# Do institutional investors stabilize equity markets in crisis periods? Evidence from COVID-19

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# Background and research question

| Institutional investors own around 75% of US public equities. |
|---|

**Institutional ownership (IO) is usually considered good for firms…**

For instance, IO increases price efficiency (Boehmer and Kelley, 2009; Bai et al., 2016), facilitates the incorporation of fundamental news into prices (Campbell et al., 2009; Hendershott et al., 2015), and improve corporate governance (Shleifer and Vishny, 1986; Dasgupta et al., 2021).

**…but what is the effect of IO in crisis periods?**

Typical assumption in corporate finance:
- Marginal investors looking at the company are well-diversified investors.
- As such, we can discount the firm's cash flows based on its systematic risks.

**Does this assumption hold also when a tail-risk event occurs, that is, exactly when the fate of many corporations is most at stake?**

# What is the role of IO in crisis periods?

**Mixed evidence so far:**

- Chen et al. (2019): Around the 9/11 terrorist attacks, institutional investors lent a "steady hand."

- But institutional investors could all enter the same trades at the same time and create fire-sales externalities (Stein, 2009; Coval and Stafford, 2007; Shleifer and Vishny, 2011; Greenwood and Thesmar, 2011; Ben-David et al., 2021).

- Most contributions on institutional fire sales based on the Global Financial Crisis (GFC), generated and triggered from within the financial system.

**This paper**:
Use the exogenous nature of COVID-19 (no pre-positioning of investors) to study the effects of institutional ownership when a disaster strikes.

# Preview of the results

**1. How pre-crisis IO affected firms' stock returns during the COVID-19 crash?**

➢ <u>Firms with higher IO performed worse</u>. Two channels of institutional fire sales: redemption risks + rush for more financially-resilient firms (high cash and low leverage).

**2. How did institutional investors change their portfolios in 2020-Q1?**

➢ <u>Institutional investors</u> (except hedge funds) prioritized financially-resilient companies.
➢ <u>Retail investors</u> (1-IO; Robinhood) acted as liquidity providers to financially-fragile firms.

**3. Did institutions reverse their trading behavior in 2020-Q2?**

➢ Institutional investors did not reverse their trades despite the FED interventions and market rally.

# Outline of the presentation

– **Data**

– **1. Stock prices and institutional ownership**

   o   Main effects of institutional ownership

   o   Evidence on fire sales

– **2. Changes in institutional ownership**

   o   What explains institutional ownership changes?

   o   Change in IO vs change in retail investor popularity

– **3. Did institutions reverse their trading in Q2-2020?**

– **Conclusion**

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- **Conclusion**

# Data

**Sample:** Russell 3,000 non-financial firms

**Compustat:**

- *Return in Fever (Feb24-Mar20),* as in Ramelli and Wagner (RCFS, 2020)
- *Cash/assets*, *Leverage*, *Book/market*, *Stock illiquidity*, etc.

**FactSet:** Institutional ownership data (2018-Q4 through 2020-Q2)

- $IO_{2019\text{-}Q4}$ , $\Delta\, IO_{2020\text{-}Q1}$
- Heterogeneity: *PassiveIO*, *Long-termIO*, *ForeignIO, etc.*

**IBES:** Analysts' earnings forecast revisions in Fever

**Robinhood:** Retail investor interest

- *%$\Delta$ log(RHusers) 2020-Q1*

**ES(G) scores:**

- *ES (msci)*, *ES (asset4)*

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– **Conclusion**

# 1. Stock prices and institutional ownership
## Main effects of IO

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| | Dependent variable: Return in Fever (Feb24-Mar20, 2020) | | | | |
| $IO_{2019Q4}$ | -0.069*** | -0.056** | -0.104*** | -0.249*** | -0.076*** |
| | (-2.92) | (-1.97) | (-3.68) | (-4.68) | (-3.22) |
| $PassiveIO_{2019Q4}$ | | | 0.169** | | |
| | | | (2.55) | | |
| $Long\text{-}termIO_{2019Q4}$ | | | | 0.228*** | |
| | | | | (4.15) | |
| $ForeignIO_{2019Q4}$ | | | | | 0.083*** |
| | | | | | (2.82) |
| Leverage | -0.105*** | -0.135*** | -0.100*** | -0.094*** | -0.108*** |
| | (-4.67) | (-5.47) | (-4.43) | (-4.17) | (-4.84) |
| Cash/assets | 0.086*** | 0.146*** | 0.095*** | 0.108*** | 0.087*** |
| | (3.55) | (5.11) | (3.90) | (4.43) | (3.60) |
| ES score (msci) | | 0.801** | | | |
| | | (2.18) | | | |
| Market beta | -6.505*** | -8.368*** | -6.531*** | -6.549*** | -6.459*** |
| | (-6.06) | (-6.57) | (-6.09) | (-6.13) | (-6.02) |
| Stock illiquidity | 0.665*** | 0.448 | 0.753*** | 0.651*** | 0.659*** |
| | (2.80) | (0.91) | (3.15) | (2.78) | (2.77) |
| log(Market cap) | 1.313*** | 0.933*** | 1.321*** | 0.918*** | 1.135*** |
| | (4.55) | (3.06) | (4.58) | (2.88) | (3.74) |
| Profitability | 0.193* | 0.355** | 0.188* | 0.196* | 0.197* |
| | (1.72) | (2.23) | (1.68) | (1.76) | (1.76) |
| Book-to-market | 0.364 | 0.460 | 0.374 | 0.574 | 0.248 |
| | (0.44) | (0.44) | (0.45) | (0.69) | (0.29) |
| Constant | -35.131*** | -34.235*** | -36.351*** | -33.214*** | -33.914*** |
| | (-9.10) | (-7.56) | (-9.41) | (-8.37) | (-8.61) |
| Observations | 2,234 | 1,649 | 2,234 | 2,234 | 2,234 |
| R-squared | 0.233 | 0.318 | 0.235 | 0.241 | 0.237 |
| Industry FE | Yes | Yes | Yes | Yes | Yes |

Stocks with higher levels of IO performed significantly worse in the "Fever" period:

