

Does Social Interaction Spread Fear among Institutional Investors? Evidence from COVID-19

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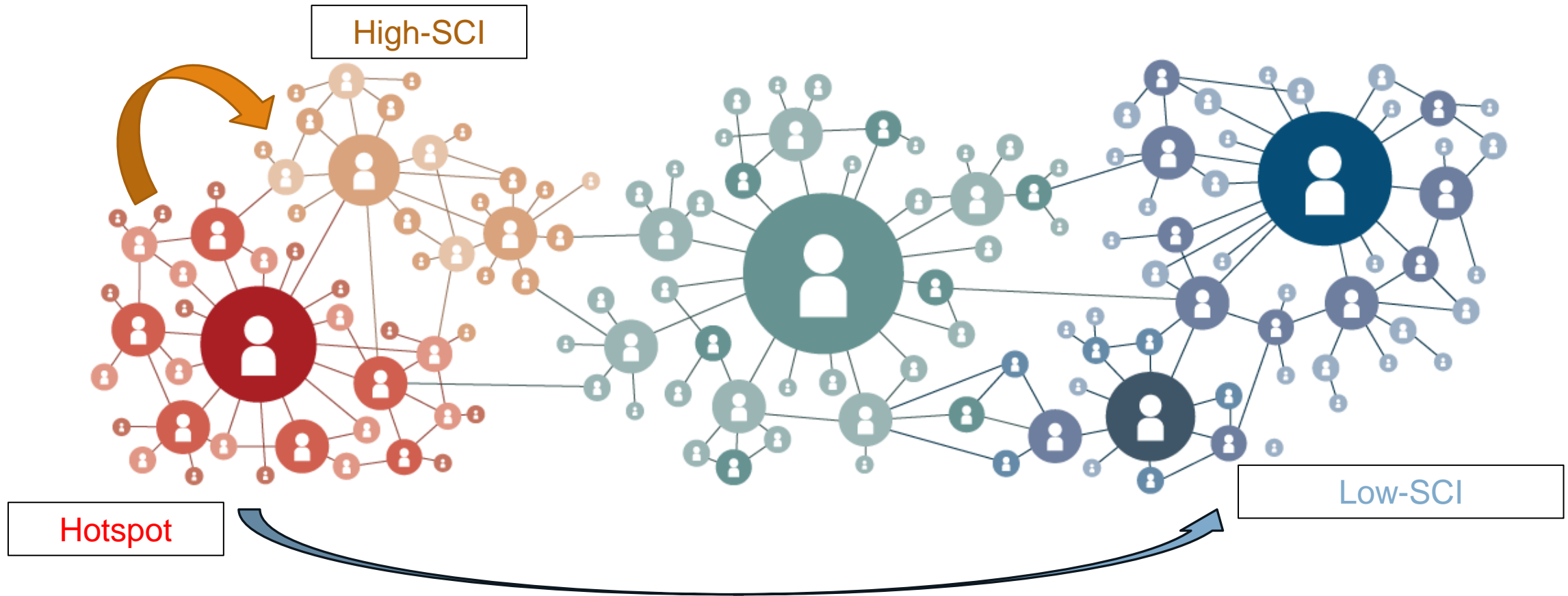
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Social Connectedness & Portfolio Selection

- Hirshleifer (2020): AFA Presidential Address
- **Institutional** investors acquire an investment edge from interacting with corporate executives / board members (**Positive**)
 - Cohen, Malloy & Frazzini (2008), Bernile, Kumar & Sulaeman (2015), Hong & Xu (2019)
- **Institutional** investors who are socially connected to the firms they invest in do not earn superior returns (**Neutral**)
 - Pool, Stoffman & Yonker (2012), Kuchler, Li, Peng, Stroebel & Zhou (2020)
- Social interactions aggravate behavioral biases for **retail** investors with respect to lottery stocks (**Negative**)
 - Bali, Hirshleifer, Peng & Tang (2019)
- **Research question:** How did social connections affect institutional trading and performance during the pandemic period?

