Conflicting Family Values in Mutual Fund Families

(Q-Group Spring 2011 Presentation)

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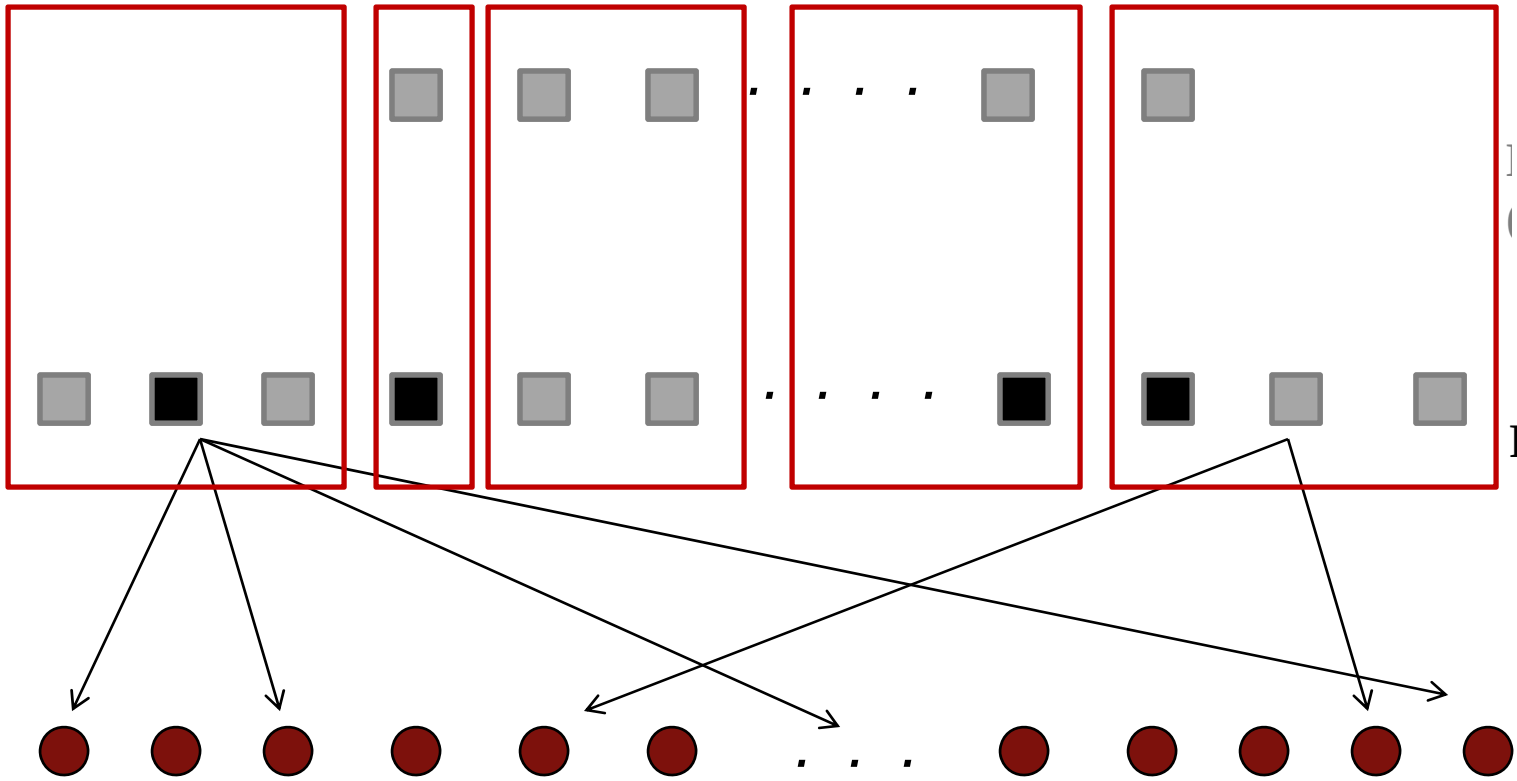
Motivation



Fund Families With Equity Funds (683 in 2007)

Active Equity Funds (4270 in 2007)

Equity Index Funds and ETFs (300+197 in 2007)

Common Stocks (4641 in 2007)

Research Question

Given that the family maximizes the interest of the whole family rather than the interest of shareholders of a particular fund,

How do the internal capital markets of a fund family operate?

