

Internet Appendix

for

Style and Skill: Hedge Funds, Mutual Funds, and Momentum

Mark Grinblatt, Gergana Jostova, Lubomir Petrasek, Alexander Philipov

Published in
Management Science

Table A1. Style and performance measures under alternative classification

The table reports average LOM and F1M measures as in Panel A of Tables 2 and 3, but further subdividing the previous 589 mutual fund advisers into pure mutual fund managers (458) and hybrid fund managers (131).

Measure	Adviser type								
	Mutual fund			Hedge fund			Hybrid fund		
	All	Buys	Sells	All	Buys	Sells	All	Buys	Sells
<i>Panel A: Style measures</i>									
Time-series average									
LOM	0.78 (16.17) [1.00]	0.43 (6.39) [0.88]	0.34 (5.68) [0.82]	-0.34 (-3.62) [0.30]	-0.37 (-2.43) [0.45]	0.03 (0.29) [0.48]	0.52 (7.90) [0.95]	0.26 (3.76) [0.68]	0.26 (4.81) [0.85]
Cross-sectional average									
LOM	1.12	0.48	0.64	-0.70	-0.66	-0.04	0.88	0.45	0.43
<i>Panel B: Performance measures</i>									
Time-series average									
F1M ^{SzBm}	0.13 (2.85) [0.67]	0.09 (1.65) [0.62]	0.04 (0.91) [0.55]	0.27 (3.61) [0.65]	0.28 (2.57) [0.62]	-0.01 (-0.12) [0.45]	0.13 (2.03) [0.63]	0.12 (1.69) [0.65]	0.01 (0.32) [0.50]
F1M ^{DGTW}	0.00 (0.15) [0.53]	0.03 (0.76) [0.60]	-0.03 (-0.73) [0.45]	0.25 (3.72) [0.68]	0.26 (3.17) [0.65]	-0.01 (-0.15) [0.47]	0.04 (1.11) [0.63]	0.06 (1.39) [0.63]	-0.02 (-0.75) [0.48]
Cross-sectional average									
F1M ^{SzBm}	0.12	-0.03	0.16	0.46	0.27	0.19	0.10	0.11	-0.00
F1M ^{DGTW}	-0.11	-0.09	-0.02	0.40	0.26	0.15	0.02	0.04	-0.02

Table A2. Fama-MacBeth cross-sectional regressions of style and performance measures under alternative classification

Each quarter, we run Fama-MacBeth cross-sectional regressions across all advisers of $L0M_{iq}$ measures on a constant and dummy variables indicating whether the adviser is a mutual fund (MF), a hedge fund (HF), or a hybrid fund (HYB):

$$L0M_{iq} = c_q + d_{MF,q} MF_i + d_{HF,q} HF_i + d_{HYB,q} HYBRID_i + e_{iq}$$

or

$$F1M_{iq} = c_q + d_{MF,q} MF_i + d_{HF,q} HF_i + d_{HYB,q} HYBRID_i + e_{iq}$$

The table presents the time-series averages of the estimated coefficients with their sample t -statistics in parentheses (bold if significant at the 5% level). The last column provides a test for the difference between the estimated coefficients for hedge funds and mutual funds. The sample period is from January 1998 to December 2012.

Dependent variable	Intercept c	Mutual fund d_{MF}	Hedge fund d_{HF}	Hybrid fund d_{HYB}
L0M	0.261 (5.45)	0.515 (13.87)	-0.599 (-6.88)	0.261 (5.13)
F1M ^{SzBm}	0.026 (0.54)	0.105 (3.43)	0.244 (4.12)	0.104 (2.53)
F1M ^{DGTW}	0.005 (0.17)	-0.000 (0.00)	0.249 (4.24)	0.040 (1.31)

Table A3. Style and performance measures using mutual fund-level holdings

The table reports average style (Panel A) and performance (Panel B) measures based on mutual fund-level holdings data (S12). Mutual funds are subdivided according to the type of management firm into funds managed by stand-alone mutual fund firms and funds managed by conglomerate firms alongside hedge funds. The sample spans the period from January 2000 to December 2012, and includes 458 stand-alone managers managing 1635 mutual funds and 131 conglomerate managers managing 979 mutual funds alongside hedge funds.