Social Connection to COVID Hotspots



- We define COVID **hotspot** counties as of end of Q1 2020.
- Use Facebook social connectedness index (**SCI**) to measure social connection to hotspots

Hypotheses

- H1: Portfolio managers in COVID-19 hotspot counties reduce stock holdings.
 - Model of Saliency Theory. (Bordalo et al., 2012)
- H2: Portfolio managers in counties socially connected to COVID-19 hotspots reduce stock holdings.
 - Both theoretical model and empirical evidence suggest that social connections lead to similar trading behaviors between locations. (Duffie et al., 2009; Andrei and Cujean, 2017)

Hypotheses

- H3a: *salience hypothesis*
 - *Fund managers located in or socially connected to the hotspots, especially those with low skills, underperform their peers during the pandemic period.*
- H3b: *smart connection hypothesis*
 - *Fund managers located in or socially connected to the hotspots, especially those with high skills, outperform (or underperform less) relative to their peers during the pandemic period.*

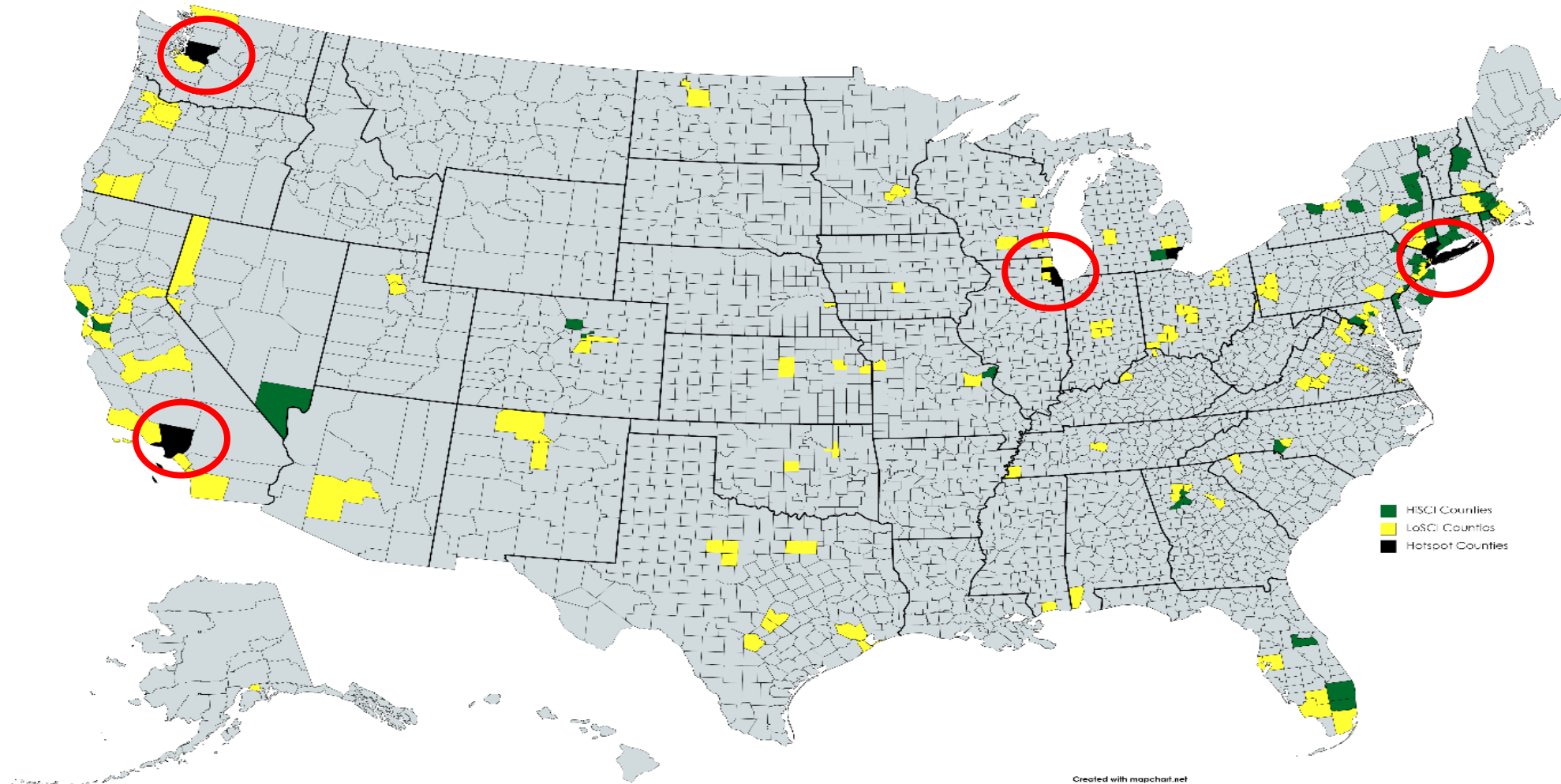
Main Findings

- During the COVID outbreak, both being in the **hotspot** itself and being **socially connected** to these hotspots intensified institutional stock selling. (H1 and H2)
- The effect of social connections to COVID hotspots on fund manager behavior depended on manager skill.
 - **Low-skill** managers located in or socially connected to COVID hotspots underperformed the unconnected managers (H3a)
 - **High-skill** managers socially connected to COVID hotspots (H3b)
 - Outperform low-skill socially connected managers
 - And perform equivalently to or better than **unconnected** managers