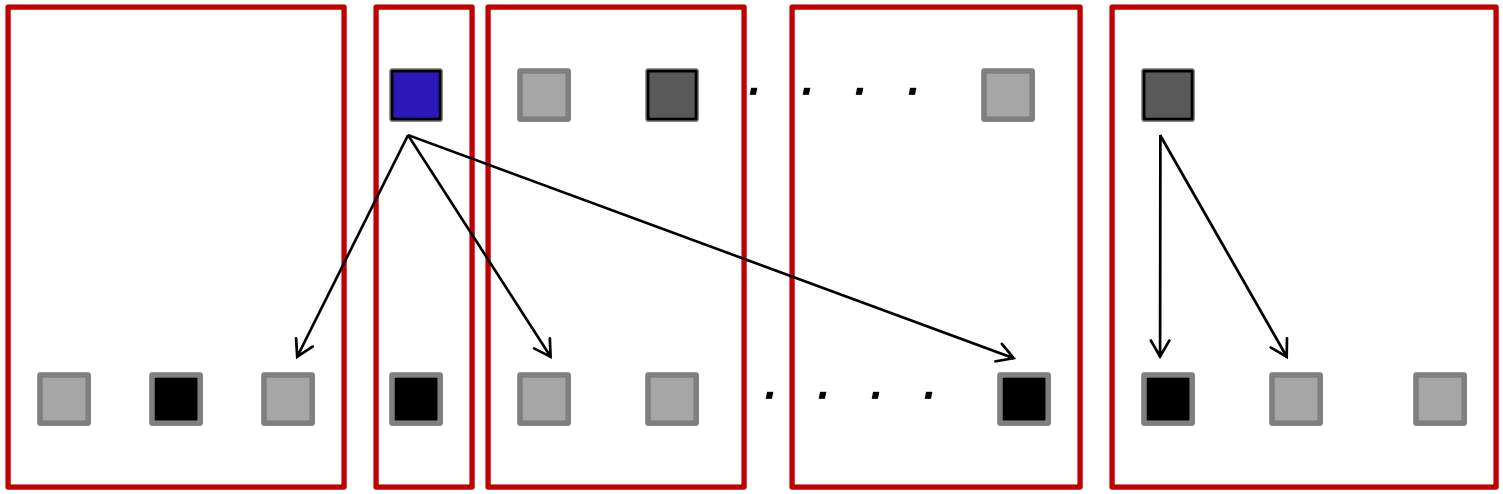
Do these internal capital markets conflict with some shareholder objectives?

Big Problem

We do not observe the internal capital markets of a fund family.

So how do we answer the research question?

Problem Solved – Use AFoMFs (Affiliated Funds of Mutual Funds)



Unaffiliated FoF
(58 in 2007)

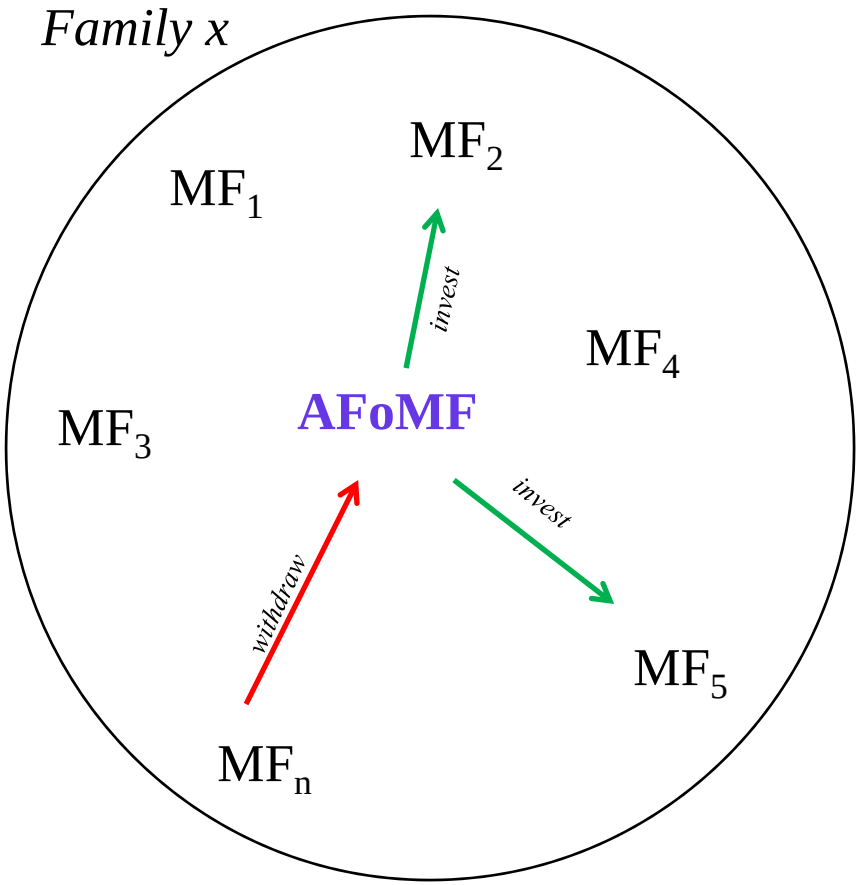
Affiliated FoF
(594 in 2007)

Fund Families

Mutual Funds

Underlying Assets

Why AFoMFs?

