

Flow-Induced Momentum in Mutual Funds: Evidence from Crypto Exposure

Si Cheng¹, Jingrui Li², Ruming Liu²

Whitman School of Management, Syracuse University¹,
School of Business, Stevens Institute of Technology²

Stevens Institute of Technology
May 7, 2026

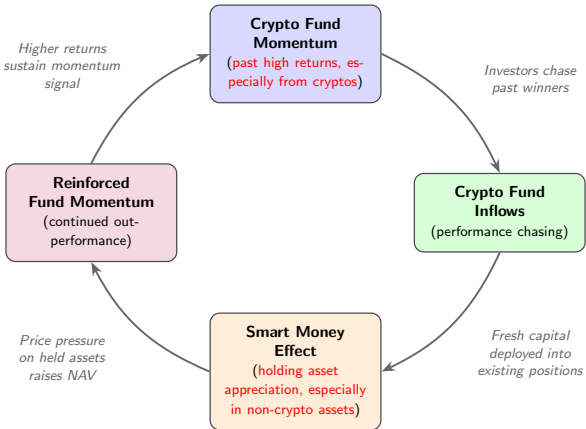
Research Questions

- Satoshi Nakamoto (2008) proposed the first decentralized peer-to-peer payment network – the prototype of the Bitcoin blockchain system.
- Cryptocurrencies, worth over US\$2 trillion, has emerged as a new asset class
- Question 1: Which stocks are related to cryptocurrency?
- Question 2: How do mutual funds respond to cryptocurrency exposure?
- Question 3: What is the impact of cryptocurrency exposure on mutual fund?

Literature Review

- Lou 2012 documents that the mutual fund flow initially affects contemporaneous stock returns, this flow-based mechanism can also give rise to the smart money effect.
- Song 2020 identifies mutual fund flows respond positively to returns associated with exposures to common factors.
- Carhart 1997 finds mutual funds' past-year returns positively predict their raw excess return and risk adjusted alpha over the next year.
- Kaniel et al. 2023 apply machine learning techniques to mutual fund and find that fund flows and fund return momentum are the main two characteristics that can meaningfully and robustly help distinguish performance of funds.
- Chakraborty et al. 2018, Ben-David et al. 2022, Evans and Sun 2021, Solomon, Soltes, and Sosyura 2014, and Akbas and Genc 2020, these papers focus discuss the investor behavior when allocating capital among funds.

Mechanism



Data

- For the holding data of mutual fund, we use CRSP mutual fund holdings database as supplement for the Thomson Reuters (TR) s12 database for fund holdings.
- Mutual fund monthly characteristics data is obtained from the CRSP mutual fund database.
- Monthly stock returns and share price data are obtained from the CRSP stock database.
- Monthly factor returns are obtained from Kenneth French's data library.¹
- The monthly return of the S&P Bitcoin Index is obtained from S&P Global.²

¹[https:](https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html)

[//mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html](https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html)

²[https:](https://www.spglobal.com/spdji/en/indices/digital-assets/sp-bitcoin-index/)

[//www.spglobal.com/spdji/en/indices/digital-assets/sp-bitcoin-index/](https://www.spglobal.com/spdji/en/indices/digital-assets/sp-bitcoin-index/)

Data Cleaning

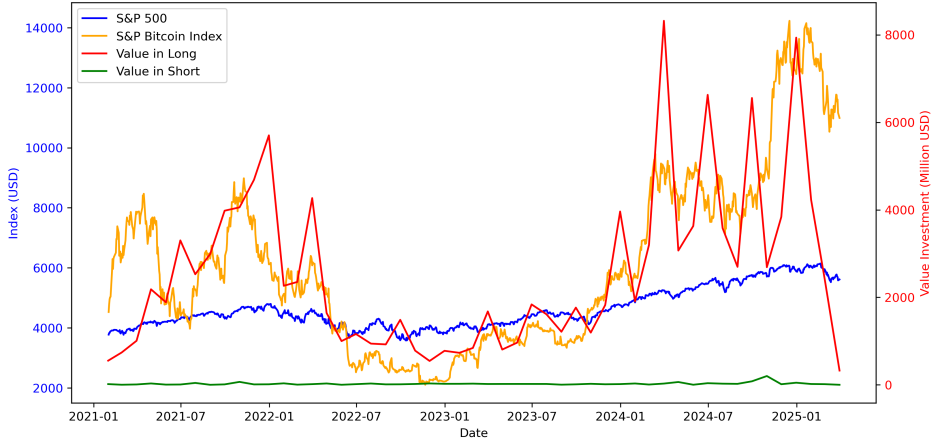
- Following the data cleaning procedure as Avramov, Cheng, and Tarelli 2022, we identify equity funds based on the objective codes from the CRSP following Kacperczyk, Sialm, and Zheng 2008.
- We exclude funds identified by the CRSP *index_fund_flag* as index funds.
- We further restrict our sample to funds that have TNA of at least \$15 million to avoid the survivorship bias problem (Pástor, Stambaugh, and Taylor 2015) and eliminate observations before the fund's starting date reported by CRSP to avoid incubation bias (Evans 2010).