Measure	Adviser type					
	Stand-alone mutual fund			Conglomerate mutual fund		
	All	Buys	Sells	All	Buys	Sells
<i>Panel A: Style measures</i>						
Time-series average						
L0M	0.73 (7.71) [1.00]	0.36 (3.64) [0.81]	0.37 (5.85) [0.85]	0.76 (6.41) [0.98]	0.38 (3.17) [0.75]	0.35 (4.82) [0.60]
Cross-sectional average						
L0M	0.79	0.31	0.48	0.84	0.49	0.35
<i>Panel B: Performance measures</i>						
Time-series average						
F1M ^{SzBm}	0.06 (1.02) [0.56]	0.05 (0.69) [0.63]	0.01 (0.17) [0.42]	0.09 (1.15) [0.56]	0.04 (0.53) [0.62]	0.04 (0.91) [0.48]
F1M ^{DGTW}	-0.03 (-0.86) [0.42]	0.02 (0.55) [0.63]	-0.05 (-1.58) [0.35]	0.01 (0.19) [0.46]	0.05 (0.81) [0.62]	-0.04 (-0.97) [0.42]
Cross-sectional average						
F1M ^{SzBm}	0.04	-0.07	0.12	0.02	-0.07	0.09
F1M ^{DGTW}	-0.15	-0.11	-0.05	-0.07	-0.02	-0.05

Table A4. LOM measures by fund adviser type and style

The table reports average style (Panel A) measures separately for contrarian and momentum mutual fund and hedge fund advisers. The sample spans the period from January 1998 to December 2012.

Measure	Adviser type					
	Mutual fund			Hedge fund		
	All	Buys	Sells	All	Buys	Sells
<i>Panel A: Time-series average of fund-adviser-level quarterly performance measures</i>						
Contrarian fund advisers (LOM<0)						
LOM	-0.77 (-11.27)	-0.56 (-10.65)	-0.21 (-4.42)	-2.34 (-14.39)	-1.80 (-9.97)	-0.53 (-5.40)
Momentum fund advisers (LOM>0)						
LOM	1.56 (16.89)	0.93 (9.32)	0.62 (7.50)	2.90 (20.51)	1.94 (12.55)	0.96 (5.66)
<i>Panel B: Cross-sectional average of fund-adviser-level performance measures</i>						
Contrarian fund advisers (LOM<0)						
LOM	-0.88	-0.73	-0.15	-2.91	-2.20	-0.71
Momentum fund advisers (LOM>0)						
	2.01	1.06	0.95	3.35	2.16	1.19

Table A5. Style measures by turnover

The table reports average LOM measures as in Panel A of Tables 2, but further dividing the sample into funds with turnover below the full sample's (across all types of fund advisers) median turnover (Panel A) and above median turnover (Panel B). The sample period is from January 1998 to December 2012.

Measure	Adviser type					
	Mutual fund			Hedge fund		
	All	Buys	Sells	All	Buys	Sells
<i>Panel A: Below median turnover</i>						
Time-series average of quarterly style measures						
LOM	0.21 (6.23) [0.85]	0.07 (2.06) [0.53]	0.15 (5.90) [0.45]	-0.40 (-10.38) [0.05]	-0.30 (-8.45) [0.08]	-0.10 (-3.31) [0.22]
Cross-sectional average of fund-level style measures						
LOM	0.21	0.04	0.17	-0.84	-0.60	-0.24
Distribution of momentum (LOM>0) and contrarian (LOM< 0) traders						
Momentum	159	142	181	64	60	92
Contrarian	106	123	84	166	170	138
Proportion of contrarian	0.40	0.46	0.32	0.72	0.74	0.60
<i>Panel B: Above median turnover</i>						
Time-series average of quarterly style measures						
LOM	1.07 (16.09) [1.00]	0.62 (6.58) [0.87]	0.45 (5.56) [0.82]	-0.32 (-2.87) [0.32]	-0.37 (-2.09) [0.45]	0.06 (0.43) [0.50]
Cross-sectional average of fund-level style measures						
LOM	1.77	0.83	0.93	-0.67	-0.67	-0.00
Distribution of momentum (LOM>0) and contrarian (LOM< 0) traders						
Momentum	237	210	225	411	384	552
Contrarian	87	114	99	701	728	560
Proportion of contrarian	0.27	0.35	0.31	0.63	0.65	0.50

Table A6. Consistency of L0M and L1M measures

The table reports fund manager classifications based on the L0M and L1M measures. Panel A reports the percentage of fund advisers that are classified as contrarian or momentum based on the L1M measure, conditional on their classification based on the L0M measure. Panels B and C show, respectively, the time-series and cross-sectional averages of performance measures (F1M) for asset managers double-sorted on the L0M and the L1M style measures.

Panel A. Percentage of fund advisers classified as contrarian or momentum.