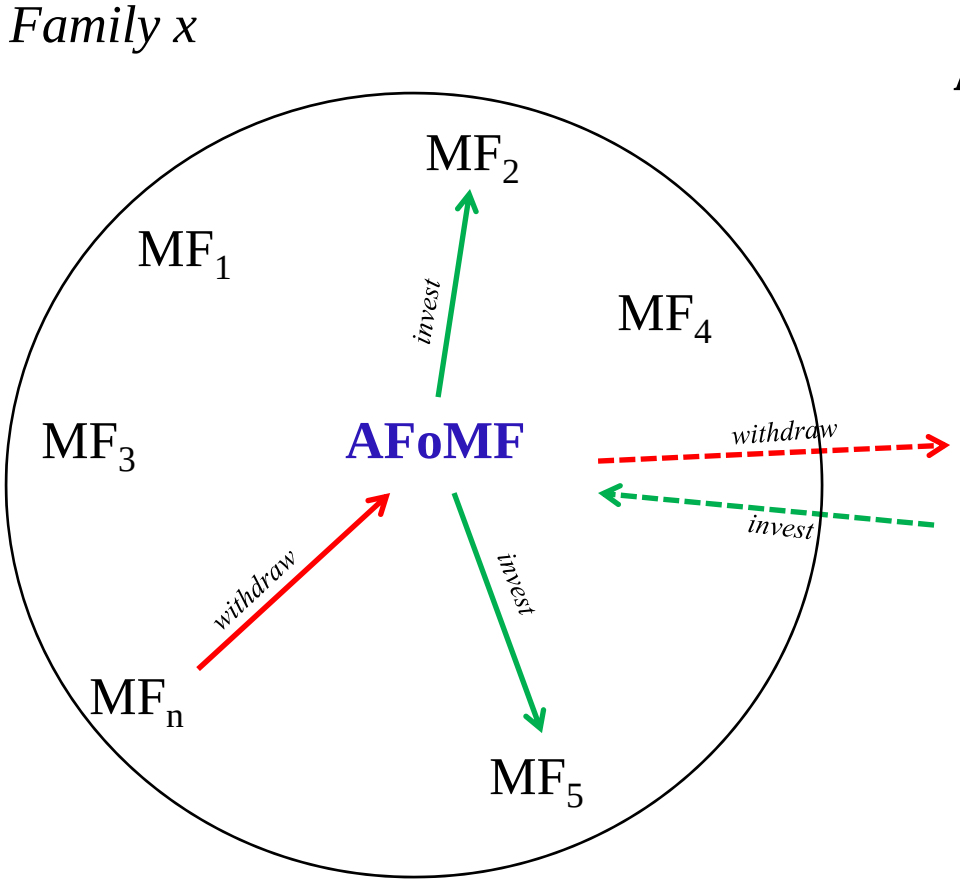


Section 17 of the Investment Company Act of 1940 severely restricts trades between individual funds

But AFoMFs can *invest* (i.e., lend) and *disinvest* (i.e., borrow), and so skirt the law

So AFoMFs control the internal capital market in the family

Why AMoMFs (Contd.)?



AFoMFs are <u>also</u> mutual funds

⇒ **we can <u>observe</u> their investments**

⇒ **we can also <u>observe</u> their budget constraints**

Why AFoMFs (Contd)?

Virtually non-existent in the 1990s, these funds have become very popular.

In 2007, which is the last year of our sample, of the 30 large families that made up 75% of the size of the mutual fund industry, 27 had AFoMFs.

The family conflict of AMoMFs

Serve their own investors

(Maximize own investment performance)

or

Serve family

(Maximize total revenue of family)

Fees (P) · Assets Under Family (Q)

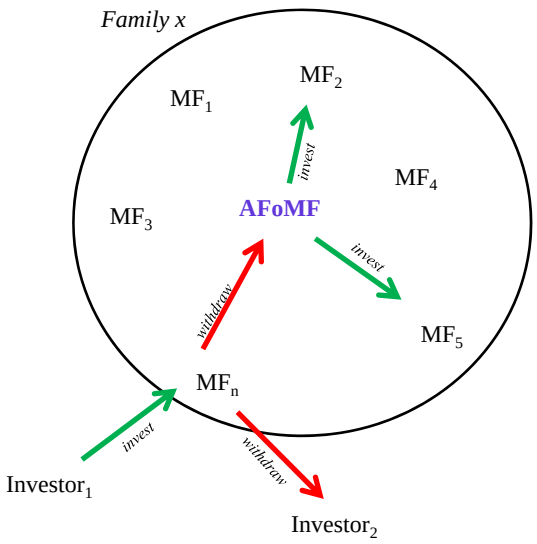
What could AFoMFs do for the family that may hurt its own shareholders?

The AFoMFs could act like the Fed's discount window: they could invest in funds in the family to offset their temporary liquidity shortfalls.

WHY?

Fund in family is experiencing very large redemptions, which may lead to costly fire sales.

Research Design



MFs (ordinary mutual funds) have two types of investors:

1) AFoMFs ***(insiders)***

2) Everybody else ***(outsiders)***

Net investment to a fund (*fund flow*) has two components:

1) Investment (*flow*) from AFoMFs

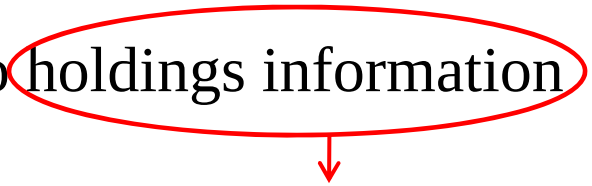
2) Investment (*flow*) from outsiders

Our research hypothesis:
AFoMFs provide liquidity to distressed member funds

AFoMF inflow when outsider *out*flow is high

Data

- Morningstar CD's
  - FoF flag
  - FoF portfolio holdings information



What it has:

Info on which funds AFoMFs bought/sold/kept during the Quarter/month

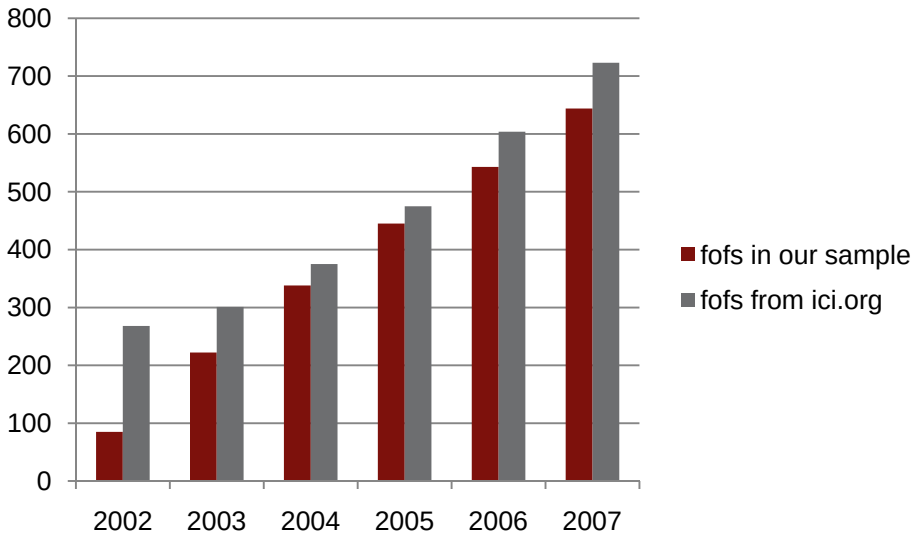
What it does not have:

Info on member funds they could have bought but *chose* not to

- CRSP Survivorbias-free Mutual Fund Database
  - AFoMF characteristics (fees, flows, family, age, style, etc.,)
  - member MF characteristics (fees, flows, family, age, style, etc.,)
  - returns/AUM/NAV

AFoMFs and their fees

AFoMF Trends



AFoMF Fees

	AFOF	UFOF	MF
2002	0.0065	0.0138	**0.0126**
2003	0.0065	0.0146	**0.0125**
2004	0.0066	0.0141	**0.0122**
2005	0.0065	0.0152	**0.0120**
2006	0.0060	0.0146	**0.0119**
2007	0.0058	0.0144	**0.0115**
2008	0.0057	0.0134	**0.0113**

Tests of Liquidity Provision

Our goal is to investigate the relation between AFoMF flow and outside investor flow, especially when outside investor flow is large and negative (outflow)

- Univariate analyses (in this presentation)
- Multivariate analyses (most in the paper):

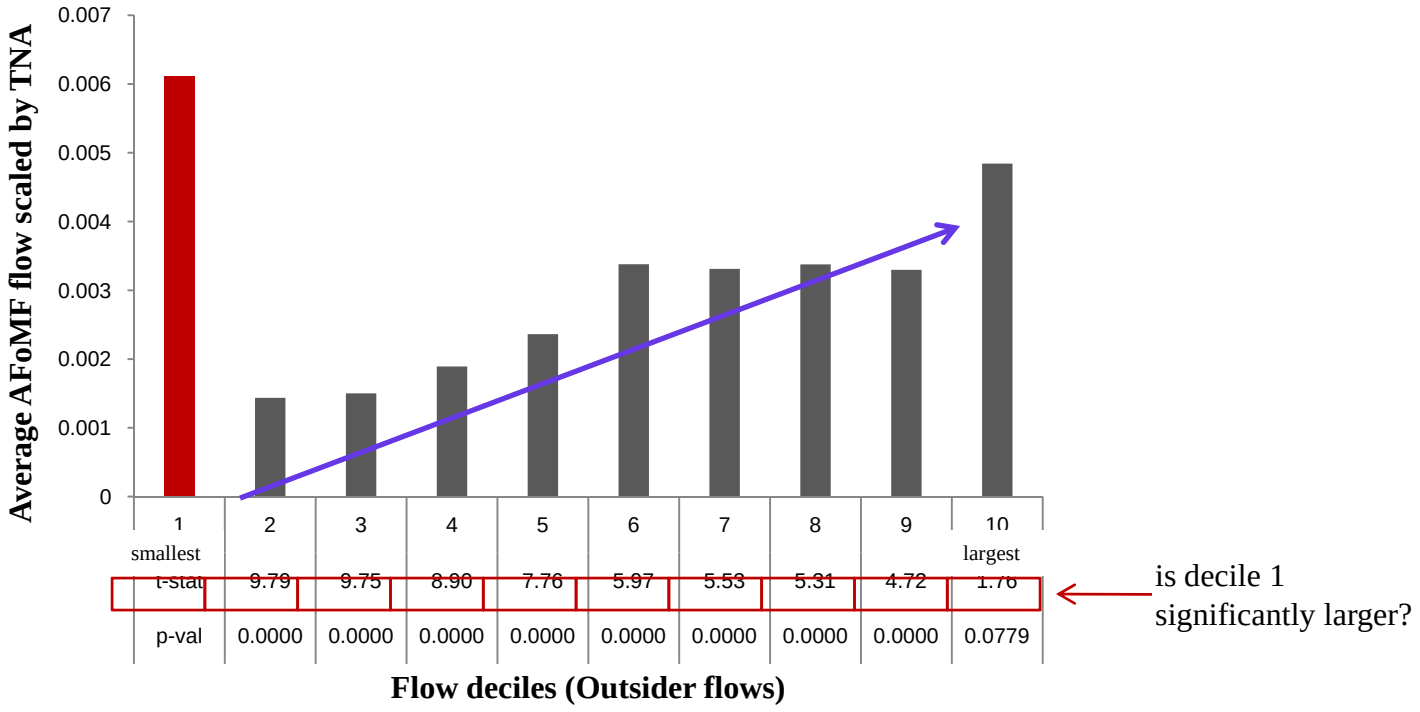
$$Flow_{j,t}^{AFoMF} = f\{Flow_{j,t}^{Outsider} \mid Flow_{j,t}^{Outsider} = extreme(-) + controls\}$$