Data

Data

- Institutional holdings data from CRSP Mutual Fund
 - Remove funds outside of US, less than 10% stock holdings, index funds, reporting semi-annually, holding less than 5 equities. (Similar to Hong, Kubik & Stein (2005))
- COVID19 hotspot data
 - New York Times county-level data
- Social Connection Data
 - Facebook Social Connectedness Index (SCI)



Hotspot – Hotspot Counties (Red Circle): Criteria: cumulative cases ≥ 2000 by the end of March, 2020.

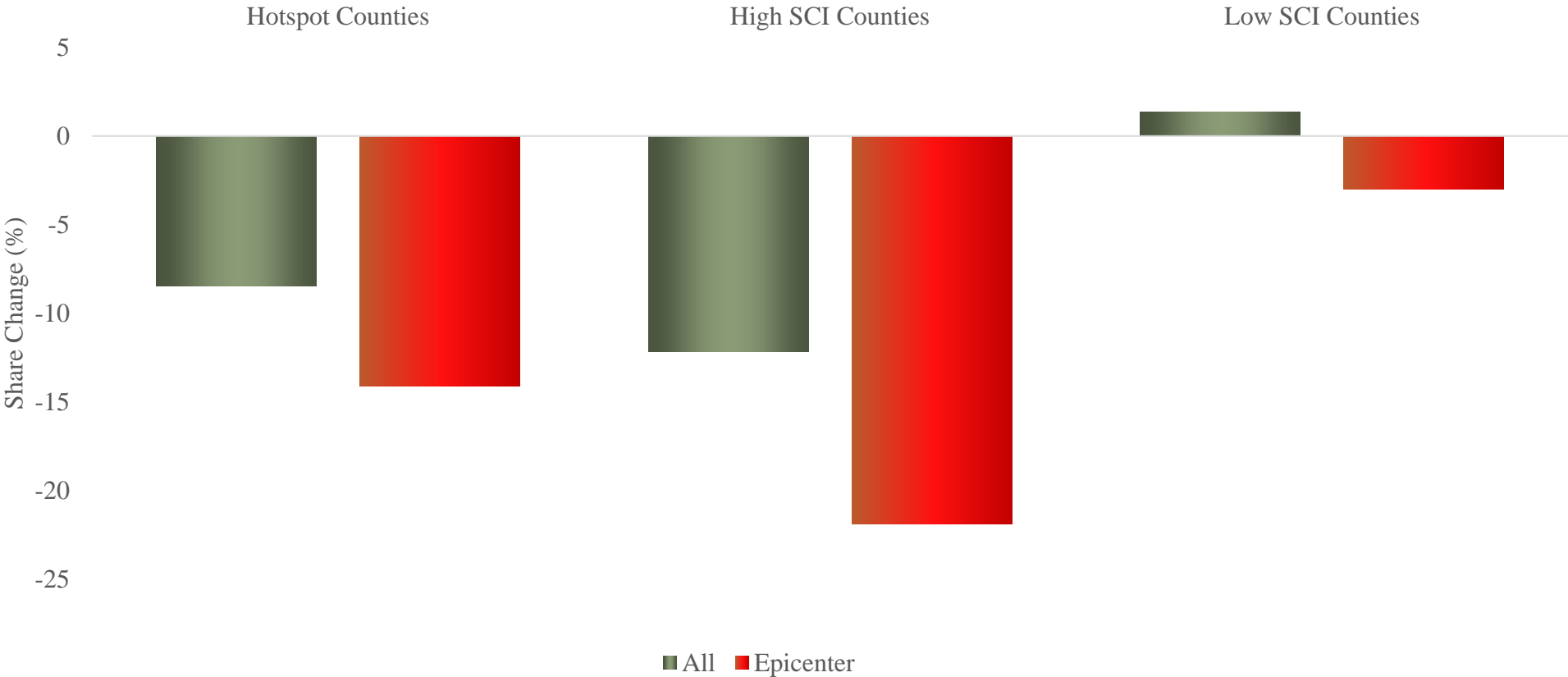
HiSCI – High Socially Connected Counties

LoSCI – Low Socially Connected Counties

Based on Facebook Social Connectedness Index.

