Behavior of Institutional Investors During
the Recent Financial Crisis: Causes, Impacts,
and Challenges

Michael Papaioannou, Ph.D.
Monetary and Capital Markets Department
International Monetary Fund

Public Pension Funding Forum
Faculty House, Columbia University, New York, NY
April 21–22, 2014
Overview

- Our study examined empirical evidence on the pro-cyclical investment behavior of major institutional investors during the global financial crisis.
- The study finds that behaving in a manner consistent with long term investing would lead to better long-term, risk-adjusted returns.
- The study identifies the main factors that could account for such behavior and discusses the implications of pro-cyclical behavior and proposes a framework for sound investment practices for long-term investors.
- Although our study did not look at investment behavior of maturing plans per se, investment strategies for maturing plans should be no different than those for long-term investors.
Background

The global financial system is inherently procyclical, which makes it vulnerable, especially in a downturn.

Institutional investors, by and large, are no exception with procyclical investment behavior.

- As the recent global financial crisis intensified, concerns about capital preservation arose and led several investors to abandon long-term investment strategies.

Avoiding procyclical investment behavior at the peak of a crisis may be difficult.

- From an individual perspective, procyclical behavior may be rational.

- This tendency for procyclical behavior may be due to a number of factors, including (i) underestimation of liquidity needs; (ii) pressure on short-term performance; (iii) principal-agent problems; (iv) the accounting cycle; and (v) difficulties in risk assessment and projection.
Focus of Study

- Analyze the procyclical investment behavior of a wide variety of classes of institutional investors during the recent crisis.
  - Their individual and collective behaviors can create the tendency for the whole system to act in a bandwagon way.

- Identify key causes of herd behavior.

- Explore possible good practices that address herd behavior.
  - Develop a framework that could help long-term institutional investors set up their investment policies in ways that avoid purely individualistic procyclical behavior, which undermines financial stability.
  - Advocate an approach that is based mainly on prevention (i.e., minimizing ex ante the likelihood that an investor may behave procyclically ex post).
## Definition and Covered L-T Investors

- **Long-term investors**: tend to hold an asset for multiple years and are not expected to liquidate their positions in the short term.
  - This definition does not rule out selling assets before they mature.
- **Long-term institutional investors** typically include pension funds, life insurance companies, endowment funds, mutual funds, non-budget stabilization SWFs, and central banks.

<table>
<thead>
<tr>
<th>Institutional Investors</th>
<th>Short-term Liquidity Needs</th>
<th>Regulatory Constraints</th>
<th>Peer Pressure</th>
<th>Financial Stability Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pension funds</td>
<td>L</td>
<td>H</td>
<td>M</td>
<td>L</td>
</tr>
<tr>
<td>Life Insurers</td>
<td>L/M</td>
<td>H</td>
<td>M</td>
<td>L</td>
</tr>
<tr>
<td>Endowments</td>
<td>L</td>
<td>L</td>
<td>M</td>
<td>L</td>
</tr>
<tr>
<td>Mutual funds</td>
<td>M</td>
<td>M</td>
<td>H</td>
<td>L</td>
</tr>
<tr>
<td>SWFs</td>
<td>L</td>
<td>L</td>
<td>M</td>
<td>M/L</td>
</tr>
<tr>
<td>Central banks</td>
<td>M/H</td>
<td>L</td>
<td>M/H</td>
<td>H</td>
</tr>
</tbody>
</table>
Many Defined Contribution (DC) funds, with rate of return guarantees, tend to have similar benchmarks, thereby creating an incentive for herd behavior.

OECD data shows a mixed picture of pension fund behavior.

- Pension funds in U.S. (defined benefit funds), Portugal, and Spain moved towards more conservative asset allocations.
- Pension funds in Norway, Italy, Poland, and Turkey acted in a countercyclical manner during 2008–09.

Source: OECD Global Pension Statistics.
Procyclical Behavior: Life Insurance

- U.S. life insurance companies’ asset allocations stayed remarkably steady through 2001–10 (Rudolph, 2011).
- Life insurers contributed to the downward spiral during the equity markets’ fall in 2001–03 (Impavido and Tower, 2009).
  - Sales of equities and other financial instruments by this class of institutional investors have been more widespread in the recent financial crisis.