Controls:
Past performance of fund *j*
Past flows (past AFoMF flow, past outsider flow)
AFoMF budget
Characteristics of member fund *j*, such as fees, size

Basic Test of Liquidity Provision – Graphical Result

$$Flow_{j,t}^{Total} = Flow_{j,t}^{AFoMF} + Flow_{j,t}^{Outsider}$$

(y-axis) *(x-axis)*

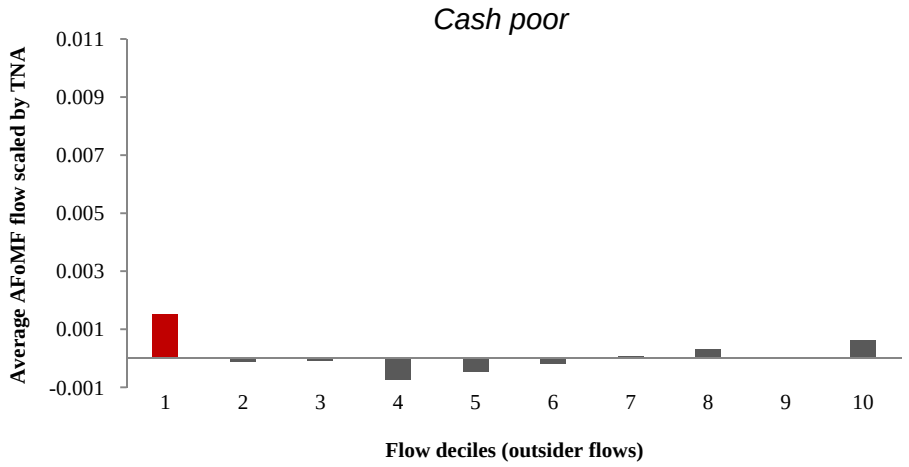


Basic Test of Liquidity Provision – Formal Result

	Pooled (Fixed Effects)		Fama-MacBeth	
Outside Investor flow (β_1)	0.0143[a]	0.0122[a]	0.0071[c]	0.0024
	(6.71)	(5.43)	(2.03)	(0.42)
I*outside investor flow (β_2)	-0.0955[a]	-0.1015[a]	-0.0705[a]	-0.0731[a]
	(-18.99)	(-18.75)	(-4.79)	(-4.42)
Previous performance	0.0001	0.0001	0.0004[b]	0.0002
	(1.21)	(0.09)	(2.77)	(0.59)
Flow to AFoMF (budget constraint)	0.0109[a]	0.0113[a]	0.0242[a]	0.0258[a]
	(10.89)	(10.46)	(6.11)	(5.60)
Lag(Flow from AFoMF)	0.3182[a]	0.3047[a]	0.3444[a]	0.3361[a]
	(51.91)	(48.03)	(11.26)	(11.08)
Lag(Outside investor flow)	0.0068[a]	0.0074[a]	0.0103	0.0134
	(3.96)	(4.07)	(1.98)	(1.84)
AFoMF holding's exp ratio	-0.1731[a]	-0.1937[a]	-0.1347[a]	-0.1626[a]
	(-6.23)	(-6.56)	(-5.32)	(-5.69)
AFoMF holding's size	-0.0004[a]	-0.0004[a]	-0.0006[a]	-0.0007[a]
	(-7.08)	(-6.54)	(-7.29)	(-7.16)
AFoMF holding's cash position		0.0001[b]		0.0001[c]
		(2.81)		(2.47)
I*AFoMF holding's cash position		-0.0001[b]		-0.0000
		(-2.3)		(-1.06)
N	20997	19758	20997	19758
R-Sqr	0.2206	0.2142	0.1934	0.1944

Results of Other Liquidity Provision Tests

- It should not matter whether the AFoMF is cash rich or cash poor
- It should be more prevalent if the underlying fund's assets are more illiquid
- It should be more prevalent if liquidity is style-wide rather than fund-specific
- It should be more prevalent if the liquidity shortfall is transient rather than persistent



