Payoff Complementarities and Financial Fragility: Evidence from Mutual Fund Outflows

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Strategic Complementarities Applications

• Bank Runs (Diamond and Dybvig 1983)

• Currency Crises (Morris and Shin 1998)

• Mutual Fund Withdrawals (starting on 10/23/2003 Putnam Investments lost 40%)

An action by another player makes me more likely to do the same. 'Bad things' are more likely to happen.
Strategic Substitutes Applications

• Tendering shares in a hostile takeover (Grossman and Hart 1980)

• Holding out in bankruptcy reorganizations (Bolton and Sharfstein 1996)

An action by another player makes me less likely to do the same. 'Good things' are less likely to happen.

• Solution: large toehold to internalize externalities (Shleifer and Vishny 1986)


Model

• Three periods, \((t = 0, 1, 2)\), returns are \(R_1\) and \(R_2\).

• Funds have an “illiquidity” parameter \(\lambda\)

• Can decide to withdraw at \(t = 1\) having observed \(R_1\) and a private signal \(\theta\) of manager’s ability.

• Use refinement from Carlsson & Van Damme (1993) to get unique equilibrium withdraw \(i f f \theta < \theta^*\)

• Net withdrawals are \(NW = \alpha(\theta^*)N - I(R_1)\) with \(\frac{\partial \alpha}{\partial \theta^*} > 0\)

• Can have large investors with toehold \(\beta\)
**Testable Implications**

- $\frac{\partial \theta^*}{\partial \lambda} = 0$ for $R_1 > \overline{R}_1$: illiquidity unimportant if things go well

- $\frac{\partial \theta^*}{\partial \lambda} > 0$ for $R_1 < \overline{R}_1$: illiquidity important if things go badly

- $\frac{\partial \theta^*}{\partial R_1} < 0$ for $R_1 < \overline{R}_1$: willing to forgive if you did well last time.

- $\frac{\partial \theta^*}{\partial \beta} < 0$ for $R_1 < \overline{R}_1$: Less withdrawals with large investor (takeovers intuition)
A Graphical Interpretation

Table 1: Flow Performance Sensitivities

Fund flow

\[ \text{Liquid funds} \]
\[ \text{Retail illiquid funds} \]
\[ \text{Institutional illiquid funds} \]
Empirical Results

- $\alpha = -2.7\%$ (4.4% of funds) triggers differential withdrawals

<table>
<thead>
<tr>
<th></th>
<th>$\frac{\partial NW}{\partial R_1}$ liquid</th>
<th>$\frac{\partial NW}{\partial R_1}$ illiquid</th>
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<tbody>
<tr>
<td>whole sample</td>
<td>0.70</td>
<td>0.83*</td>
</tr>
<tr>
<td>$\alpha &lt; 0$</td>
<td>0.27</td>
<td>0.41*</td>
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</thead>
<tbody>
<tr>
<td>Institutional Funds</td>
<td>0.27</td>
<td>0.29</td>
</tr>
<tr>
<td>Retail Funds</td>
<td>0.24</td>
<td>0.44*</td>
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Comments

• Good empirical test of games with complementarities

• Mileage out of the model, it seems to be working well.

• Check alternative stories.

• I preferred liquidity measures based on fund holdings.
Questions

• What should the equilibrium returns for liquid and illiquid assets be? (p. 29)

• If this has asymmetric returns, could it be that there are different ‘risk’ profiles as well?

• Why would a retail fund manager ever want to buy illiquid assets?