Discussions: Probability of Informed No-Tradings: A Copula-Based PIN Model with Zero-Inflated Poisson Distributions

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Motivations

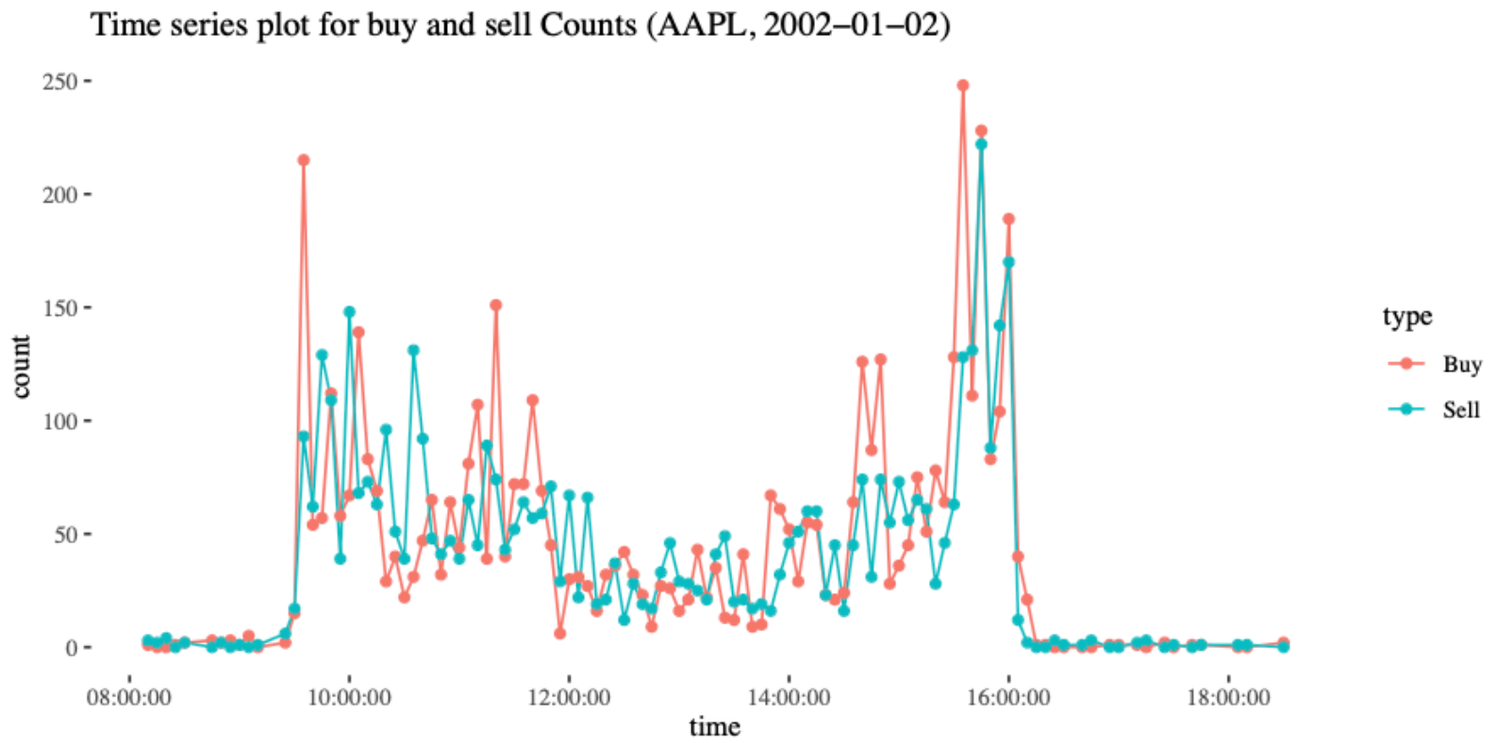


Figure 1: Times series of buys and sells (AAPL, 2002-01-02). Each point is the record of buy and sell transaction counts at 5-minute intervals. The buys and sells patterns are correlated.