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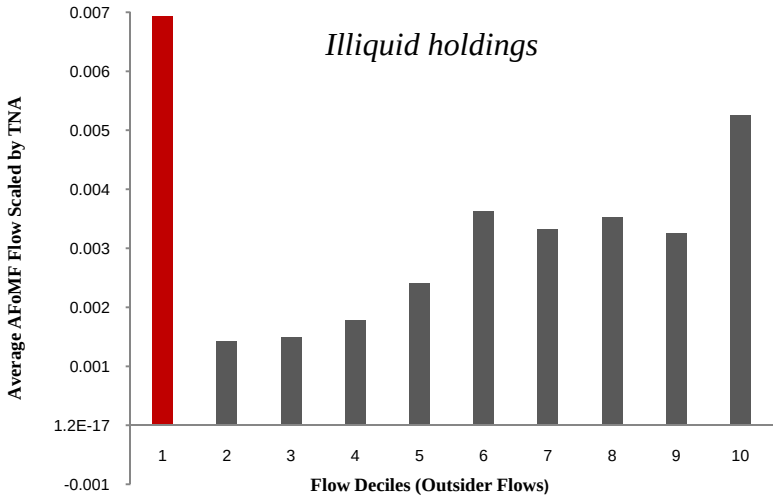

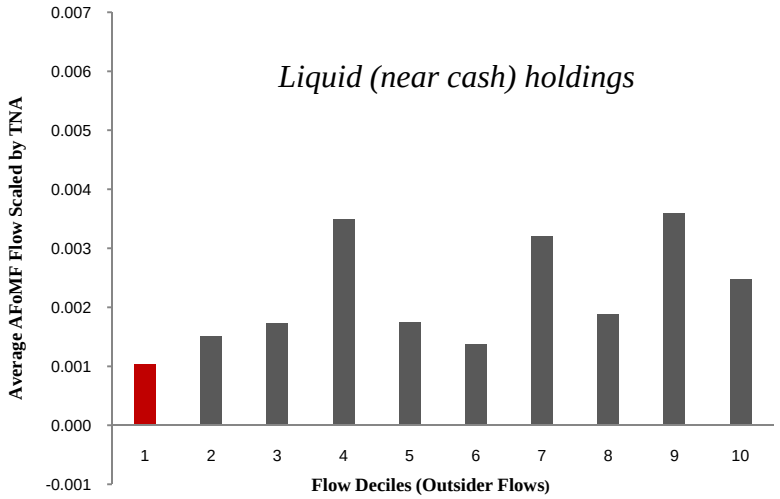

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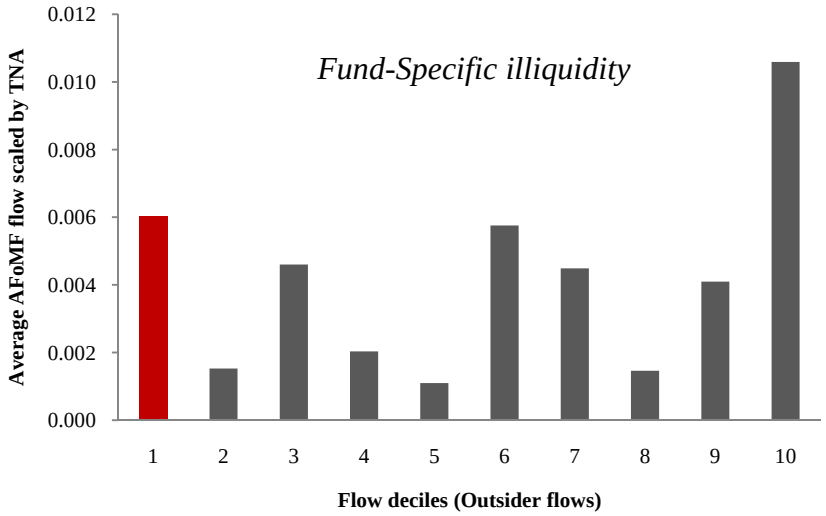
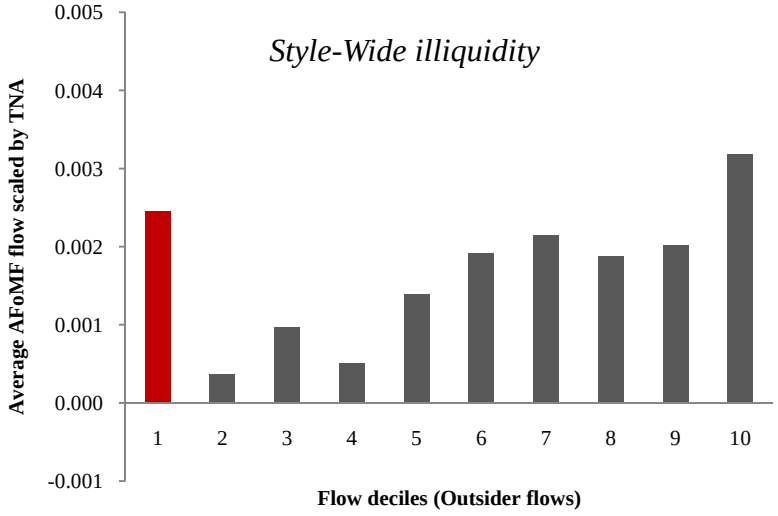
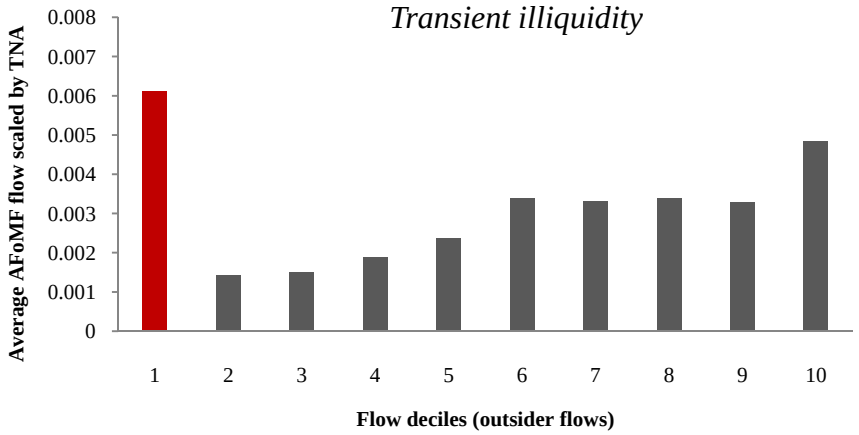
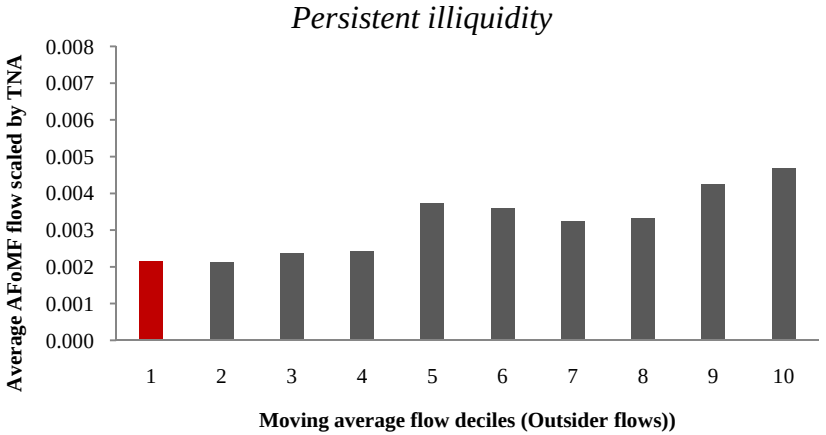