Procyclical Behavior: Endowment Funds

- Harvard and Yale endowment funds’ negative cash position during the pre-crisis period reversed after the crisis, indicating countercyclical behavior.

- However, the Center for Social Philanthropy and Tellus Institute (2010) argue that the funds played a role in magnifying certain systemic risks in the capital markets.
There has been a clear pattern of rapid drawdowns from mutual funds, especially after the collapse of Lehman Brothers in September 2008.

Client investors and fund managers tend to show procyclical behavior, reducing their exposure to countries experiencing turmoil during bad times and increasing it when conditions improve (Raddatz and Schmukler, 2011).
Several SWFs decided to reduce exposures to, in particular, U.S. and U.K. banks in the second quarter of 2009 (Miracky and Bortolotti, 2009).

- These SWFs may have liquidated part of their holdings at the worst possible moment and thus could have missed the subsequent recovery that followed.

SWFs often pursue assets at home, when domestic equity prices are already relatively higher and thus engage in “trend chasing” (Bernstein, Lerner, and Schoar, 2009).

The crisis brought significant changes in the implementation of SWFs’ stated strategies.

- Some SWFs liquidated positions to support domestic economies or to increase the share of liquid instruments in their portfolios (Kunzel and others, 2011).

- Some SWFs experienced challenges in maintaining consistency between their investment policies and the underlying objectives of the fund.
Central banks’ weight on the return objective has generally increased over time. (Borio, Galati, and Heath, 2008).

Evidence of procyclical investment behavior (collectively pulled more than US$500 billion of deposits and other investments out of the banking sector between December 2007 and March 2009) (Pihlman and van der Hoorn, 2010).
Drivers of Procyclicality (1)

- **Underestimation of Liquidity Needs**
  - In the pre-crisis period, there was considerable liquidity in the financial system, where competitive pressure led to an underestimation of required liquidity buffers.
  - When conditions were abruptly reversed and market funding conditions deteriorated, almost all investors are forced to sell investments quickly in order to raise cash.

- **Difficulties in Assessing Market Risk and Macroeconomic Forecasting**
  - Under increased volatility, it has become more difficult for investors to make a clear distinction between temporary price fluctuations and more fundamental changes in risk.
  - Traditional risk measurement methodologies tend to underestimate underlying risks because an increase in asset prices often comes with lower volatility.
  - A traditional risk measurement system does not see risks “through the cycle” and leaves investors vulnerable to rising risk premiums and higher volatility if market liquidity dries up.
Drivers of Procyclicality (2)

• Principal–Agent Problems and Manager Incentive Structures
  
  - Benchmarks and annual performance targets are common instruments to address potential liquidity shortfalls, but they often lead to a focus on short-term returns.
  
  - Exposure limits are usually calibrated based on normal or stable market conditions, resulting in risk tolerance that can be overstated or short-sighted.
  
  - A biased compensation structure—more reward on the upside and less penalty on the downside—leads managers to invest in more risky assets (Rajan, 2005).

• Reporting and Disclosure Policy
  
  - Concerns about monthly or quarterly reports can make investors adopt a shorter-term investment horizon than the period consistent with their original objectives.
  
  - New fund flows are sensitive to past performance, and fund outflows lead to the liquidation of assets. This implies that asset managers who focus on long-term performance may not see long-term gains realized.
Drivers of Procyclicality (3)

• Regulation and Market Convention
  - Strict mark-to-market valuation-based accounting rules or rigid capital requirements may constrain long-term investors’ ability to ride out short-term volatility.
  - Investment models used by many long-term institutional investors or their investment managers may be similar, which could be a major factor contributing to herd behavior.
  - Over-reliance on credit rating agencies can be a factor driving procyclicality as credit ratings are embedded in regulatory requirements and various financial contracts.
Implications of Procyclical Behavior: Financial System

- Procyclicality in asset allocation can make swings in financial asset values more pronounced, and in turn increase economic activity fluctuations.

- Collective actions of many investors may lead to sharp movements in volatility of asset prices and consequent instability of the financial system.