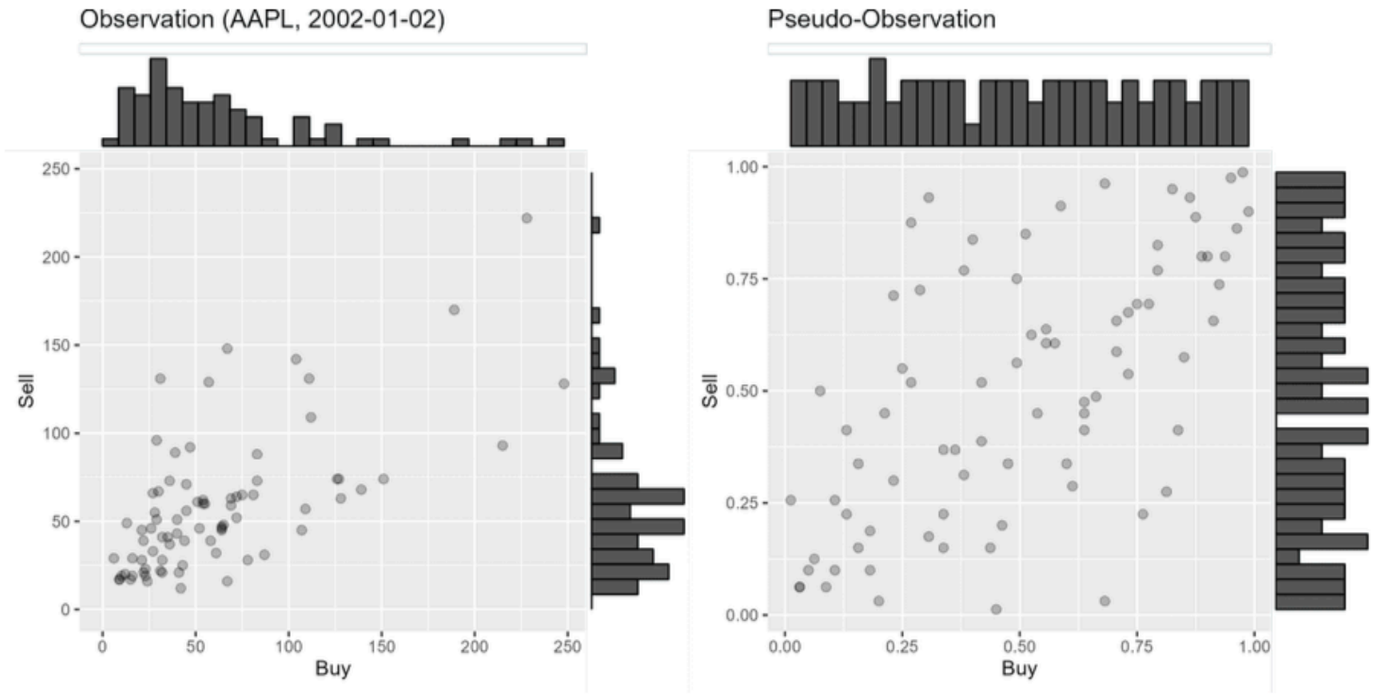
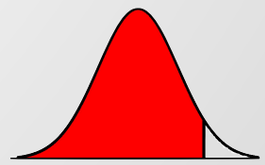


Figure 2: The scatter plot for buys and sells (AAPL, 2002-01-02). Left panel : original data. Right panel : pseudo-observation. The data points in the upper left and lower right corners are relatively sparse, so the data is positively correlated.