Results

Results: Share Change % - Univariate Analysis



Social Connectedness & Institutional Selling, Q1 2020

$$\Delta H_{i,j,q} = \alpha + \beta_1 \text{Hotspot} + \beta_2 \text{Hotspot} \times \text{COVID} + \gamma_1 \text{HiSCI} + \gamma_2 \text{HiSCI} \times \text{COVID}$$

$$+ \theta_1 \text{GEO} + \theta_2 \text{GEO} \times \text{COVID} + \vartheta_i + \pi_j + \tau_q + \delta_{j,Ind} + \varepsilon_{i,j,q}, \quad (1)$$

	(1)	(2)	(3)	(4)	(5)	(6)
	Share Change (%)	Share Change (%)	Share Change (%)	Share Change (%)	Share Change (%)	Share Change (%)
<i>Hotspot</i>	-1.040 (-0.92)	-1.334 (-1.12)	1.184 (1.14)	0.972 (0.91)		
<i>Hotspot</i> × <i>COVID</i>	-8.778*** (-3.44)	-10.104*** (-3.95)	-9.214*** (-4.13)	-8.818*** (-4.00)	-9.152*** (-4.49)	-8.859*** (-4.41)
<i>HiSCI</i>	-0.029 (-0.03)	0.284 (0.28)	-0.907 (-1.12)	-1.245 (-1.51)		
<i>HiSCI</i> × <i>COVID</i>	-13.522*** (-4.23)	-12.079*** (-4.01)	-10.368*** (-3.78)	-10.010*** (-3.66)	-12.092*** (-4.25)	-11.982*** (-4.26)
<i>GEO</i>		-1.596 (-1.59)	0.293 (0.35)	0.034 (0.04)		
<i>GEO</i> × <i>COVID</i>		-6.943* (-1.72)	-5.503 (-1.45)	-5.177 (-1.37)	-5.780 (-1.50)	-5.468 (-1.42)
<i>COVID</i>	1.492 (0.85)	2.819 (1.60)	3.277* (1.89)		2.491 (1.54)	
Observations	5,023,657	5,023,657	4,876,486	4,876,295	4,836,605	4,836,418
Adjusted R ²	0.001	0.001	0.037	0.050	0.059	0.074
Controls	No	No	Yes	Yes	Yes	Yes
Firm FE	No	No	No	Yes	No	Yes
Fund FE	No	No	No	No	Yes	Yes
Quarter FE	No	No	No	Yes	No	Yes
Fund × Industry FE	No	No	No	No	Yes	Yes

- During the COVID outbreak, both being in the hotspot itself and being socially connected to these hotspots intensified institutional stock selling.

Social Connectedness Institutional Selling, Epicenter Stocks

	(1) <i>Share Change %</i>	(2) <i>Share Change %</i>	(3) <i>Share Change %</i>	(4) <i>Share Change %</i>
<i>Hotspot</i>	1.492 (1.52)		1.865** (2.00)	
<i>Hotspot</i> × <i>COVID</i>	-8.909*** (-4.04)	-8.965*** (-4.52)	-8.714*** (-4.17)	-8.601*** (-4.56)
<i>Hotspot</i> × <i>COVID</i> × <i>Epic</i>	-0.334 (-0.17)	-0.695 (-0.34)	-0.778 (-0.72)	-1.438 (-1.32)
<i>HiSCI</i>	-0.752 (-0.98)		-0.407 (-0.55)	
<i>HiSCI</i> × <i>COVID</i>	-10.155*** (-3.60)	-11.870*** (-4.09)	-9.815*** (-3.52)	-11.164*** (-3.91)
<i>HiSCI</i> × <i>COVID</i> × <i>Epic</i>	-4.988*** (-2.94)	-6.047*** (-3.37)	-2.585** (-2.31)	-3.959*** (-3.20)
<i>GEO</i>	0.389 (0.48)		0.526 (0.68)	
<i>GEO</i> × <i>COVID</i>	-4.911 (-1.23)	-5.022 (-1.26)	-4.750 (-1.18)	-4.897 (-1.23)
<i>GEO</i> × <i>COVID</i> × <i>Epic</i>	-2.722 (-1.61)	-3.353* (-1.91)	-1.267 (-1.16)	-1.423 (-1.22)
<i>Epic</i>	-0.067 (-0.20)		0.813*** (2.83)	
<i>COVID</i>	3.402** (1.99)		3.818** (2.36)	
Observations	4,437,292	4,397,707	4,437,292	4,397,707
Adjusted R ²	0.038	0.076	0.038	0.076
Other <i>Epic</i> Interactions	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Firm FE	No	Yes	No	Yes
Fund FE	No	Yes	No	Yes
Quarter FE	No	Yes	No	Yes
Fund × Industry FE	No	Yes	No	Yes
<i>Epic</i> Industry	Lowest 10 EW	Lowest 10 EW	Lowest 24 EW	Lowest 24 EW

