lag occurred, and this company will also move up later.
- Question: is this sympathy play a valid strategy?

Outline

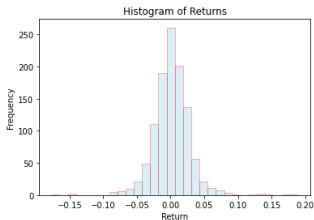
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- Daily closing prices from several sectors
 - Retail
 - Airline
 - Pharmacy
 - Internet
 - Bank
- Daily Return
- Sympathy play indicator

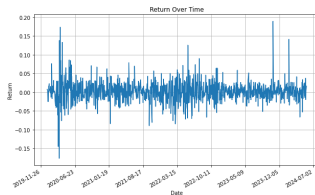
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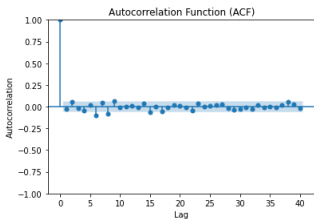
EDA with one example: DECK from retail



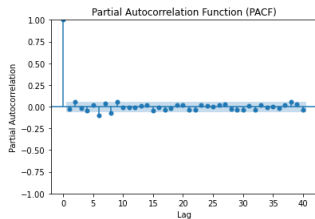
(a) Histogram



(b) Time Series



(c) ACF



(d) PACF

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Model Selection and Results

DECK				
	Training		Test	
	MAE	MSE	MAE	MSE
Naïve	0.01974	0.00081	0.01494	0.00041
Rolling average	0.01849	0.00064	0.01562	0.00045
simple smooth	0.01983	0.00082	0.01534	0.00043
double smooth	0.02054	0.00086	0.01611	0.00047
triple smooth	0.01974	0.00081	0.01521	0.00042
ARIMA(0,0,2)	0.01979	0.00081	0.01495	0.00042
SRIMAX((0,0,0),(1,0,0,6))	0.01988	0.0008	0.01487	0.0004
LSTM	0.02002	0.00082	0.01541	0.00042
LSTM_SP	0.01982	0.00081	0.01511	0.00041

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- All models fail to beat the naive model at a non-negligible level.
- Sympathy play is not valid for using daily closing price.

- What can be done in the future:
 - Alternative definition of sympathy play indicator.
 - Use finer data like per minute data.