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Strategic Complementarity Among Investors with Overlapping Portfolios

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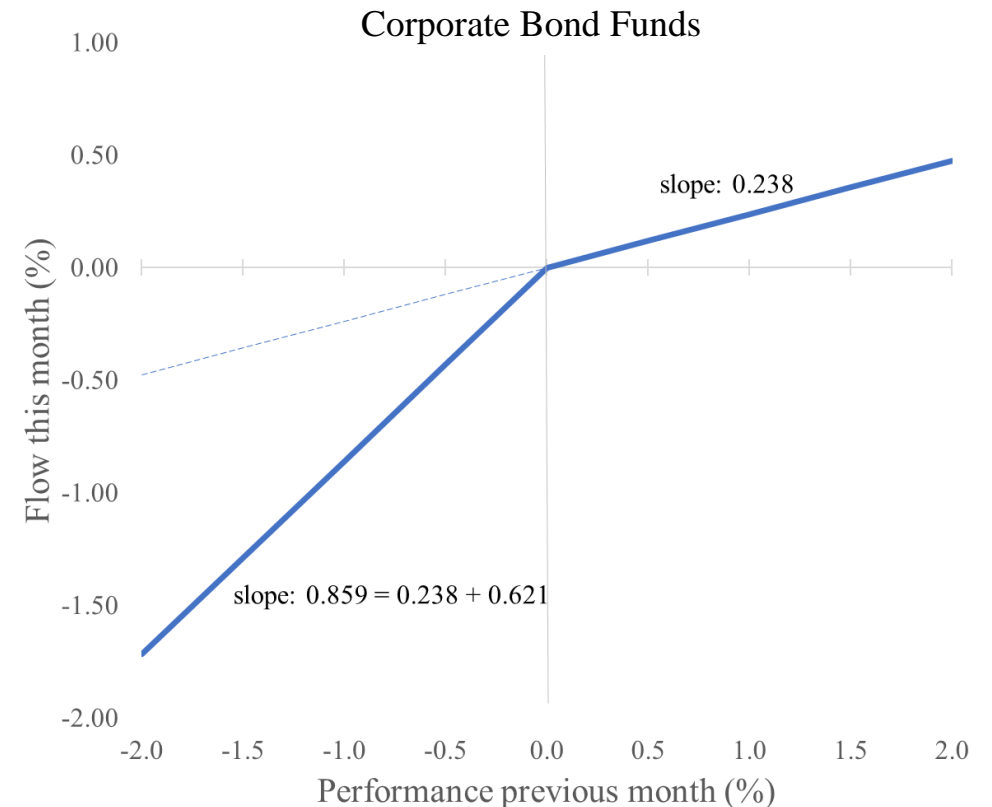
Fund Level Strategic Complementarity

- Regulators and academics traditionally view a concave fund investor flow-performance relationship to imply that funds can be systemically risky
- Underlying features: Investors redeem at NAV and share liquidity pool
- If redeeming investors negatively affect remaining investors, *propensity for fund investors to sell increases in the expectation that others will sell shares in the same fund*
 - Funds with less liquid assets have larger outflows after underperformance
 - Chen, Goldstein, and Jiang (2010) and Goldstein, Jiang, and Ng (2017)
 - Strategic complementarity among investors in a fund because redeeming investors, they argue, negatively affect remaining investors
 - Claim that bond funds are systemically risky
- The FSB and other regulators are interested in research on open-end bond funds

Baseline Result Goldstein et al (JFE 2017)

$$\text{Flow}_{i,t} = \beta_1 \text{Performance}_{i,-1} + \beta_2 \text{Performance}_{i,-1} \times I(\text{Performance}_{i,-1} < 0) + \beta_3 I(\text{Performance}_{i,-1} < 0) + \gamma \text{Controls}_{i,t} + \alpha + \eta_{i,t}$$

| GJN (2017) Table 2 Flow-performance regressions | |
|--|--------------|
| Actively managed corporate bond funds | |
| | Flows |
| Performance | 0.238 |
| Performance × (Performance < 0) | 0.621 |



Asset Market Level Strategic Complementarity

- Alternative, more fundamental explanation for observing a concave flow-performance relationship
- Underlying feature: Sales of assets by any market participant can depress values and reduce market liquidity
- To avoid holding assets with depressed values and reduced liquidity, the *propensity of direct investors to sell increases in the expectation that other investors will sell the same assets*
 - Strategic complementarity at asset market level arises because investors with overlapping portfolios “share” limited market liquidity yet they do NOT rely on a structure like that of mutual funds
- Observationally equivalent flow-performance relationship among direct investors with overlapping portfolios
 - Example of investors exiting before others: Archegos Capital April 2021
 - Assets in less liquid markets are more likely affected

Investors with Overlapping Portfolios

- Analyze behavior of direct investors with overlapping portfolios
- Laboratory Setting: Investors in Separately Managed Accounts
 - Direct investors who own assets in their accounts
 - Investors in same strategy have overlapping portfolios
 - Shared asset market liquidity
 - No NAV redemption and no shared pool of assets
- Morningstar data from 2000 to 2021
 - Monthly at strategy level: Returns, assets, and number of accounts in strategy
 - Asset purchases and sales (Flows) imputed from change in assets and returns
 - 2,757 equity-focused strategies (\$6.3 trillion TNA, 2020)
 - 1,253 fixed income-focused strategies (\$3.8 trillion TNA, 2020)
- Additional data
 - FINRA Trade Reporting and Compliance Engine (TRACE)
 - Chicago Board Options Exchange
 - Federal Reserve Bank of St. Louis

Baseline Result for Direct Investors with Overlapping Portfolios

$$\text{Flow}_{S,t} = \beta_1 \text{Performance}_{S,-1} + \beta_2 \text{Performance}_{S,-1} \times I(\text{Performance}_{S,-1} < 0) + \beta_3 I(\text{Performance}_{S,-1} < 0) + \gamma \text{Controls}_{S,t} + \alpha + \eta_{S,t}$$

| Table 2 Flow-performance regressions | |
|---|--------------|
| Fixed Income-focused Strategies | |
| | Flows |
| Performance | 0.104 |
| Performance × (Performance < 0) | 0.714 |



Validation of Strategic Complementarity Conjecture

- Strategic complementarity at the asset market level driven by “shared” limited market liquidity implies three testable conditions for validation:
 - Investor portfolio sales are more sensitive to past performance when market liquidity is low
 - Investor portfolio sales are more sensitive to past performance for less liquid portfolios
 - Investor portfolio sales are less sensitive to past performance when strategy accounts are large
- Results validate the conjecture that “shared” limited market liquidity results in strategic complementarity among direct investors with overlapping portfolios at the asset market level

Summary and Conclusions

- Strategic complementarity at the asset market level generates patterns of investor behavior that are observationally equivalent to the mutual fund flow-performance relationship presented in Chen, Goldstein, and Jiang (2010) and Goldstein, Jiang, and Ng (2017)
 - Driven by “shared” limited market liquidity, it is more fundamental than strategic complementarity at the fund level
- The appropriate benchmark to assess the supposed systemic risk inherent in the structure of mutual funds is the behavior of investors that do not rely on NAV redemption or on a common liquidity pool: direct investors with overlapping portfolios
- The results further our understanding of the behavior of market participants other than fund investors, which make up a significant fraction of the financial ecosystem
 - Entities other than mutual funds held 83% of US and foreign corporate bonds outstanding at year-end 2019 and during March 2020 accounted for 70% of the sell volume in investment grade corporate bonds
- A holistic view the financial ecosystem allows regulators to design effective and efficient regulations