Results of Other Liquidity Provision Tests

- It should not matter whether the AFoMF is cash rich or cash poor
- It should be more prevalent if the underlying fund's assets are more illiquid
- It should be more prevalent if liquidity is style-wide rather than fund-specific
- It should be more prevalent when liquidity shortfall is transient rather than persistent





Results of Other Liquidity Provision Tests

- It should not matter whether the member fund was a star:

Deciles	$\beta_1+\beta_2$ (Past Sharpe Ratio)	$\beta_1+\beta_2$ (Past Cumulative Return)	$\beta_1+\beta_2$ (Past style-Adjusted Return)
1	-0.0607	-0.0054	0.0055
	(-1.47)	(-0.28)	(0.37)
2	-0.0254	-0.0567	-0.1545[a]
	(-0.86)	(-1.33)	(-3.35)
3	-0.0924[b]	-0.1260[a]	-0.0980[b]
	(-2.08)	(-3.50)	(-2.24)
4	-0.1013[b]	-0.0546	-0.1011[b]
	(-2.50)	(-1.41)	(-2.06)
5	-0.0690	-0.1295[b]	-0.1164[a]
	(-1.55)	(-2.49)	(-2.75)
6	-0.0947[a]	-0.0806[b]	-0.0581[b]
	(-3.09)	(-2.33)	(-1.96)
7	-0.1018[a]	-0.1152[a]	-0.0470
	(-2.82)	(-3.60)	(-1.81)
8	-0.1043[a]	-0.1419[a]	-0.1876[a]
	(-3.01)	(-3.43)	(-4.37)
9	-0.1325[a]	-0.0812[b]	-0.0861[b]
	(-3.27)	(-2.55)	(-2.64)
10	-0.1038[a]	-0.0592[b]	-0.0315
	(-2.65)	(-2.07)	(-1.72)

Discounting Other Hypotheses

The AFoMF believes that outside money is stupid. If true, we should see a downward sloping curve.

The AFoMF believes that outside money is smart, or a momentum strategy is being followed. If true, we should see an upward sloping curve.

AFoMF *in*flow could accompany extreme (both positive and negative) outside investor flow to counteract value erosion because of transaction costs incurred in extreme buying or selling. If true, we should see our U-shaped curve, but we cannot explain the results in our next table.

As AFoMF are insiders, their trades could be information driven. If true, we cannot explain the results in our next table.

AFoMF cost

Do they really do it to help OR is it strategic/information driven?