Social Connectedness & Fund Performance, Q2 2020

- “Smart Connection” Hypothesis vs “Fear Driven” Hypothesis

	(1) $VRet_{q+1}$	(2) $VRet_{q+1}$
<i>Hotspot</i>	0.111 (1.70)	0.081 (1.39)
<i>Hotspot</i> × <i>COVID</i>	-0.155** (-2.56)	-0.136* (-2.02)
<i>HiSCI</i>	0.217** (2.63)	0.140* (1.91)
<i>HiSCI</i> × <i>COVID</i>	-0.352*** (-10.65)	-0.308*** (-4.60)
<i>GEO</i>	0.003 (0.03)	0.072 (0.57)
<i>GEO</i> × <i>COVID</i>	-0.475*** (-8.66)	-0.399*** (-3.36)
Observations	53,458	49,723
Adjusted R ²	0.794	0.801
Controls	Yes	Yes
Fund Style × Quarter Fixed Effect	Yes	Yes

Measuring Manager Skill

- **CAPM alpha:** average excess return, calculated over a 5-year rolling window by regressing fund returns on the market factor
- **Carhart-4 alpha:** average excess return, calculated over a 5-year rolling window by regressing fund returns on Carhart (1997) 4 factors
- **BB2015:** Berk and van Binsbergen (2015) value added metric
 - Value added: $AUM \times (Fund\ Return + Management\ Fee)_{t-1}$
 - We *t*-test each fund's value added over the pre-sample period (from 2010 to month *t*-1)
- *Perform* = 1 if skill metric is in top 30%

Fund Future Return, Conditioning on Manager Skill

Skill Measure $\{Perf\}$	<i>Perf_CAPM</i>		<i>Perf_Car4</i>		<i>Perf_BB</i>	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Hotspot</i>	0.028 (0.52)	0.016 (0.30)	0.068 (1.28)	0.056 (1.04)	0.102 (1.39)	0.087 (1.31)
<i>Hotspot</i> × <i>COVID</i>	-0.116 (-1.66)	-0.361*** (-8.06)	-0.186*** (-2.95)	-0.391*** (-7.12)	-0.598*** (-8.87)	-0.558*** (-8.06)
<i>Hotspot</i> × <i>COVID</i> × $\{Perf\}$	0.332* (2.07)	0.250 (1.41)	0.621*** (4.42)	0.634*** (4.06)	1.392*** (10.06)	1.344*** (10.25)
<i>HiSCI</i>	0.057 (0.60)	0.066 (0.80)	0.064 (0.73)	0.053 (0.69)	0.224** (2.13)	0.151 (1.62)
<i>HiSCI</i> × <i>COVID</i>	-0.088 (-0.53)	-0.665*** (-6.84)	-0.032 (-0.23)	-0.498*** (-5.76)	-0.636*** (-10.41)	-0.542*** (-6.11)
<i>HiSCI</i> × <i>COVID</i> × $\{Perf\}$	0.354* (1.97)	0.833*** (7.87)	0.297* (1.83)	0.719*** (5.63)	0.843*** (6.23)	0.690*** (5.25)
<i>GEO</i>	0.098 (0.49)	0.110 (0.56)	0.094 (0.43)	0.130 (0.58)	0.015 (0.09)	0.081 (0.47)
<i>GEO</i> × <i>COVID</i>	-0.165 (-1.27)	-0.300 (-1.44)	-0.277 (-1.46)	-0.726*** (-3.15)	-0.584*** (-5.25)	-0.476*** (-2.95)
<i>GEO</i> × <i>COVID</i> × $\{Perf\}$	-0.335 (-1.41)	-0.757*** (-3.48)	0.038 (0.15)	0.565** (2.28)	0.308** (2.16)	0.207 (1.14)
$\{Perf\}$	0.698 (1.35)	0.653 (1.12)	0.378 (1.49)	0.376 (1.24)	0.156 (1.24)	0.077 (0.54)
<i>COVID</i> × $\{Perf\}$	1.045*** (3.00)	1.552** (2.91)	0.243 (1.36)	0.043 (0.17)	-0.768*** (-12.45)	-0.630*** (-6.91)

Conclusion

- Fund managers socially connected to COVID-19 hotspots sold more stocks
- This behavior was partly **saliency**-based and resulted in worse trading performance
 - Unskilled fund managers socially connected to hotspots underperformed unconnected managers
 - Skilled fund managers are able to ignore the saliency bias
- Implications
 - Extend literature on how fund managers use informal networks to gather information
 - It pays policy makers to design social network tools to help stabilize financial markets