Crypto Stocks and Crypto Mutual Funds

- Our sample covers the period from January 2021 to March 2025, which coincides with the rapid rise of institutional interest in crypto-related assets following the mainstream adoption of Bitcoin and other digital assets.
- We construct a hand-collected classification of crypto-related stocks. Specifically, for each stock ever held by mutual funds in our sample, we manually conduct a Google search (restricting to the first three pages of results) and examine whether the news coverage or company descriptions indicate a meaningful connection to crypto or blockchain technology.
- Based on this stock-level classification, we define a crypto mutual fund as any equity mutual fund that held at least one crypto-related stock at any point during our sample period.

Blockchain/Crypto Investment Trends

Fund Investment in Blockchain Security



Crypto Mutual Fund Characteristics I

Non-crypto Mutual Fund

	Mean	Std	10%	25%	50%	75%	90%	Skew
Fund Return	0.0028	0.0454	-0.0499	-0.0218	0.0030	0.0269	0.0557	6.4501
Gross Of Fee Fund Return	0.0035	0.0454	-0.0492	-0.0212	0.0036	0.0276	0.0564	6.4554
Gross Of Fee Benchmark Adjusted Return	0.0005	0.0243	-0.0206	-0.0077	0.0005	0.0090	0.0215	43.3372
Fund Flow	-0.0012	0.0555	-0.0315	-0.0135	-0.0037	0.0071	0.0335	-4.9092
Log Tna	5.6363	2.0779	2.9704	4.2413	5.7008	7.0850	8.2875	-0.1640
Expense Ratio	0.0080	0.0040	0.0032	0.0053	0.0079	0.0101	0.0125	1.5256
Turnover Ratio	0.8214	3.7498	0.1200	0.2300	0.4100	0.7600	1.4600	83.4535
Log Fund Age	4.9155	1.1152	3.3093	4.3711	5.1963	5.7702	6.0357	-1.1594
Gross Of Fee Capm Adjusted Return	-0.0025	0.0319	-0.0289	-0.0136	-0.0021	0.0083	0.0229	31.4323
Btc Exposure	0.0769	0.1243	-0.0139	0.0021	0.0394	0.1152	0.2263	9.8551
Crypto Percent Tna	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Crypto Mutual Fund

	Mean	Std	10%	25%	50%	75%	90%	Skew
Fund Return	0.0039	0.0647	-0.0740	-0.0320	0.0080	0.0385	0.0744	0.3349
Gross Of Fee Fund Return	0.0046	0.0647	-0.0732	-0.0314	0.0089	0.0391	0.0752	0.3345
Gross Of Fee Benchmark Adjusted Return	-0.0004	0.0380	-0.0315	-0.0113	0.0007	0.0121	0.0291	0.7810
Fund Flow	0.0012	0.0641	-0.0318	-0.0121	-0.0034	0.0089	0.0439	-2.2030
Log Tna	5.9595	2.3820	2.5726	4.3047	6.1555	7.5483	8.8119	-0.0981
Expense Ratio	0.0085	0.0044	0.0027	0.0054	0.0084	0.0108	0.0145	0.7048
Turnover Ratio	1.0440	2.0406	0.1300	0.3200	0.5800	1.0200	2.1000	9.5549
Log Fund Age	4.7991	1.1813	3.1485	4.2042	5.0518	5.7313	6.0034	-1.0382
Gross Of Fee Capm Adjusted Return	-0.0019	0.0885	-0.0363	-0.0151	-0.0009	0.0116	0.0298	56.0498
Btc Exposure	0.1644	0.2177	-0.0020	0.0346	0.1003	0.2254	0.3861	2.8472
Crypto Percent Tna	2.2248	9.1501	0.0000	0.0200	0.1500	0.6600	2.5280	6.0638
Fund Return From Crypto	0.0006	0.0414	-0.0016	-0.0002	0.0000	0.0003	0.0022	-16.9074
Fund Return From Non Crypto	0.0033	0.0630	-0.0691	-0.0310	0.0075	0.0376	0.0700	4.7695