	Positive Flow Portfolios			Negative Flow Portfolios		
	All Buys Portfolio	Distressed Fund Portfolio	Portfolio of All Other Funds	All Sells Portfolio	Distressed Fund Portfolio	Portfolio of All Other Funds
Alpha	0.0007	-0.0033[c]	0.0040[a]	-0.0009	-0.0004	-0.0012
	(0.79)	(-1.79)	(4.18)	(-0.59)	(-0.18)	(-0.83)
MKTX	0.6882[a]	0.6780[a]	0.6340[a]	0.7504[a]	0.9002[a]	0.7616[a]
	(21)	(9.79)	(18.09)	(13.13)	(9.29)	(13.83)
SMB	0.0023	-0.0381	0.0132	-0.0616	0.1133	-0.0857
	(0.05)	(-0.44)	(0.3)	(-0.85)	(1.02)	(-1.23)
HML	-0.0112	-0.0227	-0.0437	0.1221	-0.0239	0.1097
	(-0.25)	(-0.24)	(-0.93)	(1.59)	(-0.20)	(1.48)
MOM	-0.0928[a]	-0.1232[b]	-0.0581[b]	0.2282[a]	-0.1013	0.2432[a]
	(-4.22)	(-2.39)	(-2.47)	(5.94)	(-1.46)	(6.57)
D10YR	-0.6482	-1.1884	-1.0693[b]	-1.7502[b]	0.4929	-2.0690[a]
	(-1.60)	(-1.38)	(-2.46)	(-2.47)	(0.47)	(-3.03)
DSPR	0.5135	-2.2515	0.086	-4.0092[a]	-2.605	-4.0300[a]
	(0.67)	(-1.26)	(0.1)	(-2.98)	(-1.05)	(-3.11)
MSCI	0.0051	0.0062	-0.0459[a]	0.0059	0.0388	0.005
	(0.33)	(0.19)	(-2.74)	(0.22)	(0.99)	(0.19)
N	66	66	66	66	57	66
R-Sqr	0.9298	0.7761	0.8974	0.8192	0.8387	0.8284

Distressed fund benefit

	Pooled (Fixed Effects)	Fama-MacBeth
I	-0.0008[a]	-0.0009[a]
	(-2.82)	(-3.3)
I*AFoMF Flow	0.0524[b]	0.0481[c]
	(2.31)	(1.74)
Total Flow	-0.0005	-0.0006
	(-0.6)	(-0.4)
Total Flow Squared	-0.0002	0.01
	(-0.36)	(1.07)
Fund Fees	0.1528[a]	0.0864[c]
	(6.05)	(1.72)
Fund Size	0.0000	0.0001
	(0.02)	(0.55)
Abnormal Return$_{t-1}$	0.1957[a]	0.1790[a]
	(39.51)	(5.38)
Abnormal Return$_{t-2}$	0.1632[a]	0.1459[a]
	(33.91)	(8.91)
Abnormal Return$_{t-3}$	0.0147[a]	0.0104
	(2.97)	(0.36)
Abnormal Return$_{t-4}$	-0.0018	-0.0049
	(-0.36)	(-0.27)
Abnormal Return$_{t-5}$	-0.0535[a]	-0.0566[c]
	(-11.22)	(-2.07)
Abnormal Return$_{t-6}$	-0.0199[a]	-0.0288
	(-3.99)	(-1.38)
N	20448	20448
R-sqr	0.1298	0.1460

Benefit versus Cost: The Family Perspective in Returns

- Cost to AFoMF:

  Weighted average performance of the top nine deciles minus the weighted average performance of all ten deciles

  = 7.11 basis points per month

- Benefit to distressed fund:

  = 0.0481(coefficient from previous table)

  X 0.0061 (from first figure)

  = 2.94 basis points per month

The Fallacy of Returns

Mickey: "Though my stock went from 100 to 2 - a fall of 98% - it eventually went from 2 to 4 – a gain of 100%.
Minnie: "My hero!!!"

Benefit versus Cost: The Family Perspective in Dollars

- Cost to AFoMFs in industry to provide liquidity:
  - = 7.11 basis points per month (previous slide)
  - x $ 1.73 billion (the average size of all AFoMFs in a family)
  - x 71.63 (the average number of families with AFoMFs)
  - = $88 million a month to provide liquidity
- Benefit to distressed funds in industry:
  - = 2.94 basis points per month (previous slide)
  - x $1.44 billion (average size of distressed fund)
  - x 3.54 (average number of distressed mutual funds per family)
  - x 71.63 (the average number of families with AFoMFs)
  - = $107 million a month saved

Conclusion

- **We document that AFoMFs offset severe liquidity shortfalls of other family funds.**
- **This objective is not mentioned in any AFoMF prospectus.**
- **We show that this action reduces investment performance of AFoMF.**
- **We show that this sacrifice does benefit the family. It improves the investment performance of the mutual funds that receive such liquidity. Maybe because it prevents them from doing fire sales.**
- **We show that the benefit exceeds the cost, which suggests that the cross-subsidy is rational for the family.**
- **There are two important questions this paper does not answer:**
  - **Why does the manager of the AFoMF sacrifice his fund's investment performance to benefit the family?**
  - **Do AFoMF shareholders not know about this liquidity subsidy, or they know and they acquiesce (an implicit contract?)?**

APPENDICES

Do Fees Matter?

Fee Deciles	$\beta_1+\beta_2$
1	-0.1225[a]
	(-5.48)
2	-0.1070[a]
	(-6.93)
3	-0.0281
	(-1.72)
4	-0.0408[b]
	(-2.78)
5	-0.1424[a]
	(-8.69)
6	-0.1172[a]
	(-6.95)
7	-0.0914[a]
	(-7.36)
8	-0.0549[a]
	(-4.34)
9	-0.0621[a]
	(-4.44)
10	-0.1673[a]
	(-11.07)