- Increased market volatility driven by procyclicality can affect the real economy through supply and demand factors.

Source: Mckinsey Global Institute.
Implications of Procyclical Behavior: Individual Institutions

- A shorter investment horizon leads to more frequent trading and, thus, higher transaction costs.
  - The illiquidity of some asset classes in the portfolios of long-term investors compounds these costs, which can become a significant drag on performance.

- Procyclicality can become a buy-high, sell-low strategy.
  - Reducing exposures in a crisis implies that losses are realized and therefore often not recovered when markets turn.

- Central bank reserve managers’ procyclical behavior during the crisis could have helped them avoid large losses—at least temporarily.
  - However, their collective actions contribute to a more prolonged freeze of the global funding markets to which private sector participants need to regain access.
  - This will ultimately require central banks’ to take offsetting policy measures that can lead to more financial costs and a burden on their own balance sheets.
Strategies to Minimize Procyclicality: Investment Strategies and Strategic Asset Allocation

- A well-defined ALM approach is needed to derive the SAA of a long-term investor.
  - An ALM approach aims at matching assets and liabilities, so that a long-term investor can invest in assets that mature when cash is needed, thus avoiding procyclical behavior.

- A risk factor-based approach could complement the traditional asset class-based SAA.
  - This methodology focuses on underlying risks embedded in assets rather than simple diversification across different assets.

- Operational procedures should be well-defined in implementing SAA.
  - Investment policies and time horizon should be in line with the asset owner’s objectives.
  - A risk tolerance should be established to clearly delineate the amount of absolute and relative risk that asset managers can utilize to achieve the investment objectives.
Strategies to Minimize Procyclicality: Portfolio Rebalancing

- Rebalancing involves selling assets that have risen in price and buying those that have declined, thus preventing a single asset class from dominating the portfolio if its value keeps rising.
  - If asset prices mean-revert, then rebalancing benefits from buy low-sell high dynamics, which increase returns over the long run.
  - Norway’s Government Pension Fund Global: A rule specifies the maximum permitted deviation between the weights in the actual benchmark portfolio and the strategic benchmark portfolio before the fund must be rebalanced.

- Rebalancing rules can be further improved by incorporating forward-looking risk and return measures.
  - A long-term investor can benefit from time-varying risk premiums, for instance by increasing the allocation to asset classes or risk factors beyond the normal level when risk premiums are unusually high.
Strategies to Minimize Procyclicality: Risk Management

- Risk managers should fully understand the strengths and weaknesses of all used risk metrics and apply them in line with the characteristics of their portfolios.
- A rating downgrade (or negative outlook, for instance) can be used as a trigger for reviewing the risk and expected return of the entire portfolio.
- Traditional models could be complemented by scenario analysis or stress testing.
  - Scenario analysis requires inputs and prudent judgment from professionals who have a solid understanding of not only economic finance, but also human behavior.
- Large investors need to carefully manage the risk of the potential impact on capital markets caused by their own investment actions.
- A prudent due diligence process is critical when institutional investors move into new investment markets and instruments.
Strategies to Minimize Procyclicality: Governance

- Incentives for the manager should be aligned with those of the owner, so that the manager does not inappropriately adjust risks if that is not in the long-term interest of the owner.
  - Incentives include giving shares to managers or requiring them to invest in the fund, so that they become owners as well, perhaps with a lock-up period for personal investments.
  - Extend the performance measurement period for multiple years (e.g., an annual bonus on the basis of rolling medium-to-longer-term performance).
- Asset owners/boards of trustees should have a firm understanding of how asset allocation creates risks, what risk factors are behind each asset class, and how managers’ risk taking is compensated in terms of expected return.
  - Managers should have frequent communication with asset owners by providing adequate information about the portfolio construction process.
  - The risk from procyclical behavior should be considered when owners make important decisions on the investment framework and compensation system.
Concluding Remarks

- The empirical evidence on the pro-cyclical investment behavior of major institutional investors during the global financial crisis shows that behaving in a manner consistent with long-term investing would lead to better long-term, risk-adjusted returns.

- Although our study did not look at investment behavior of maturing plans per se, investment strategies for maturing plans should be no different than those for long-term investors.