Crypto Mutual Fund Characteristics II

- Crypto funds attract net positive fund flows on average (0.12% per month), consistent with the idea that investors chase the strong performance of crypto-exposed funds.
- Crypto funds tend to be slightly larger and charge modestly higher expense ratios, and exhibit higher portfolio turnover, reflecting more active management.
- Average BTC exposure of crypto funds (0.164) is more than twice that of the average equity fund (0.077), confirming that our classification captures meaningful differences in crypto-market sensitivity.

Crypto Fund Momentum I

Non-crypto funds

Decile	$R^{12,1}$	$\hat{\alpha}^{5F}$	$\hat{\alpha}^{6F}$
Q1	0.35% (0.44)	0.41% (0.48)	0.21% (0.26)
Q2	0.44% (0.62)	0.47% (0.60)	0.31% (0.41)
Q3	0.21% (0.37)	0.21% (0.33)	0.09% (0.15)
Q4	0.26% (0.51)	0.23% (0.40)	0.11% (0.20)
Q5	0.11% (0.23)	0.12% (0.22)	0.01% (0.01)
Q6	0.28% (0.48)	0.38% (0.60)	0.24% (0.40)
Q7	0.33% (0.53)	0.50% (0.73)	0.37% (0.56)
Q8	0.12% (0.19)	0.23% (0.33)	0.12% (0.18)
Q9	0.37% (0.56)	0.60% (0.85)	0.49% (0.70)
Q10	0.64% (0.93)	0.90% (1.26)	0.79% (1.11)
Q10-Q1	0.29% (0.58)	0.49% (0.89)	0.58% (1.06)

Crypto Fund Momentum II

Crypto funds

Decile	$R^{12,1}$	$\hat{\alpha}^{5F}$	$\hat{\alpha}^{6F}$	$\hat{\alpha}_{Crypto}^{6F}$	$\hat{\alpha}_{Non-Crypto}^{6F}$
Q1	-0.27% (-0.23)	0.10% (0.08)	-0.11% (-0.09)	0.15% (0.84)	-0.33% (-0.29)
Q2	0.64% (0.61)	0.93% (0.83)	0.81% (0.74)	-0.34% (-0.81)	1.08% (0.99)
Q3	0.40% (0.41)	0.73% (0.71)	0.56% (0.55)	-0.03% (-0.44)	0.53% (0.54)
Q4	0.50% (0.47)	0.91% (0.80)	0.72% (0.64)	0.04% (0.72)	0.63% (0.56)
Q5	0.37% (0.42)	0.68% (0.72)	0.55% (0.59)	0.01% (0.51)	0.49% (0.52)
Q6	0.24% (0.26)	0.59% (0.59)	0.46% (0.46)	0.04% (1.13)	0.36% (0.37)
Q7	-0.05% (-0.06)	0.20% (0.21)	0.06% (0.07)	-0.01% (-0.58)	0.02% (0.02)
Q8	0.52% (0.58)	0.78% (0.82)	0.63% (0.67)	-0.01% (-0.36)	0.59% (0.64)
Q9	0.91% (1.04)	1.24% (1.33)	1.08% (1.18)	0.02% (0.97)	1.01% (1.12)
Q10	1.02% (1.11)	1.37% (1.42)	1.21% (1.27)	0.01% (0.72)	1.15% (1.21)
Q10-Q1	1.29% (1.84)	1.27% (1.70)	1.32% (1.73)	-0.14% (-0.79)	1.48% (1.95)

Crypto Fund Momentum III

- At the end of each month, we sort funds into ten deciles based on their past performances: prior one-year cumulative gross return skipping a month, five-factor adjusted return, and six-factor adjusted return.
- Momentum effect is concentrated among crypto funds.

