

# Socially Connected Holding and Stock Return

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March 20, 2018

# Motivation

- 1 Jagolinzer, Alan D., et al. "Political connections and the informativeness of insider trades." (2017).
  - \* Political connection and informational advantage
- 2 Cohen et al (JPE 2008)
  - \* Concentrated allocation towards socially connected firms

# The Missing Piece

- 1 Cohen et al (JPE 2008)
  - \* Constructed aggregate connected portfolio outperform !
  - \* No firm-level evidence
  - \* No changes in connected holdings
- 2 This paper
  - \* Constructed aggregate connected portfolio outperform ?
  - \* Firm -level evidence
  - \* Changes in connected holding (aka connected trading)

# Database

\* Sample Period: Jan 2006 - Dec 2016

- 1 CRSP Survivorship Bias Free Mutual Fund Database
- 2 Thomson Reuters CDA/Spectrum S12 Database
- 3 Morningstar Direct
- 4 BoardEx

# Data Processing

- 1 CRSP + Thomson Reuters → CRSP/Thomson Reuters combined
- 2 Morningstar + CRSP → Mutual fund managers education
  - \* Standardize names
  - \* Complications such as : Sir. Douglass A. Rao Jr., CPA
- 3 BoardEx + Thomson Reuters → Holding firms' directors' education
- 4 Match academic institutions' names
  - \* Standardize school names
  - \* Complications such as : U.C.L.A, Univ. of Cal LA, Univ. of California L.A
  - \* Fuzzy match using machine learning tools (KNN)

# Summary Statistics

Panel A: Time Series

VARIABLES	(1) mean	(2) median	(3) min	(4) max	(5) sd
Number of funds per year	635.9	658	446	892	137.1
Number of portfolio managers per year	513.4	536	358	711	107.5
Number of firms per year	5,387	5,442	4,649	6,156	460.2
Number of directors per year	15,401	15,534	13,240	17,222	1,345
Number of schools per year	257.2	258	206	326	34.20

Panel B: Pooled Firm-year and Fund-year

VARIABLES	(1) mean	(2) median	(3) min	(4) max	(5) sd
Number of academic institutions per firm	32.8	23	1	140	29.2
Number of directors per school	1,047	452	0	6,144	1,439
Number of schools per fund	2.4	2	1	6	1.15
Number of portfolio managers per school	14.8	7	1	63	17.3
Number of directors per fund	31.4	9	0	627	70.5

# Summary Statistics

	2006 -2016	1990-2006	Average Number of Firms	Average Percentage of CRSP Firms
1	Harvard University	Harvard University	894	0.13
2	University of Pennsylvania	Stanford University	698	0.10
3	Columbia University	University of Pennsylvania	582	0.08
4	University of Chicago	Columbia University	540	0.08
5	Stanford University	University of Chicago	496	0.07

	2006 -2016	1990-2006	Average Number of Managers	Average Percentage of Managers
1	Harvard University	Harvard University	129	0.14
2	Columbia University	University of Pennsylvania	93	0.10
3	University of Pennsylvania	Columbia University	92	0.10
4	University of Chicago	University of Chicago	89	0.10
5	New York University	New York University	88	0.10

# Infinite Relational Model (IRM)

$$\pi | \alpha \sim CRP(\alpha) \quad (1)$$

$$\lambda_{pq} | \gamma \sim Beta(\gamma, \gamma) \quad \forall p, q \in range(\pi) \quad (2)$$

$$e_{uv} | \pi, \lambda_{\pi(u)\pi(v)} \sim Bernoulli(\lambda_{\pi(u)\pi(v)}) \quad \forall u, v \in V \quad (3)$$



# Summary

- 1 An Example of Learning Structures: INMF;
- 2 An Example of Learning from Contents: HP+GP+IRM;
- 3 Proposal for the Thesis: Sparse Approximate Learning of Multivariate Generalized Hawkes Processes.

**Thank You!**