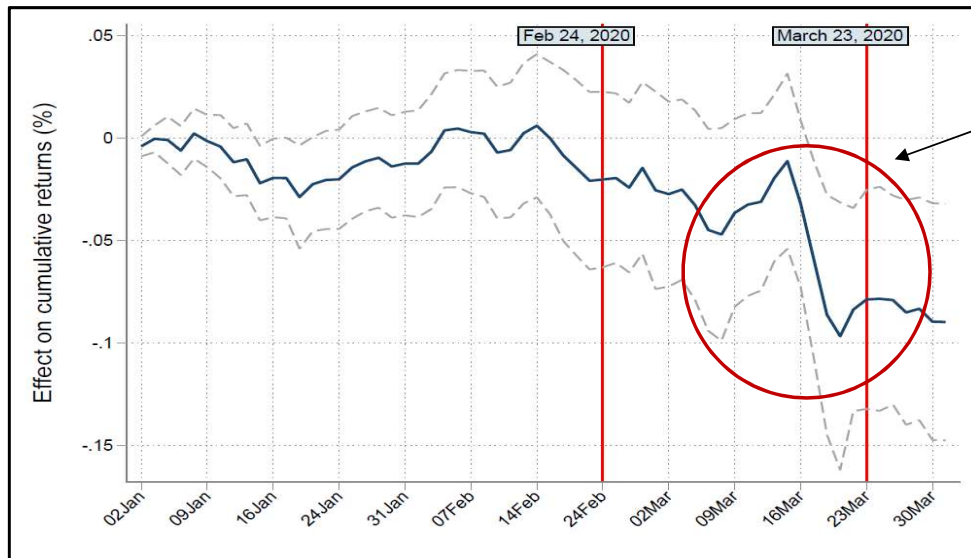➢ ↑ 1-SD IO → ↓ 7.5% of SD of returns in Fever

Negative effect stronger for:
-- More active IO
-- Shorter-term IO
-- More domestic IO

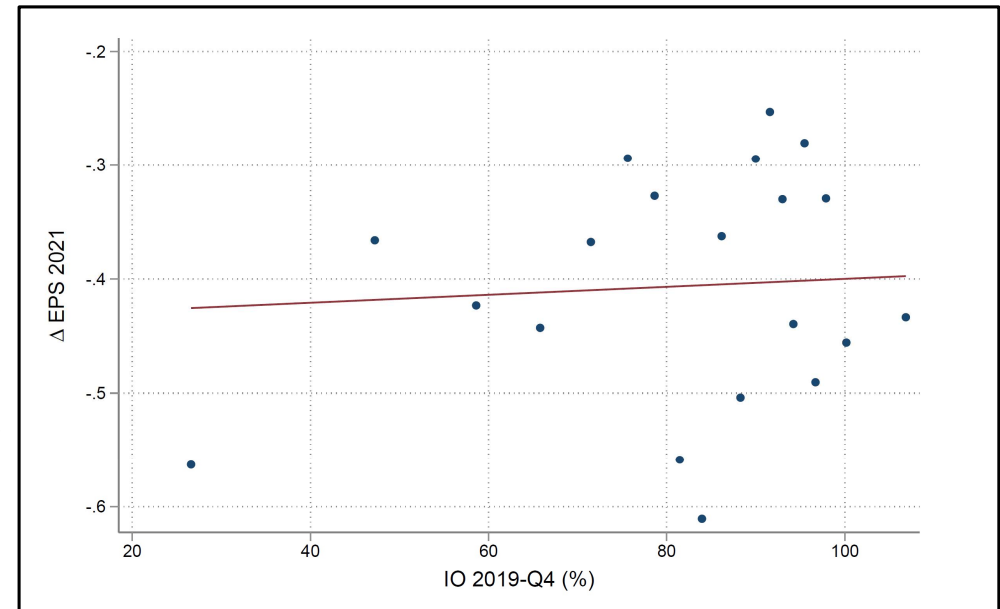# 1. Stock prices and institutional ownership
## Main effects of IO

Stock prices and institutional ownership



Effect of IO concentrated in the Fever period (especially toward its end, when markets declined dramatically).

IO and revisions of EPS forecasts



- Important: IO uncorrelated with analysts' earnings forecasts revisions in Fever.
- Results on IO hold even controlling for these forecast revisions.
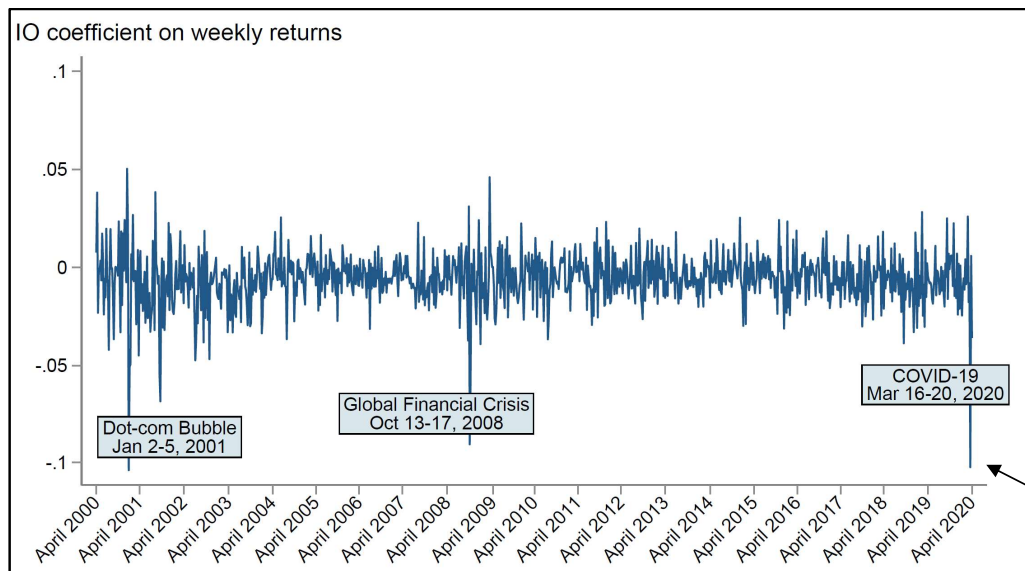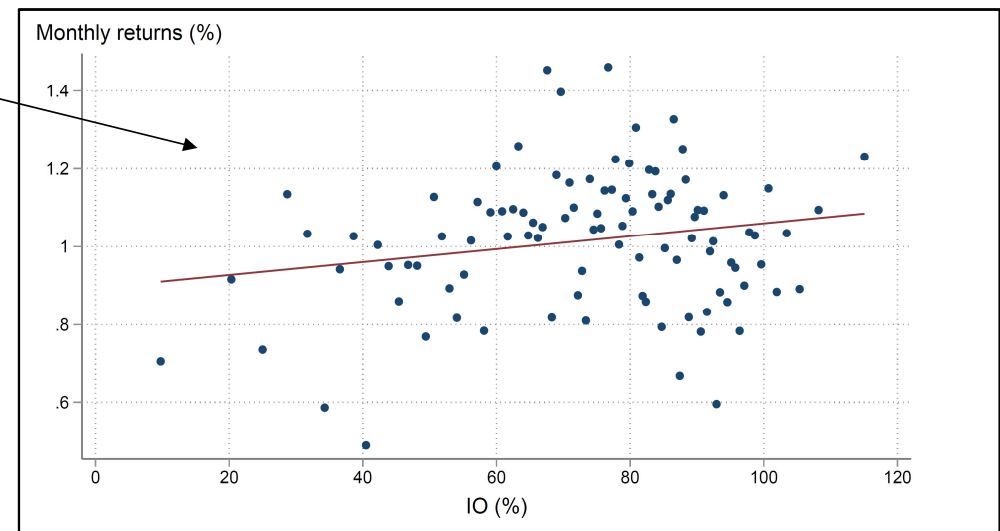
# 1. Stock prices and institutional ownership
## How special is the effect of IO during COVID-19 in historical terms?