Crypto Fund Flow I

Crypto funds

Decile	$R^{12,1}$	R	α^{6F}
Q1	-1.45% (-5.82)	-0.89% (-5.60)	-0.35% (-2.51)
Q2	-0.65% (-4.72)	-0.48% (-2.94)	-0.56% (-4.01)
Q3	-0.86% (-5.51)	-0.36% (-2.11)	-0.11% (-1.18)
Q4	-1.31% (-1.59)	-0.26% (-2.09)	-0.47% (-3.30)
Q5	-0.65% (-5.03)	0.13% (1.27)	0.05% (0.34)
Q6	-0.27% (-2.21)	-0.06% (-0.43)	-0.13% (-1.16)
Q7	-0.14% (-0.77)	-0.23% (-0.68)	-0.26% (-1.50)
Q8	-0.11% (-0.58)	0.11% (0.62)	-0.23% (-0.67)
Q9	0.03% (0.14)	0.07% (0.47)	0.05% (0.32)
Q10	0.29% (1.57)	0.48% (2.49)	0.59% (2.99)
Q10-Q1	1.74% (6.74)	1.38% (5.69)	0.94% (3.55)

Non-crypto funds

Decile	$R^{12,1}$	R	α^{6F}
Q1	-0.97% (-4.01)	-0.62% (-5.71)	-0.42% (-3.41)
Q2	-0.85% (-5.56)	-0.24% (-2.33)	-0.53% (-4.04)
Q3	-0.73% (-4.44)	-0.14% (-1.21)	-0.42% (-3.38)
Q4	-0.64% (-6.93)	-0.32% (-1.87)	-0.34% (-4.11)
Q5	-0.48% (-5.04)	-0.23% (-2.91)	-0.23% (-3.08)
Q6	-0.52% (-6.21)	-0.26% (-2.98)	-0.29% (-3.45)
Q7	-0.37% (-3.30)	-0.24% (-2.62)	-0.23% (-3.20)
Q8	-0.41% (-3.73)	-0.15% (-1.49)	-0.13% (-1.73)
Q9	-0.38% (-3.82)	-0.32% (-3.58)	-0.03% (-0.31)
Q10	-0.13% (-1.08)	0.14% (1.20)	0.26% (2.01)
Q10-Q1	0.83% (2.57)	0.76% (5.71)	0.68% (4.60)

Crypto Fund Flow II

- We consider three measures of past returns of mutual fund.
- Across all three sorting criteria, winner crypto funds attract substantially larger inflows than their non-crypto counterparts.
- This result suggests that investors in crypto funds may be more prone to chasing past performance, potentially due to heightened attention and sentiment surrounding crypto assets, or a stronger belief in the persistence of skill among crypto fund managers.

Response of Fund Flows to Factor-Related Returns I

Crypto funds

Quintile	Δ_{BTC}	Δ_{SMB}	Δ_{HML}	Δ_{RMW}	Δ_{CMA}	Δ_{UMD}
Q1	-0.01 (-0.12)	-0.37* (-1.89)	-0.36** (-1.97)	-0.20** (-1.98)	0.15 (0.83)	-0.04 (-0.21)
Q2	-0.37*** (-2.61)	-0.38*** (-5.01)	-0.13 (-1.31)	-0.33*** (-2.77)	-0.34*** (-2.83)	-0.25*** (-2.73)
Q3	-0.43*** (-4.65)	-0.04 (-0.34)	0.02 (0.20)	-0.21*** (-2.80)	-0.43** (-2.39)	-0.35*** (-3.77)
Q4	-0.30 (-1.49)	-0.04 (-0.34)	-0.08 (-1.13)	-0.15* (-1.80)	-0.28*** (-3.65)	-0.30*** (-3.37)
Q5	0.28** (2.01)	0.10 (0.74)	-0.19 (-1.41)	0.17 (0.66)	0.21 (1.04)	0.07 (0.29)
Q5-Q1	0.30* (1.91)	0.47** (2.19)	0.22 (1.35)	0.39 (1.52)	0.06 (0.19)	0.11 (0.67)