The simple PIN model

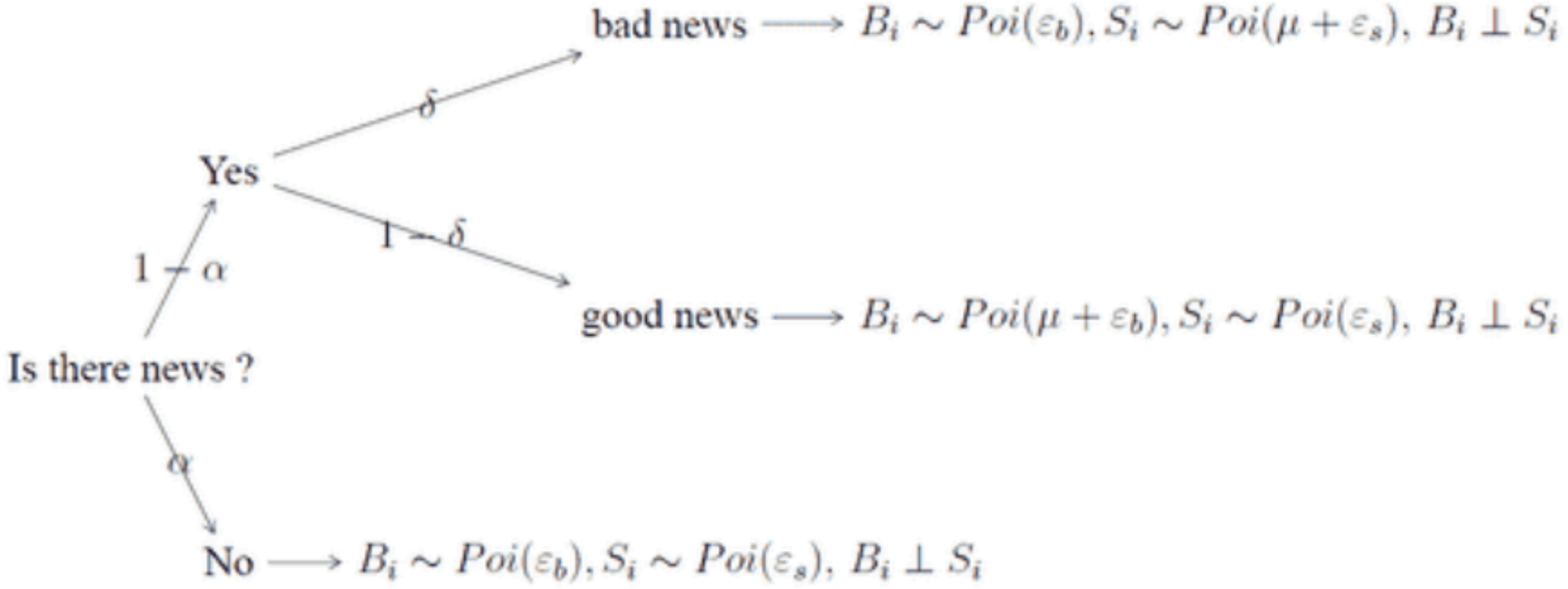


Figure 3: Structure of the PIN model in [1]