On average, the "historical" relation between IO and returns is <u>positive</u>. In line with the literature (Gompers and Metrick, 2001, Yan and Zhang, 2009).

IO and Stock Returns, Apr2000-Dec2019





Historical Evolution of IO Coefficient (2000-2020)

Before COVID-19, IO had such a strong negative effect only in two other instances: in January 2001 (Dot-com bubble) and in October 2008 (GFC).

# 1. Stock prices and institutional ownership
## Channels

**Two drivers of fire sales**

Increase in redemption risks, urging institutions to sell.

Portfolio re-balancing towards financially-resilient firms.

**Proxies of IO redemption risks**:
LowFlowsInGFC IO
LowFlowsIn2020Q1 IO

**Proxies of IO risk exposure**:
HighLeverage IO
LowCash IO

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | Dependent variable: Return in Fever (Feb24-Mar20, 2020) | | | | | |
| $IO_{2019Q4}$ | -0.049** | -0.041 | -0.045 | -0.057** | -0.063** | -0.076*** |
| | (-2.11) | (-1.64) | (-1.60) | (-2.01) | (-2.58) | (-3.06) |
| LowFlowsInGFC $IO_{2019Q4}$ | -0.184*** | | | | | |
| | (-3.09) | | | | | |
| LowFlowsIn2020Q1 $IO_{2019Q4}$ | | -0.195*** | | | | |
| | | (-2.98) | | | | |
| HighLeverage $IO_{2019Q4}$ | | | -0.045 | 0.109** | | |
| | | | (-1.42) | (2.07) | | |
| HighLeverage $IO_{2019Q4}$ × Leverage | | | | -0.004*** | | |
| | | | | (-3.15) | | |
| LowCash $IO_{2019Q4}$ | | | | | -0.029 | -0.096** |
| | | | | | (-0.79) | (-2.30) |
| LowCash $IO_{2019Q4}$ × Cash/assets | | | | | | 0.009*** |
| | | | | | | (4.14) |
| Leverage | -0.099*** | -0.101*** | -0.098*** | 0.110 | -0.103*** | -0.101*** |
| | (-4.39) | (-4.53) | (-4.21) | (1.43) | (-4.56) | (-4.46) |
| Cash/assets | 0.091*** | 0.088*** | 0.082*** | 0.096*** | 0.081*** | -0.010 |
| | (3.76) | (3.66) | (3.35) | (3.93) | (3.23) | (-0.28) |
| Observations | 2,227 | 2,221 | 2,227 | 2,227 | 2,227 | 2,227 |
| R-squared | 0.236 | 0.235 | 0.233 | 0.240 | 0.233 | 0.239 |

# Outline of the presentation

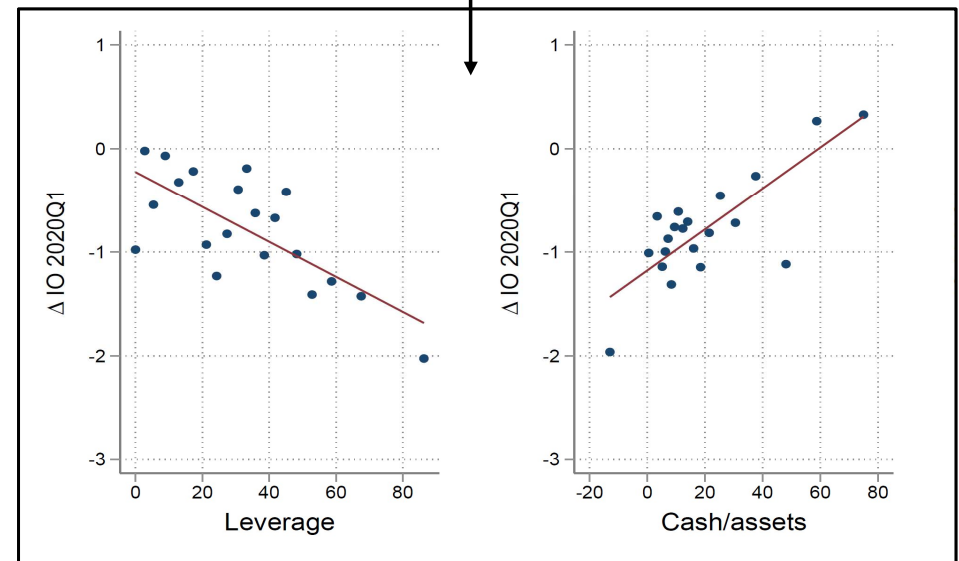# 2. Changes in institutional ownership
## Changes in IO in 2020-Q1