Non-crypto funds

Quintile	Δ_{BTC}	Δ_{SMB}	Δ_{HML}	Δ_{RMW}	Δ_{CMA}	Δ_{UMD}
Q1	-0.01 (-0.05)	-0.20 (-1.52)	-0.40** (-2.51)	-0.16 (-1.33)	-0.18 (-1.44)	0.01 (0.09)
Q2	-0.35*** (-3.54)	-0.33** (-2.23)	-0.22* (-1.83)	-0.28*** (-2.58)	-0.29** (-2.13)	-0.32*** (-3.56)
Q3	-0.42*** (-2.88)	-0.41*** (-4.64)	-0.20* (-1.78)	-0.34*** (-2.75)	-0.37*** (-3.91)	-0.41*** (-4.45)
Q4	-0.38*** (-3.81)	-0.21* (-1.88)	-0.15 (-1.45)	-0.25** (-2.37)	-0.28** (-2.40)	-0.39*** (-3.18)
Q5	-0.02 (-0.16)	-0.03 (-0.31)	-0.23* (-1.94)	-0.16 (-1.42)	-0.04 (-0.31)	-0.07 (-0.46)
Q5-Q1	-0.01 (-0.06)	0.17* (1.70)	0.16 (1.54)	-0.01 (-0.09)	0.14 (1.17)	-0.08 (-0.69)

Response of Fund Flows to Factor-Related Returns II

- Song 2020 documents precisely such a mismatch in mutual fund market: investors reward managers for factor-related returns.
- For each factor k , we define the factor-related return as $\Delta_{k,i,t} = \hat{\beta}_{k,i} \cdot F_{k,t}$, the product of the fund's estimated loading on factor k and the factor's realization in month t .
- Each month, funds are sorted into quintiles by $\Delta_{k,i,t}$ and we report the time-series average of next-month flows to each quintile.
- To capture crypto-specific risk compensation, we augment the standard six factors with a BTC factor, defined as the excess return of the S&P Bitcoin index over the risk-free rate.
- A positive and significant Q5–Q1 flow spread for a given factor would indicate that investors are rewarding passive risk exposure to that factor rather than genuine managerial skill.
- For crypto funds, we find that the fund flow response is concentrated in size-related returns, and crypto-related returns.

Fama-Macbeth Regression of Fund Flows I

	Fund Flow _{<i>i</i> ∈ Crypto Fund} _{<i>t</i>+1}					
$R_{i,t}^{Crypto}$	0.1341 (1.0604)		0.2121** (2.1390)	0.2616** (2.5430)	0.3648*** (2.8757)	0.3670** (2.1262)
$R_{i,t}^{Non-crypto}$		0.0585* (1.8059)		0.0540** (2.1025)	0.0383 (0.8900)	0.0822 (1.3384)
$Fund\ Flow_{i,t}$			0.1741*** (8.6164)	0.1728*** (8.6865)	0.1918*** (4.8467)	0.0997 (1.3507)
$Fund\ Flow_{i,t-1}$			0.1971*** (4.0867)	0.1941*** (4.2127)	0.2281** (2.3680)	0.2198*** (2.7236)
$Fund\ Flow_{i,t-2}$			0.0943*** (4.2706)	0.0968*** (4.4355)	0.0909*** (2.8882)	-0.0365 (-0.3412)
$Fund\ Flow_{i,t-3}$			0.0776*** (4.3011)	0.0810*** (5.2861)	0.0715*** (2.9058)	0.1405** (2.1871)
Constant	-0.0032*** (-4.2102)	-0.0026** (-1.9628)	-0.0021*** (-4.3302)	-0.0020** (-2.1889)	-0.0026** (-2.0208)	-0.0111*** (-3.4669)
Observations	15055	15055	15055	15055	6765	1043
R^2	0.0057	0.0157	0.2005	0.2108	0.2666	0.4831
Adjusted R^2	-0.2462	-0.2758	0.5611	-0.6846	-0.2017	0.9903
Residual Std. Error	0.9559	1.1931	0.6644	1.0300	1.3719	0.1103
F Statistic	0.1111	0.0271	2.9176	0.4775	0.7842	132.3252***

Note:

- We further examine the flow-return relationship using Fama-Macbeth regressions of next-month fund flows on decomposed returns, controlling for past fund flows.