The proposed co-PIN model

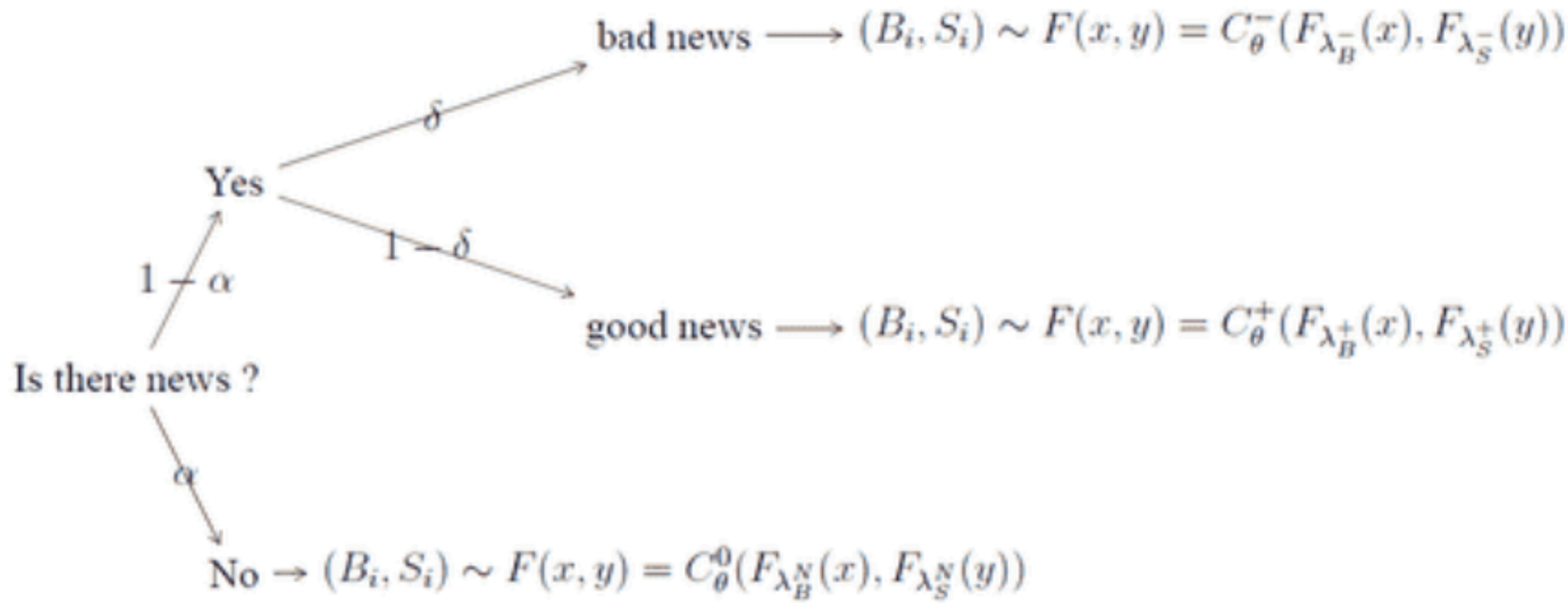


Figure 5: Structure of Proposed