Highly negative skewed distribution in 2020-Q1: On average, firms experienced a decrease in IO.
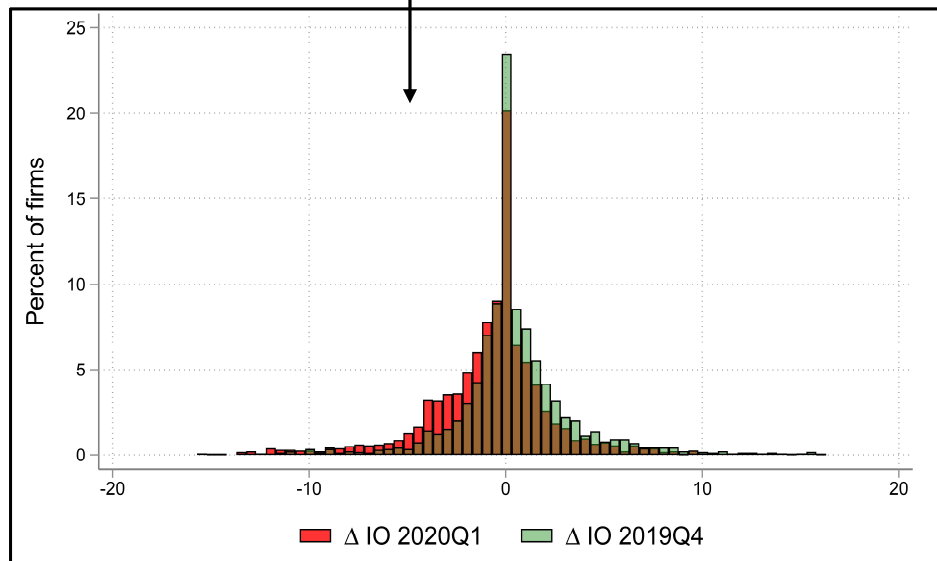
IO prioritized companies with higher <u>financial resilience</u> (low leverage, high cash).

Except hedge funds, which <u>deleveraged indiscriminately</u>.

# 2. Changes in institutional ownership
## Who took the other side of institutional trades?
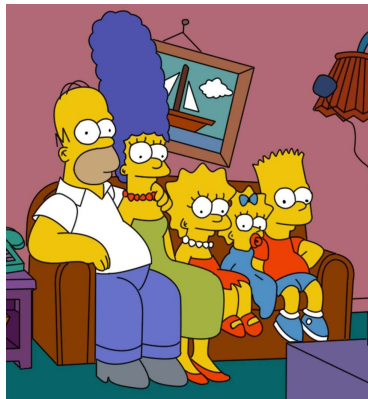
**Individuals as liquidity providers:**

➤ Changes in retail investor popularity correlate negatively with changes in IO.
➤ Retail investors bought high-leverage and low-cash firms (exactly those shunned by institutional investors).

2020-Q1 change in retail investor popularity vs 2020-Q1 change in institutional ownership
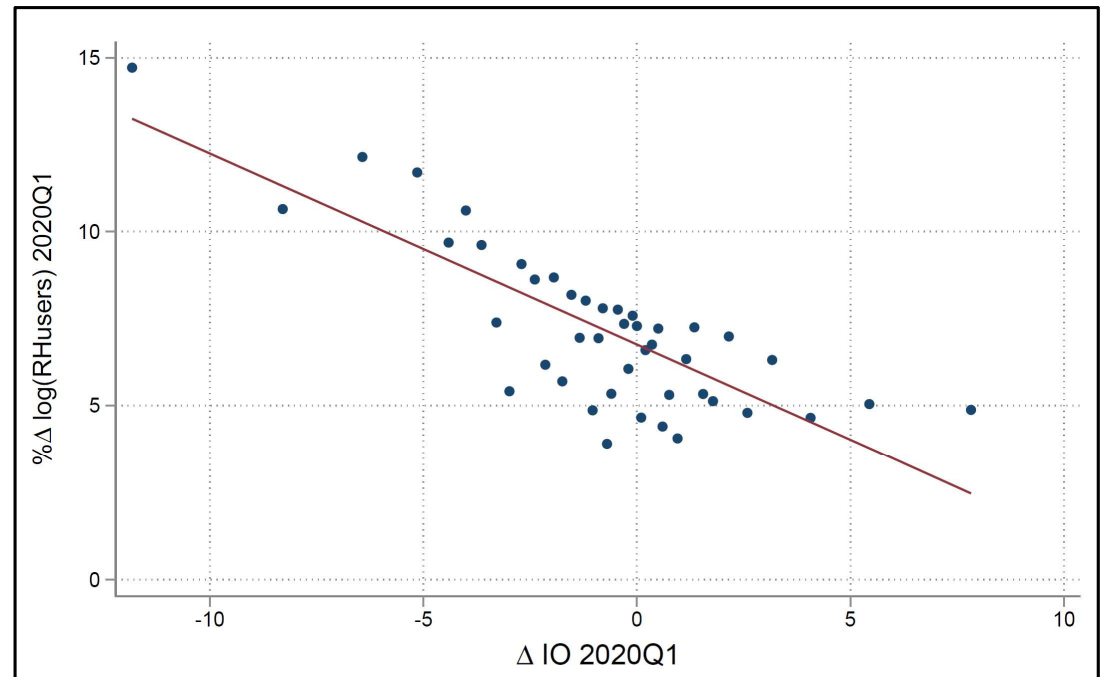
# Outline of the presentation

# 3. Did investors reverse their trading in Q2-2020?

## Panel A: Q2-2020 vs Q1-2020 Changes in IO
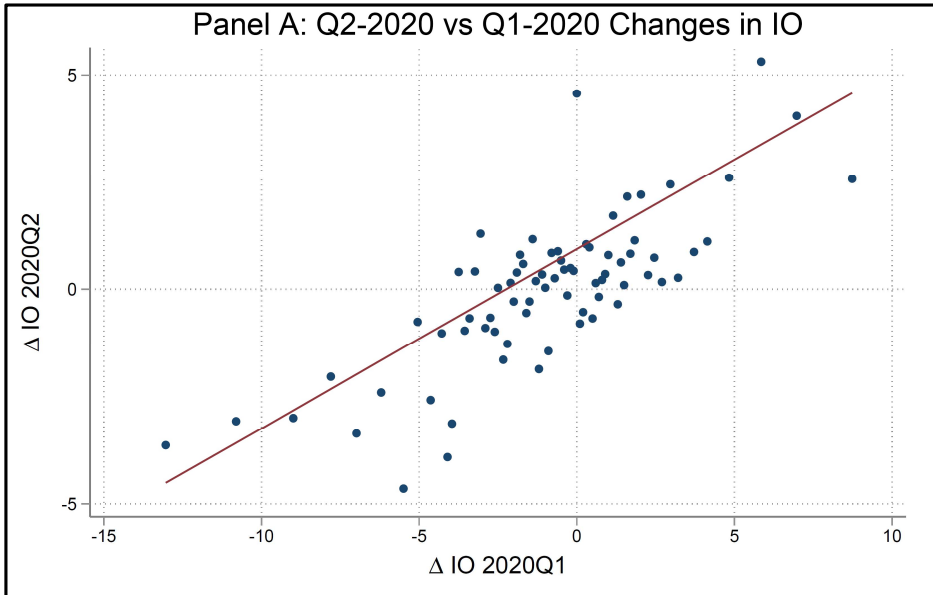


No reversal in institutional trades in 2020-Q2
→ Institutional investors kept tilting their portfolios toward financially-resilient firms.

