Financial panics and portfolio investment of international mutual funds

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Outline

1. Introduction
2. Data
3. Model
4. Results
5. Conclusion
## Existing Evidence

- **Market level**: aggregate data, international coverage
- **Fund level**: fund specific data, mainly US market

<table>
<thead>
<tr>
<th></th>
<th>Market level</th>
<th>Fund level</th>
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</thead>
<tbody>
<tr>
<td>Feedback trading</td>
<td>+/-</td>
<td>+</td>
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<tr>
<td>Flows predict returns</td>
<td>+</td>
<td>+/-</td>
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<tr>
<td>Contemporaneous flow-return relationship</td>
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<td>+</td>
</tr>
</tbody>
</table>

**Literature**

- Broner et al. (JIE 05)
- Carhart (JF 97)
- Froot et al. (JFE 01)
- Zheng (JF 99)
- Warther (JFE 95)
- Coval et al. (JFE 07)
Motivations

- In the international markets, how do flows interact with returns at fund level?
- Does the flow-return relationship behave differently at market and fund levels?
- Does the credit crunch affect the flow-return relationship?
Our findings

- Positive feedback trading (or momentum trading, with flows chasing returns)
  - more intensive at market level and before credit crunch
- Flows predict future returns
  - negatively before crisis and positively during crisis
- Positive contemporaneous flow-return relationship
  - greater at fund level than at market level
- Market and fund characteristics affect both flows and returns
Data Description

- **Source** - EPFR Global
- **Period** - Jan 1st 2003 to Mar 25th 2009 (weekly)
- **Geographic coverage**
  - Asia (Emerging Asia)
  - EMEA (Emerging Europe regional, Middle East and Africa regional)
  - Latin (Latin America)
  - GEM (Global Emerging Market)
Summary Statistics

Figure: Time series of regional aggregate flows (Jan 2003 to Mar 2009).
Summary Statistics

Figure: Time series of regional aggregate returns (Jan 2003 to Mar 2009).
Model

Hasbrouck (1991) and Froot et al. (2008)

\[
\begin{align*}
\left( \frac{FLOW_{i,t}}{RETURN_{i,t}} \right) &= C + \sum_{k=1}^{p} A_k \left( \frac{FLOW_{i,t-k}}{RETURN_{i,t-k}} \right) + B \left( \log TNA_{i,t} \right) + \varepsilon \\
\left( \frac{FLOW_{i,t}}{RETURN_{i,t}} \right) &= C + \sum_{k=1}^{p} A_k \left( \frac{FLOW_{i,t-k}}{RETURN_{i,t-k}} \right) + B \left( \log TNA_{i,t} \right) \\
&\quad + \alpha \begin{pmatrix} 0 \\ FLOW_{i,t} \end{pmatrix} + \epsilon
\end{align*}
\]

- \( p \) - the number of lags
- \( \log TNA_t \) - the log of total net assets under management
- \( VIX_t \) - the return of VIX from week \( t - 1 \) to \( t \)
- \( \alpha \) measures the contemporaneous flow-return relationship
### Baseline results

FLOW as dependent variable

<table>
<thead>
<tr>
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<td><strong>Panel A: Fund Level Data (full sample)</strong></td>
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<tr>
<td>F—Flow</td>
<td>.000</td>
<td>.000</td>
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<tr>
<td>F—Return</td>
<td><strong>.000</strong></td>
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<td><strong>Panel B: Regional Aggregate Data (full sample)</strong></td>
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<tr>
<td>F—Flow</td>
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<td>.000</td>
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<tr>
<td>F—Return</td>
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Table: p-value of the joint significance test
Baseline results
FLOW as dependent variable

Table: Average coefficient

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<tr>
<td>$Return_{-12to-1}$</td>
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<td>0.001</td>
<td>0.003</td>
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<tr>
<td>$Return_{-12to-1}$</td>
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<td>1.278</td>
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Baseline results
RETURN as dependent variable

Table: p-value of the joint significance test

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<td>$Flow_{-12t0-1}$</td>
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<td>1.561</td>
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## Baseline results

**Table:** Contemporaneous relationship

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<tr>
<td>$Flow_{{0}}$</td>
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<td></td>
<td>12.472</td>
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<td>3.987</td>
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<td><strong>Panel B: Regional Aggregate Data (full sample)</strong></td>
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</tr>
<tr>
<td>$Flow_{{0}}$</td>
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<td>.055</td>
<td>.053</td>
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<td>7.286</td>
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<td>6.014</td>
<td>4.716</td>
<td>9.681</td>
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Basic results

Summary

- Positive feedback trading
  - more intensive at regional market level than at fund level (new money vs inter-fund transfer)

- Flows predict returns at fund but not market level

- Positive contemporaneous flow-return relationship
  - stronger at fund level (Lee et al. JF 91)
The impact of credit crunch
Positive feedback trading

Figure: IRF of $FLOW$ to the shock in $RETURN$ in noncrisis (upper left) and crisis period (upper right). The upper and lower bounds represent the 10% confidence interval obtained by 2500 Monte Carlo simulation. The bottom panel compares the CIRF of $FLOW$ in non-crisis and crisis periods.
The impact of credit crunch
Positive feedback trading

- Investors engage less intensively in positive feedback trading during the crisis.

Why?

- Brunnermeier and Pedersen (RFS 09)
- Non-crisis period: booming market liquidity $\rightarrow$ funding liquidity $\uparrow$ $\rightarrow$ following trend aggressively
- Crisis period: constraint market liquidity $\rightarrow$ funding liquidity $\uparrow$ $\rightarrow$ following trend cautiously
The impact of credit crunch
Flows predict returns

Figure: CIRF in non-crisis and crisis period (excluding the contemporaneous effect).
The impact of credit crunch
Flows predict returns

- Flows predict returns negatively in non-crisis period and positively in crisis period.
- Why dumb money effect in non-crisis period?
  - Dominant disposition effect
- Disposition effect: the investor has greater propensity to sell assets that have increased since purchase than those that have dropped. *It triggers outflows from assets whose price subsequently increase further* (Shefrin et al. JF 85).
The impact of credit crunch
Flows predict returns

Figure: Inflows Vs Outflows
The impact of credit crunch
Contemporaneous flow-return relationship

Figure: OIRF of \textit{RETURN} to the shock in \textit{FLOW} in non-crisis (upper left) and crisis period (upper right). The upper and lower bounds represent the 10\% confidence interval obtained by 2500 Monte Carlo simulation. The bottom panel compares the COIRF of \textit{RETURN} in non-crisis and crisis periods.
The impact of credit crunch

Why dumb money reaps profits in non-crisis period?
- contemporaneous flow-return relationship is positive
- inflows are persistent

Why is money smart during crisis?
- liquidity constraint makes it difficult to attract inflows
- fund managers can no longer beautify performance with persistent inflows
- it is relative easy to differentiate managerial ability from price impact
The roles of size and risk appetite

- **Size effect**
  - Fund size benefits the performance of funds in non-crisis period
  - Market cap: no impact
  - Fund size undermines (benefits) the performance of funds that experienced outflows (inflows)
  - Market cap ...

- **Risk appetite**
  - Increasing risk appetite boosts fund flows and regional flows
  - Increasing risk appetite improves fund performance and market-wide returns
Flow-return relationship behaves differently at market and fund levels

Credit crunch breaks the flow-return relationship
  - flows chase returns less intensively in crisis period
  - flows predict negative future returns in non-crisis period but positive returns in crisis period

Market and fund characteristics do matter