co-PIN Model

Simulation studies: 3 clusters with 150 points each

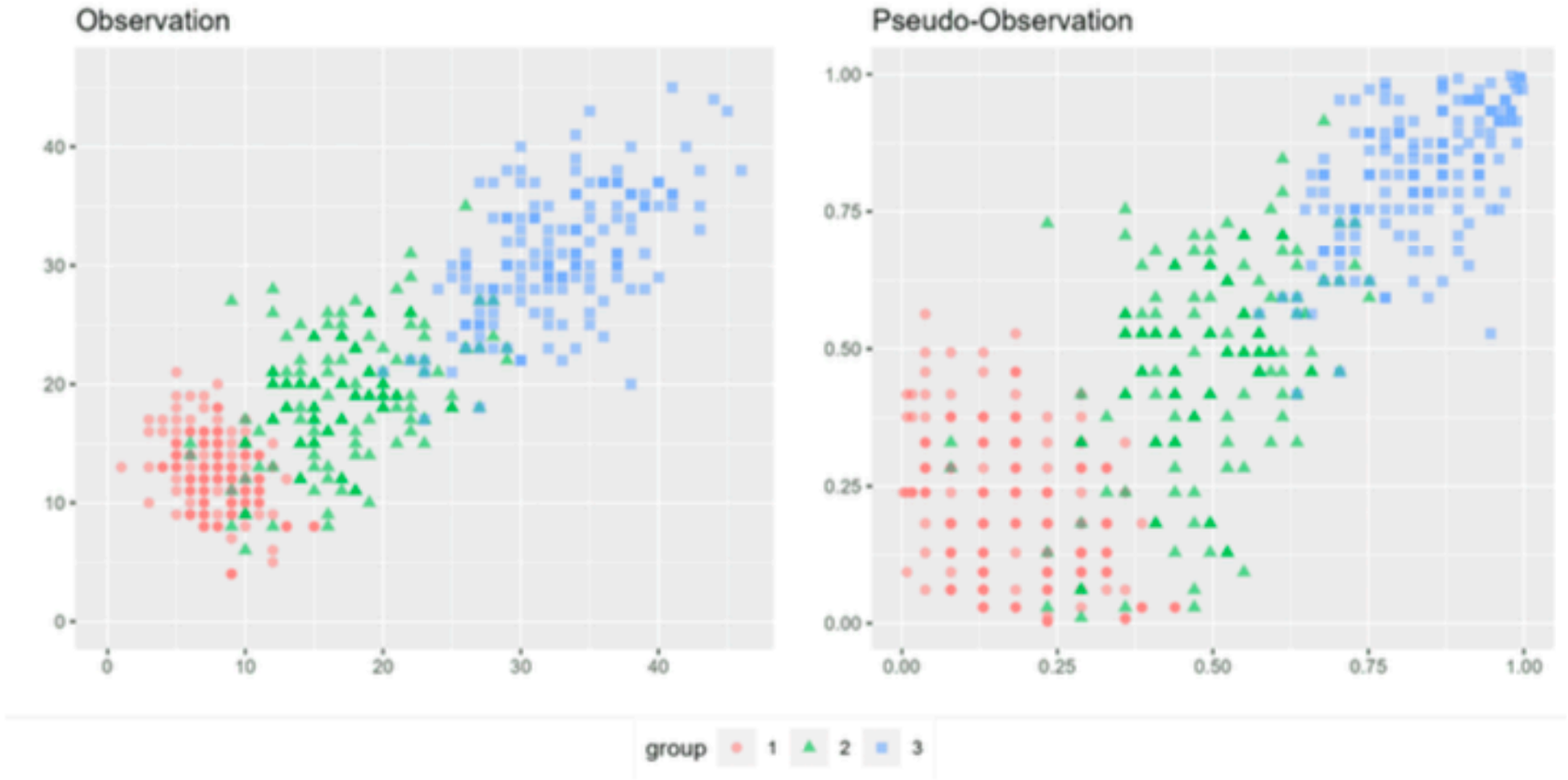