## Panel B: Q2-2020 Stock-Price Effect of -Δ IO Q1-2020



Firms that saw a larger decline in IO during 2020-Q1 experienced some stock-price reversal during 2020-Q2. Reversal seemingly driven by Fed's interventions (not institutional trading).
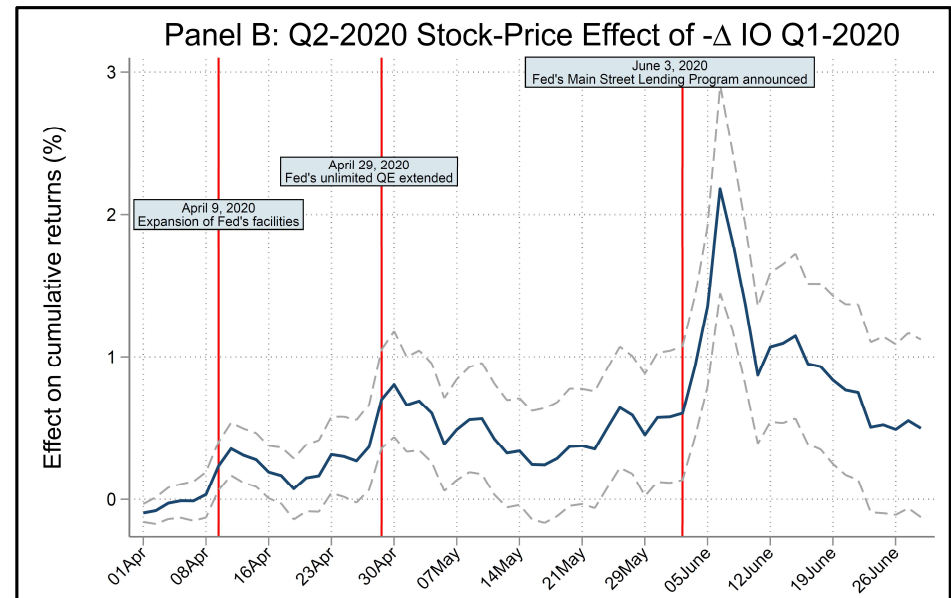
# Conclusion

## Do institutional investors stabilize equity markets in crisis periods?

Evidence from COVID-19 suggests: **No.**

- IO significantly amplified stock-price drops during COVID-19 crash. Consistent with evidence on bond markets (E.g., Haddad et al., 2021, Falato et al., 2021).

- Fire sales externalities created by a combination of institutional deleveraging and a run for more financial resilient firms.

## Implications for policy and practice:

- **Policy-makers**: Potentially problematic role of institutional investors (especially short-term ones) for financial stability.

- **Corporate managers and investors**: Even in "normal" times, the riskiness of a company should be assessed by also considering the expected behavior of its marginal investors when disaster strikes.

# Many thanks for your attention!

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# Appendix
## Contribution to the literature

### Role of institutional investors

➤ Institutional investors are sophisticated professional investors that improve price efficiency (Boehmer and Kelley 2009; Hendershott, Livdan, and Schürhoff, 2015).

➤ However, risk of fire sales (Coval and Stafford 2007; Stein 2009; Greenwood and Thesmar 2011). Institutions ceased to be liquidity suppliers during the GFC (Anand et al., 2013).

**Our contribution:** Use the exogenous nature of COVID-19 (no pre-positioning of investors) to provide evidence of institutional fire sales and shed light on their channels.

### Investor reactions to COVID-19 and implications for corporate finance

➤ Many contributions on the corporate finance of COVID-19 (see, e.g, the 2020 RCFS and RAPS special issues).

➤ Role of investors: E.g., Haddad et al. (2021) and Falato et al. (2021) provide evidence of COVID-induced fire sales in bond markets.

**Our contribution:** Identify the role of fire sales in equity markets by analyzing actual portfolio changes of institutional investors, the most important source of firms' access to capital.

# Appendix
## Summary statistics (1/2)

| | N | min | p25 | mean | p50 | p75 | max | sd |
|---|---|---|---|---|---|---|---|---|
| **Institutional and retail investor data** | | | | | | | | |
| $IO_{2019Q4}$ | 2,281 | 1.90 | 69.40 | 79.62 | 86.80 | 96.80 | 100.00 | 21.49 |
| $\Delta$ IO 2020Q1 | 2,236 | -15.70 | -2.00 | -0.79 | -0.20 | 0.60 | 10.10 | 3.21 |
| $\Delta$ IO 2020Q2 | 2,224 | -30.60 | -1.40 | 0.54 | 0.40 | 2.60 | 23.10 | 5.74 |
| $PassiveIO_{2019Q4}$ | 2,281 | 0.78 | 15.48 | 21.26 | 21.60 | 27.54 | 61.60 | 8.37 |
| $Long\text{-}termIO_{2019Q4}$ | 2,281 | 1.38 | 52.49 | 64.23 | 70.27 | 79.63 | 97.30 | 20.19 |
| $ForeignIO_{2019Q4}$ | 2,281 | 0.02 | 3.78 | 10.57 | 7.05 | 12.30 | 100.00 | 14.55 |
| LowFlowsInGFC $IO_{2019Q4}$ | 2,274 | 0.00 | 13.93 | 19.53 | 19.28 | 24.70 | 90.05 | 9.22 |
| LowFlowsIn2020Q1 $IO_{2019Q4}$ | 2,268 | 0.00 | 6.39 | 10.65 | 9.38 | 13.51 | 83.69 | 6.79 |
| HighLeverage $IO_{2019Q4}$ | 2,274 | 0.00 | 43.93 | 54.24 | 57.51 | 66.75 | 97.19 | 17.96 |
| LowCash $IO_{2019Q4}$ | 2,274 | 0.00 | 12.65 | 22.00 | 21.64 | 30.00 | 100.00 | 13.35 |
| IO Hedge $Funds_{2019Q4}$ | 2,281 | 0.05 | 6.29 | 13.59 | 10.30 | 17.78 | 75.35 | 10.38 |
| $\Delta$ IO Hedge Funds 2020Q1 | 2,281 | -22.67 | -1.38 | -0.12 | -0.28 | 0.90 | 31.40 | 3.10 |
| IO ex. Hedge $Funds_{2019Q4}$ | 2,281 | 1.51 | 51.15 | 64.88 | 70.86 | 82.21 | 97.96 | 22.10 |
| $\Delta$ IO ex. Hedge Funds 2020Q1 | 2,281 | -45.21 | -2.06 | -0.53 | -0.10 | 1.52 | 54.77 | 4.56 |
| $RHusers_{2019Q4}$ | 2,257 | 0.00 | 158.00 | 3,525.19 | 453.00 | 1,492 | 321,191 | 17,735.68 |
| $\log(RHusers_{2019Q4})$ | 2,257 | 0.00 | 5.07 | 6.25 | 6.12 | 7.31 | 12.68 | 1.72 |
| $\%\Delta \log(RHusers)$ 2020Q1 | 2,210 | -5.20 | 1.49 | 7.24 | 4.37 | 9.45 | 53.39 | 9.20 |
| $\%\Delta \log(RHusers)$ 2020Q2 | 2,216 | -2.46 | 2.66 | 7.61 | 5.95 | 10.47 | 41.65 | 7.02 |