Fama-Macbeth Regression of Fund Flows II

- Following Kacperczyk, Sialm, and Zheng 2005, we decompose the fund gross return $R_{i,t}$ into a crypto-related component $R_{i,t}^{Crypto}$ and a non-crypto component $R_{i,t}^{Non-crypto}$:

$$R_{i,t}^{Crypto} = R_{i,t} \cdot \frac{\sum_{j \in \mathcal{C}} w_{j,i,t} r_{j,t}}{\sum_j w_{j,i,t} r_{j,t}}, \quad R_{i,t}^{Non-crypto} = R_{i,t} - R_{i,t}^{Crypto}.$$

- The coefficient on $R_{i,t}^{Crypto}$ is economically large. This points to crypto decomposed return is a powerful fund-absorbing channel, consistent with investors directing disproportionate capital toward funds that benefit from crypto market exposure.

Fama-Macbeth Regression of Fund Flows III

- The fifth column restricts to fund-months in which the monthly S&P Bitcoin index return exceeds its full-sample median (bull-market subsample).
- The sixth column restricts to crypto mutual funds whose crypto stock holdings rank above the 80th percentile within the crypto mutual funds of that month (high crypto exposure subsample).
- In these two subsamples, we find that crypto related returns have stronger effects on fund flow attraction after controlling for lagged flows.

Smart Money Effect of Fund Flow-induced Trading I

Flow-induced smart money effect from crypto funds

Month Quintile	0	1	2	3	4	5	6
Q1	-0.257 (-0.34)	-0.220 (-0.42)	-0.241 (-0.55)	-0.188 (-0.50)	-0.201 (-0.60)	-0.146 (-0.48)	-0.109 (-0.38)
Q5	0.636 (0.98)	0.276 (0.61)	0.169 (0.47)	0.114 (0.37)	0.188 (0.68)	0.178 (0.72)	0.210 (0.90)
Q5-Q1	0.893*** (3.02)	0.497** (2.16)	0.409** (2.17)	0.302* (1.89)	0.390*** (2.76)	0.324** (2.55)	0.319*** (2.71)

Flow-induced smart money effect from non-crypto funds

Month Quintile	0	1	2	3	4	5	6
Q1	-0.045 (-0.07)	-0.051 (-0.12)	-0.099 (-0.28)	-0.098 (-0.31)	-0.073 (-0.26)	-0.054 (-0.21)	0.003 (0.01)
Q5	0.363 (0.61)	0.141 (0.33)	0.048 (0.14)	-0.008 (-0.03)	0.007 (0.03)	0.007 (0.03)	0.006 (0.03)
Q5-Q1	0.408** (2.08)	0.192 (1.24)	0.147 (1.20)	0.090 (0.81)	0.080 (0.83)	0.061 (0.72)	0.003 (0.03)

Smart Money Effect of Fund Flow-induced Trading II

Flow-induced smart money effect from crypto funds on crypto stocks

Month Quintile	0	1	2	3	4	5	6
Q1	5.303 (1.03)	2.209 (0.72)	3.027 (1.22)	2.083 (1.05)	2.410 (1.39)	2.534 (1.61)	2.903** (1.99)
Q5	4.429 (1.26)	2.148 (0.84)	2.026 (0.95)	2.737 (1.52)	2.573* (1.66)	2.596* (1.78)	2.625* (1.95)
Q5-Q1	-0.874 (-0.21)	-0.061 (-0.03)	-1.001 (-0.55)	0.654 (0.42)	0.163 (0.12)	0.062 (0.05)	-0.278 (-0.23)

Flow-induced smart money effect from crypto funds on non-crypto stocks

Month Quintile	0	1	2	3	4	5	6
Q1	-0.263 (-0.36)	-0.225 (-0.43)	-0.251 (-0.59)	-0.209 (-0.56)	-0.223 (-0.68)	-0.167 (-0.56)	-0.131 (-0.47)
Q5	0.596 (0.92)	0.235 (0.53)	0.131 (0.38)	0.084 (0.28)	0.161 (0.59)	0.156 (0.64)	0.187 (0.81)
Q5-Q1	0.859*** (2.99)	0.461** (2.02)	0.382** (2.05)	0.293* (1.84)	0.384*** (2.74)	0.323** (2.55)	0.318*** (2.71)