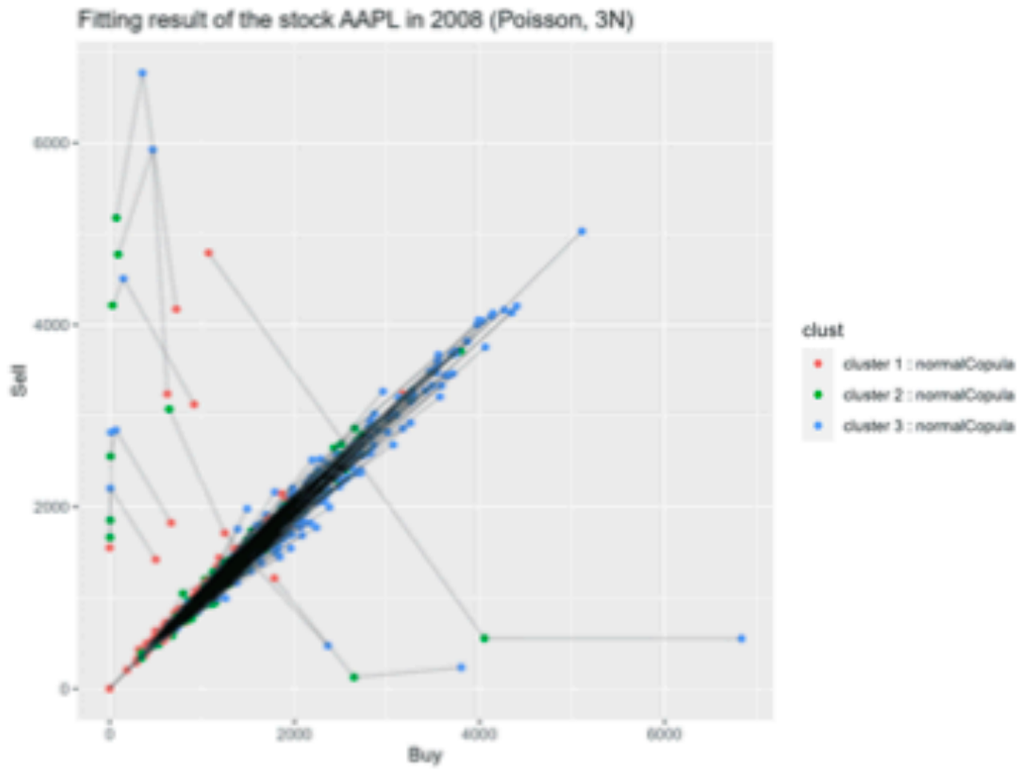
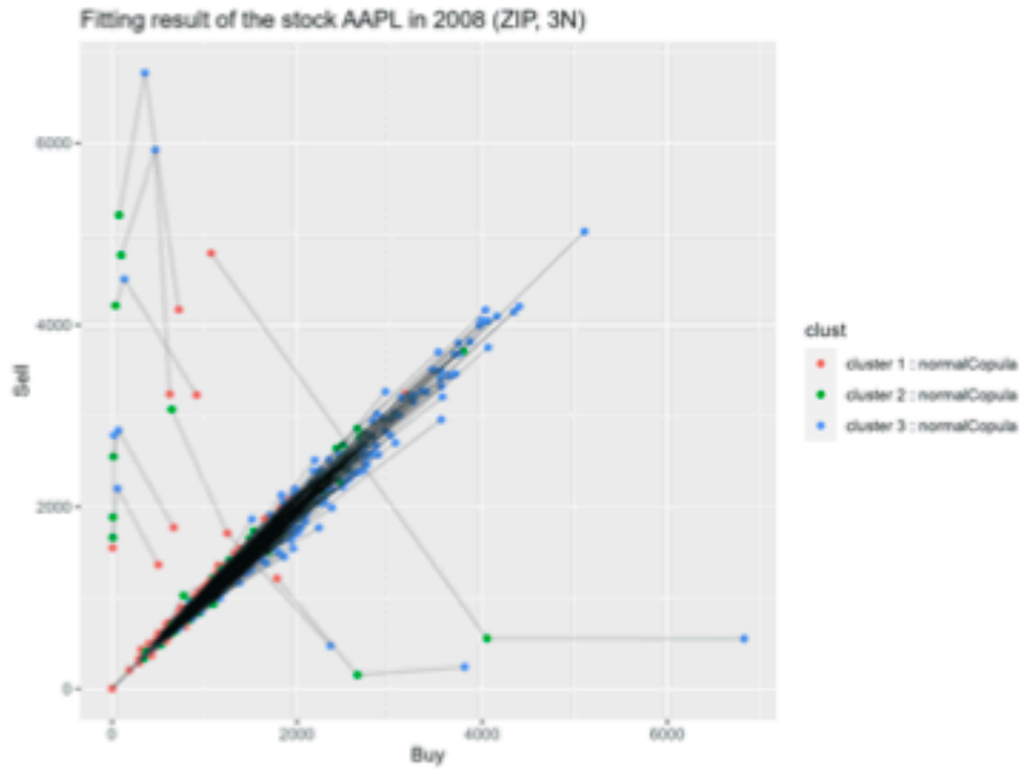