# Appendix
## Summary statistics (2/2)

| | N | min | p25 | mean | p50 | p75 | max | sd |
|---|---|---|---|---|---|---|---|---|
| **Stock returns, firm characteristics, and analysts' earnings forecast revisions** | | | | | | | | |
| Return in Fever | 2,281 | -88.03 | -50.93 | -39.16 | -38.57 | -27.72 | 209.57 | 19.67 |
| Market beta | 2,282 | -0.87 | 0.82 | 1.15 | 1.13 | 1.47 | 3.56 | 0.50 |
| Stock illiquidity | 2,248 | 0.00 | 0.02 | 0.81 | 0.11 | 0.50 | 14.91 | 2.15 |
| Leverage | 2,269 | 0.00 | 14.68 | 33.08 | 32.57 | 46.77 | 100.00 | 22.66 |
| Cash/assets | 2,275 | 0.00 | 2.59 | 19.84 | 8.61 | 25.84 | 99.74 | 25.00 |
| log(Market cap) | 2,282 | 16.35 | 20.27 | 21.54 | 21.42 | 22.61 | 27.92 | 1.72 |
| Profitability | 2,275 | -32.73 | -1.03 | -1.01 | 0.61 | 1.73 | 9.33 | 6.10 |
| Book-to-market | 2,274 | -6.49 | 0.16 | 0.47 | 0.34 | 0.61 | 22.14 | 0.84 |
| ES score (msci) | 1,670 | 1.30 | 3.70 | 4.62 | 4.60 | 5.50 | 8.55 | 1.25 |
| $\Delta EPS_{2020}$ | 1,900 | -16.52 | -0.48 | -0.48 | -0.06 | 0.00 | 12.87 | 2.01 |
| $\Delta EPS_{2021}$ | 2,061 | -16.91 | -0.43 | -0.41 | -0.04 | 0.00 | 12.11 | 1.88 |
| $\Delta EPS_{2022}$ | 1,562 | -17.11 | -0.48 | -0.44 | -0.03 | 0.00 | 14.58 | 2.21 |

# Appendix
## IO and stock prices, controlling for earnings forecast revisions

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | | Dependent variable: Return in Fever (Feb24-Mar20, 2020) | | |
| $IO_{2019Q4}$ | -0.055** | -0.054** | -0.064** | -0.073** |
| | (-2.31) | (-2.32) | (-2.21) | (-2.39) |
| $\Delta EPS_{2020}$ | 0.843*** | | | 0.023 |
| | (3.31) | | | (0.04) |
| $\Delta EPS_{2021}$ | | 1.225*** | | 1.102* |
| | | (4.42) | | (1.87) |
| $\Delta EPS_{2022}$ | | | 0.975*** | 0.394 |
| | | | (3.22) | (0.92) |
| Leverage | -0.122*** | -0.122*** | -0.090*** | -0.093*** |
| | (-5.23) | (-5.46) | (-3.44) | (-3.29) |
| Cash/assets | 0.041 | 0.066** | 0.069** | 0.033 |
| | (1.48) | (2.48) | (2.33) | (1.02) |
| Observations | 1,879 | 2,031 | 1,536 | 1,336 |
| R-squared | 0.244 | 0.266 | 0.263 | 0.249 |
| Controls | Yes | Yes | Yes | Yes |
| Industry FE | Yes | Yes | Yes | Yes |

Back

# Appendix
## What explains institutional ownership changes?

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Dependent variable: | | | Δ IO 2020Q1 | | |
| Return in Fever | 0.032*** | 0.025*** | | | |
| | (5.83) | (4.51) | | | |
| Leverage | | | -0.010** | -0.009** | -0.005 |
| | | | (-2.46) | (-2.37) | (-1.17) |
| Cash/assets | | | 0.009** | 0.007* | 0.007 |
| | | | (2.12) | (1.69) | (1.34) |
| log(Market cap) | | | 0.191*** | 0.246*** | 0.254*** |
| | | | (4.62) | (5.67) | (4.92) |
| Profitability | | | 0.027* | 0.035** | 0.025 |
| | | | (1.68) | (2.17) | (1.20) |
| Book-to-market | | | -0.172 | -0.143 | -0.128 |
| | | | (-1.46) | (-1.21) | (-0.99) |
| $IO_{2019Q4}$ | | | | -0.017*** | -0.008* |
| | | | | (-5.65) | (-1.89) |
| ES score (msci) | | | | | -0.062 |
| | | | | | (-0.97) |
| Constant | 0.451** | 0.195 | -2.031*** | -1.066** | -1.898*** |
| | (2.08) | (0.88) | (-5.12) | (-2.56) | (-3.01) |
| Observations | 2,235 | 2,235 | 2,223 | 2,223 | 1,637 |
| R-squared | 0.036 | 0.067 | 0.070 | 0.081 | 0.069 |
| Industry FE | No | Yes | Yes | Yes | Yes |