Smart Money Effect of Fund Flow-induced Trading III

- Does the strong fund-raising ability of winning crypto funds amplify the momentum pattern through a flow-induced buying pressure mechanism?
- Following Lou 2012, we construct flow-induced trading (FIT) for each stock held by mutual funds, defined as the buying pressure on a stock due to fund inflows.

$$trade_{i,j,t} = \beta_0 + \beta_1 \text{Fund Flow}_{i,t} + \epsilon_{i,j,t}$$

$$FIT_{j,t}^{\text{Crypto Fund}} = \frac{\sum_{i \in \text{Crypto Fund}} \text{shares}_{i,j,t-1} \times \text{flow}_{i,t} \times \beta_1}{\sum_{i \in \text{Crypto Fund}} \text{shares}_{i,j,t-1}}$$







Smart Money Effect of Fund Flow-induced Trading IV

- Smart money: crypto-fund induced flows systematically identify stocks that will continue to appreciate.
- As comparison, the result indicates that non-crypto-fund induced flows carry no predictive content for returns in the following subsequent six months.
- We examine whether the smart money effect of crypto mutual funds extends to crypto-related stocks. Restricting the sample to crypto-related stocks.
- We find no significant spread between the two portfolios over the subsequent six mo. This evidence suggests that fund managers may possess informational advantages in non-crypto stocks rather than in crypto-related stocks.


Summary

- We identify the crypto-related stocks and crypto mutual funds, and document that crypto mutual funds exhibit stronger momentum patterns than non-crypto funds.
- Crypto funds attract significantly larger inflows than non-crypto funds, and this flow response is related to crypto-related returns.
- Flow-induced trading from crypto funds has strong predictive power for future returns, consistent with a flow-induced smart money effect.
- This smart money effect is not driven by crypto-related stocks, suggesting that fund managers may have informational advantages in non-crypto stocks rather than in crypto-related stocks.



References I

-  Akbas, Ferhat and Egemen Genc (2020). “Do mutual fund investors overweight the probability of extreme payoffs in the return distribution?” In: *Journal of Financial and Quantitative Analysis* 55.1, pp. 223–261.
-  Avramov, Doron, Si Cheng, and Andrea Tarelli (2022). “Active fund management when ESG matters”. In: *Available at SSRN 4182602*.
-  Ben-David, Itzhak et al. (2022). “What do mutual fund investors really care about?” In: *The Review of Financial Studies* 35.4, pp. 1723–1774.
-  Carhart, Mark M (1997). “On persistence in mutual fund performance”. In: *The Journal of finance* 52.1, pp. 57–82.
-  Chakraborty, Indraneel et al. (2018). *Does limited investor attention explain mutual fund flows? Evidence from sector funds*. Tech. rep. Working Paper, University of Miami.
-  Evans, Richard B (2010). “Mutual fund incubation”. In: *The Journal of Finance* 65.4, pp. 1581–1611.

References II

-  Evans, Richard B and Yang Sun (2021). “Models or stars: The role of asset pricing models and heuristics in investor risk adjustment”. In: *The Review of Financial Studies* 34.1, pp. 67–107.
-  Kacperczyk, Marcin, Clemens Sialm, and Lu Zheng (2005). “On the industry concentration of actively managed equity mutual funds”. In: *The Journal of finance* 60.4, pp. 1983–2011.
-  — (2008). “Unobserved actions of mutual funds”. In: *The Review of Financial Studies* 21.6, pp. 2379–2416.
-  Kaniel, Ron et al. (2023). “Machine-learning the skill of mutual fund managers”. In: *Journal of Financial Economics* 150.1, pp. 94–138.
-  Lou, Dong (2012). “A flow-based explanation for return predictability”. In: *The Review of Financial Studies* 25.12, pp. 3457–3489.
-  Pástor, L'uboš, Robert F Stambaugh, and Lucian A Taylor (2015). “Scale and skill in active management”. In: *Journal of financial economics* 116.1, pp. 23–45.

References III

-  Solomon, David H, Eugene Soltes, and Denis Sosyura (2014). “Winners in the spotlight: Media coverage of fund holdings as a driver of flows”. In: *Journal of Financial Economics* 113.1, pp. 53–72.
-  Song, Yang (2020). “The mismatch between mutual fund scale and skill”. In: *The Journal of Finance* 75.5, pp. 2555–2589.

Thank you