Figure 6: Scatter plot of the NNN data. Left panel : original data. Right panel : pseudo-observation. The different groups are presented in different colors.

Model identifications and Interpreations



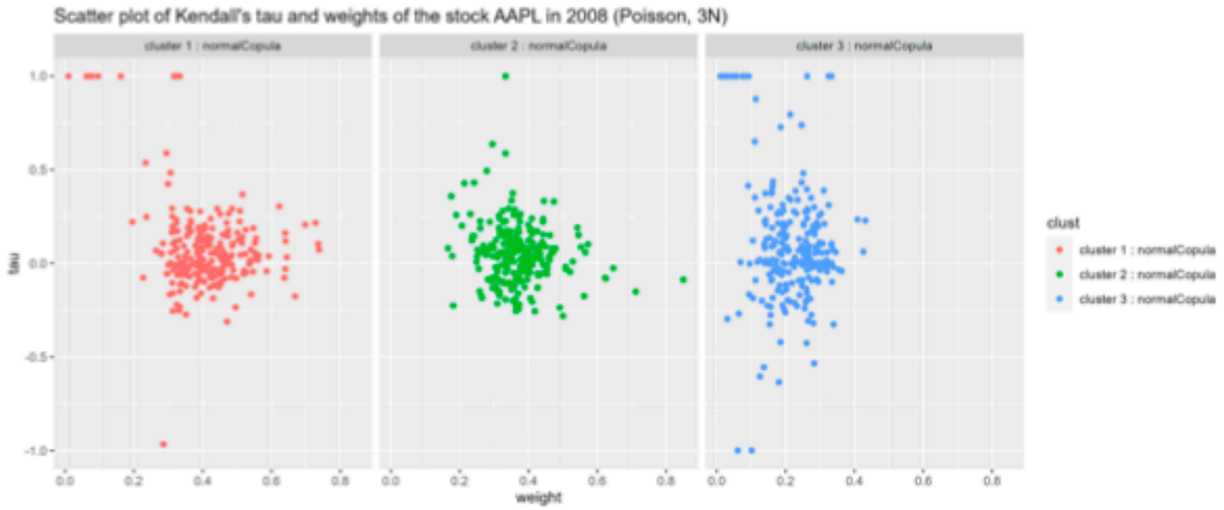
(a) Poisson marginal



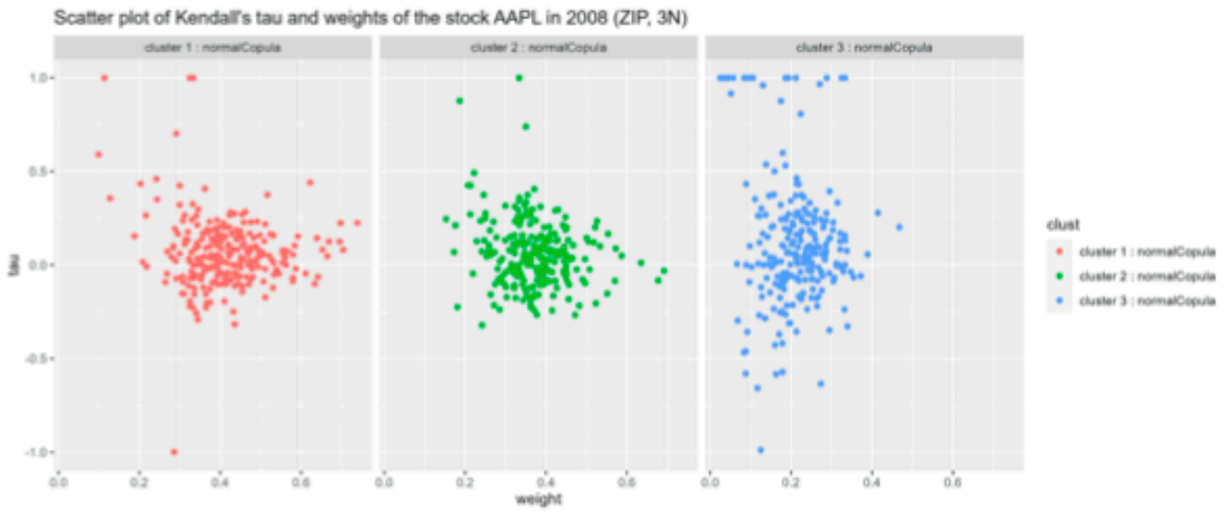
(b) Zero-inflated Poisson marginal

Figure 12: Poisson rate of the AAPL stock in 2008 (3 normal). All lines connect 3 points of the fit in one day.

Time series for more insights

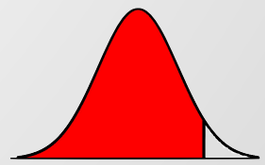


(a) Poisson marginal



(b) Zero-inflated Poisson marginal

Figure 13: Scatter plot of the Kendall's tau and the weights of the AAPL stock in 2008 (3 normal). 3 clusters have a similar copula structure.



Concerns

- Why clustering are considered in the estimation
- Three cases vs # clustering in the estimation
- Can three states can be used in estimation
- Elaborations on the applicatiblity of the PIN model
  - Probability of no trades
  - Boosting the average number of trades