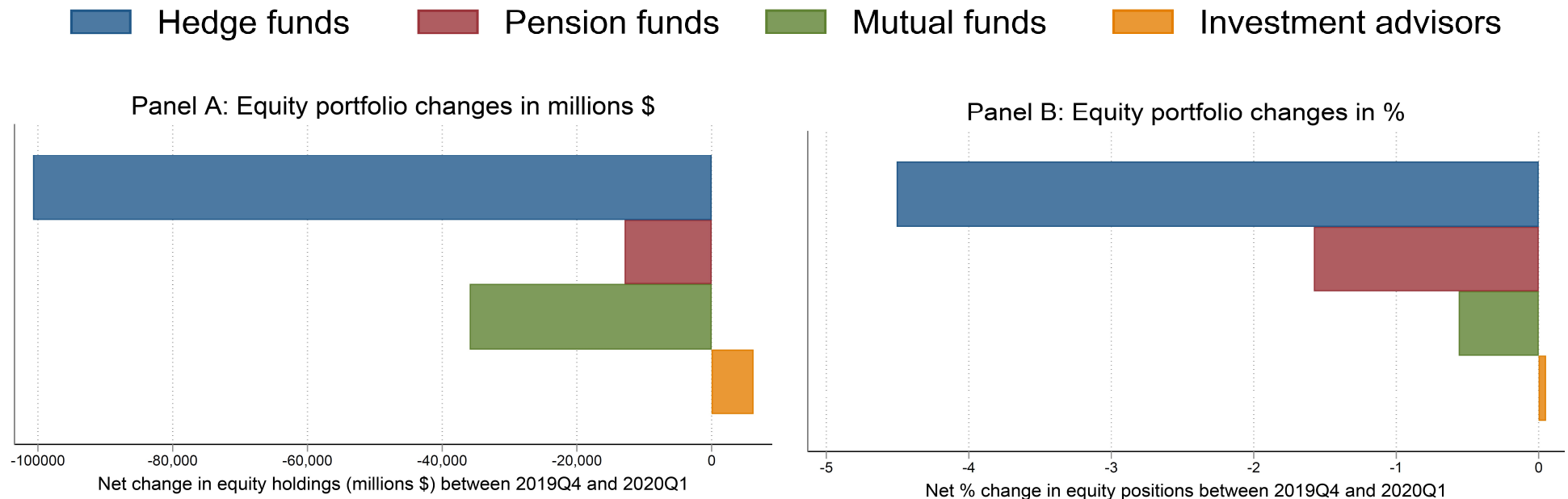Δ IO during 2020-Q1:

- IO drops more in firms that experienced worse stock price performance → Consistent with price penalty of IO driven by institutional trading.

- IO drops more in high-leverage and low-cash firms (as well as smaller and less-profitable ones): ↑ 1-SD Leverage → ↓ 6% of SD of Δ IO 2020-Q1.

- High ES scores not associated with relative increase in IO (!).

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# Appendix
## Change in equity positions by investor category

**The role of hedge funds**: During GFC, stocks held by more short-term investors or hedge funds performed worse (Ben-David et al., 2012; Cella et al., 2013; Çötelioğlu et al., 2021).



Panel A: Equity portfolio changes in millions $

Net change in equity holdings (millions $) between 2019Q4 and 2020Q1

Panel B: Equity portfolio changes in %

Net % change in equity positions between 2019Q4 and 2020Q1

During 2020-Q1: Hedge funds divested > 4% of their AUM (~100 billion USD!) .

# Appendix
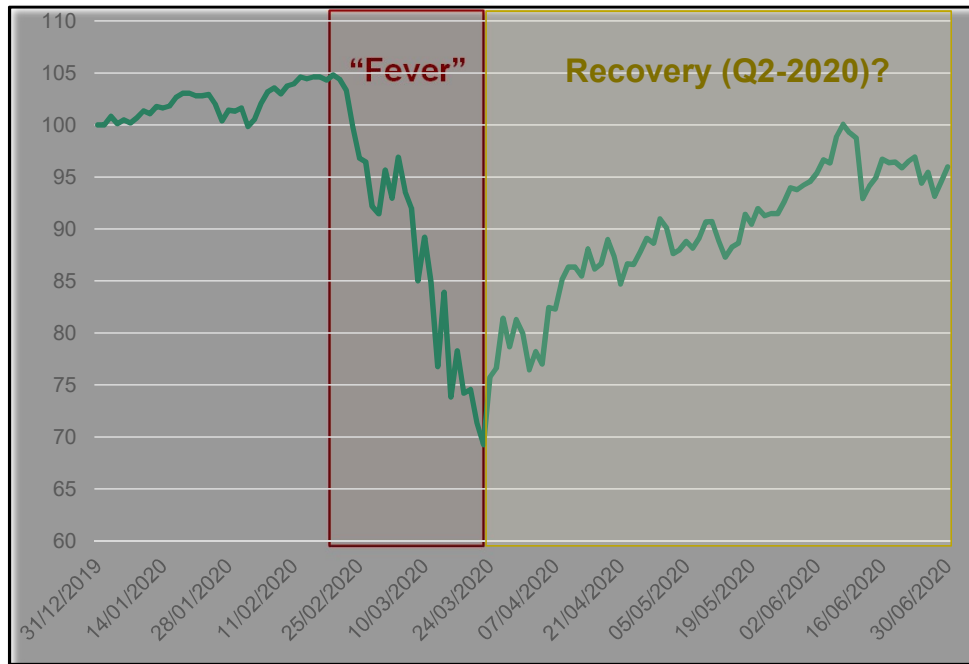## Change in equity positions by investor category

| Dep. variable: | $\Delta$ IO Hedge Funds 2020Q1 | | | $\Delta$ IO ex. Hedge Funds 2020Q1 | | | $\% \Delta\, log(RHusers)$ 2020Q1 | | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| Return in Fever | -0.009** | | | 0.033*** | | | -0.117*** | | |
| | (-2.53) | | | (6.35) | | | (-5.32) | | |
| Leverage | | -0.002 | 0.003 | | -0.010** | -0.012** | | 0.041*** | 0.047*** |
| | | (-0.64) | (0.75) | | (-2.42) | (-2.38) | | (4.35) | (4.02) |
| Cash/assets | | -0.003 | -0.002 | | 0.006 | 0.008 | | -0.033*** | -0.047*** |
| | | (-0.72) | (-0.46) | | (1.25) | (1.41) | | (-2.79) | (-2.92) |
| IO Hedge Funds$_{2019Q4}$ | | -0.021*** | -0.023*** | | | | | | |
| | | (-3.24) | (-2.58) | | | | | | |
| IO ex. Hedge Funds$_{2019Q4}$ | | | | | -0.028*** | -0.018*** | | | |
| | | | | | (-7.69) | (-3.82) | | | |
| $log(RHusers_{2019Q4})$ | | | | | | | | -1.567*** | -1.491*** |
| | | | | | | | | (-12.94) | (-10.17) |
| ES score (msci) | | | -0.056 | | | 0.042 | | | -0.376* |
| | | | (-0.99) | | | (0.53) | | | (-1.86) |
| log(Market cap) | | -0.064** | -0.040 | | 0.290*** | 0.235*** | | 0.623*** | 0.524*** |
| | | (-2.06) | (-1.05) | | (6.21) | (4.37) | | (5.71) | (3.47) |
| Profitability | | -0.026** | -0.036** | | 0.060*** | 0.069*** | | -0.145*** | -0.141** |
| | | (-2.03) | (-2.18) | | (3.80) | (2.90) | | (-4.18) | (-2.53) |
| Book-to-market | | -0.181* | -0.091 | | -0.027 | -0.098 | | 0.635*** | 0.545* |
| | | (-1.73) | (-0.82) | | (-0.21) | (-0.82) | | (2.64) | (1.95) |
| Constant | -0.502*** | 0.816** | 0.665 | 0.814*** | -0.603 | -1.101* | 2.686*** | 11.122*** | 13.334*** |
| | (-3.74) | (2.51) | (1.54) | (3.98) | (-1.41) | (-1.77) | (3.03) | (11.05) | (9.46) |
| Observations | 2,236 | 2,224 | 1,632 | 2,236 | 2,223 | 1,641 | 2,209 | 2,196 | 1,622 |
| R-squared | 0.023 | 0.032 | 0.035 | 0.078 | 0.088 | 0.086 | 0.203 | 0.231 | 0.239 |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

Annotations: **Indiscriminate selling** (columns 2–3), **Toward resilience** (columns 5–6), **Liquidity provision** (columns 8–9)
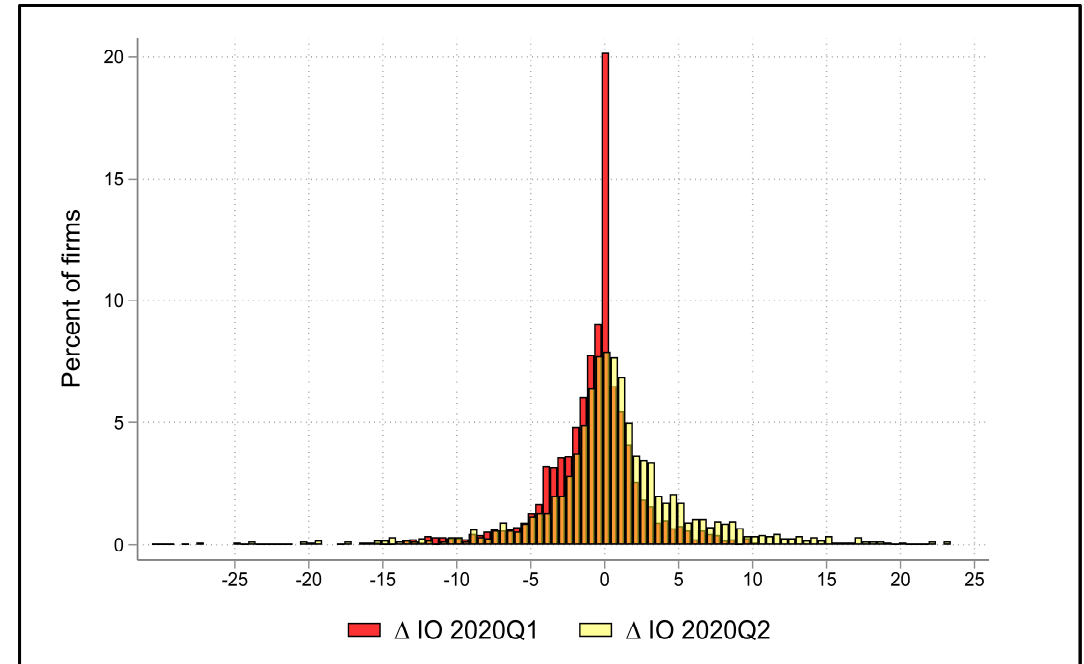
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# Appendix
## Change in IO in Q2-2020



S&P500



IO Changes in Q2-2020

- Fed's massive injection of liquidity (D'Amico et al., 2020; Haddad et al., 2021) reassured investors and paved the way for a swift (but unequal) reversal of indexes.
- The distribution of Q2-2020 changes in IO is more symmetric compared to Q1-2020: Institutional investor started actively behaving on both sides of the markets.

# Appendix
## Determinants of changes in institutional ownership in 2020-Q2

|  | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Dependent variable: |  |  | $\Delta$ IO 2020Q2 |  |  |
| Return in Fever | 0.071*** | 0.060*** |  |  |  |
|  | (9.41) | (8.08) |  |  |  |
| Leverage |  |  | -0.021*** | -0.022*** | -0.013 |
|  |  |  | (-3.02) | (-3.08) | (-1.62) |
| Cash/assets |  |  | 0.027*** | 0.029*** | 0.023** |
|  |  |  | (3.30) | (3.60) | (2.48) |
| $IO_{2020Q1}$ |  |  |  | 0.026*** | 0.046*** |
|  |  |  |  | (4.19) | (5.70) |
| ES score (msci) |  |  |  |  | 0.098 |
|  |  |  |  |  | (0.81) |
| log(Market cap) |  |  | 0.263*** | 0.175** | -0.018 |
|  |  |  | (3.32) | (2.18) | (-0.19) |
| Profitability |  |  | 0.008 | -0.004 | 0.017 |
|  |  |  | (0.26) | (-0.14) | (0.41) |
| Book-to-market |  |  | -1.070*** | -1.118*** | -0.619 |
|  |  |  | (-2.60) | (-2.71) | (-1.40) |
| Constant | 3.328*** | 2.908*** | -0.840 | -2.207** | -3.320*** |
|  | (11.63) | (10.04) | (-0.99) | (-2.42) | (-2.70) |
| Observations | 2,223 | 2,223 | 2,210 | 2,210 | 1,622 |
| R-squared | 0.057 | 0.120 | 0.120 | 0.127 | 0.107 |
| Industry FE | Yes | Yes | Yes | Yes | Yes |
| Controls | Yes | Yes | Yes | Yes | Yes |

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