L0M	L1M	Mutual fund advisers (%)	Hedge fund advisers (%)
<i>Contrarian</i>	<i>Contrarian</i>	74%	62%
<i>Contrarian</i>	<i>Momentum</i>	26%	38%
<i>Momentum</i>	<i>Contrarian</i>	17%	65%
<i>Momentum</i>	<i>Momentum</i>	83%	35%

Panel B. Time-series averages of performance measures based on L0M and L1M

L0M	L1M	Mutual fund advisers		Hedge fund advisers	
		$F1M^{SzBm}$	$F1M^{DGTW}$	$F1M^{SzBm}$	$F1M^{DGTW}$
<i>Contrarian</i>	<i>Contrarian</i>	-0.03 (-0.95)	0.01 (0.33)	0.44 (5.33)	0.46 (5.63)
<i>Contrarian</i>	<i>Momentum</i>	0.01 (0.08)	0.03 (0.68)	0.26 (2.01)	0.14 (1.18)
<i>Momentum</i>	<i>Contrarian</i>	-0.06 (-0.94)	-0.06 (-1.20)	0.13 (1.06)	0.14 (1.32)
<i>Momentum</i>	<i>Momentum</i>	0.26 (3.05)	0.05 (0.95)	-0.42 (-2.30)	-0.51 (-2.76)

Panel C. Cross-sectional averages of performance measures based on L0M and L1M

L0M	L1M	Mutual fund advisers			Hedge fund advisers		
		%/Nobs	$F1M^{SzBm}$	$F1M^{DGTW}$	%/Nobs	$F1M^{SzBm}$	$F1M^{DGTW}$
<i>Contrarian</i>	<i>Contrarian</i>	24/143	-0.08	-0.02	40/535	0.87	0.86
<i>Contrarian</i>	<i>Momentum</i>	8/50	0.00	0.03	25/332	0.24	0.19
<i>Momentum</i>	<i>Contrarian</i>	12/69	-0.32	-0.38	23/307	0.11	0.18
<i>Momentum</i>	<i>Momentum</i>	56/327	0.26	0.05	13/168	-0.57	-0.72

Table A7. Adviser-level and stock-level holdings' characteristics by adviser type

We repeat the analysis in Table 1, but further dividing mutual and hedge fund advisers by investment style: i.e. momentum and contrarian as measured by their average LOM style measure. Panels A and B report the number of observations (unique fund advisers and adviser-quarter observations) and the average fund characteristics at the fund-adviser level. Turnover is measured as the average of the dollar values of buys and sells over a quarter compared to the initial portfolio value: $\text{turnover} = (\$buys_q + \$sells_q) / (2 \times \$holdings_{q-1})$. Panel C reports the time-series means of cross-sectional average characteristics of stocks held by the different types of advisers, weighted by the fraction of shares that the institution holds. Bid-ask spread is the difference between the ask and bid prices from the monthly CRSP files as a percentage of the closing mid-price; analysts' forecast dispersion is the standard deviation in analysts' EPS forecasts standardized by the absolute value of the consensus forecast; SUE (standardized unexpected earnings) is the current quarter reported EPS minus the EPS four quarters prior, divided by the standard deviation of EPS changes over the last eight quarters. measured as a percentage of the outstanding shares. The sample period is 60 quarters long—from January 1998 to December 2012.

Characteristic	Mutual fund advisers		Hedge fund advisers	
	Momentum	Contrarian	Momentum	Contrarian
<i>Panel A. Observations</i>				
Total unique fund advisers	396	193	475	867
Average adviser observations per quarter	227	127	175	309
Total adviser-quarter observations	13604	7615	10524	18526
Average life in sample (in quarters)	34.4	39.5	22.2	21.4
<i>Panel B. Characteristics by fund adviser</i>				
Number of stocks per adviser	416	300	131	123
Stock holdings (\$millions)	11611	10802	1022	750
Dollar holdings per stock (\$millions)	27.88	35.98	7.80	6.09
Turnover (%/quarter)	22.8	14.3	42.2	37.4
<i>Panel C. Share holdings-weighted average stock characteristics</i>				
Shares held/shares outstanding (%)	23.07	16.74	4.43	9.31
Price (\$)	35.71	31.00	31.72	24.29
Return (% per month)	0.54	0.76	0.63	0.89
Market capitalization (\$billions)	43.87	36.05	26.36	19.21
Book-to-market ratio	0.53	0.61	0.59	0.72
Trading volume (\$millions)	2.06	1.90	1.59	1.47
Bid-Ask Spread (% of price)	0.33	0.36	0.34	0.39
S&P long-term issuer credit rating	A–	BBB+	BBB	BBB–
Volatility (% per month, $\sqrt{\sum r_{daily}^2} \times 100$)	11.14	10.92	12.05	12.89
Analyst coverage (# of analysts)	18.01	16.70	15.45	13.32
Analyst dispersion	0.13	0.16	0.16	0.24
SUE	1.02	0.55	1.04	0.35
Common dividends (\$/share)	0.61	0.64	0.39	0.37
Short interest (% of shares outstanding)	3.87	4.25	4.30	5.03
Institutional ownership (% of shares outstanding)	69.62	71.01	72.12	71.87

Table A8. Performance by style: Fama-MacBeth cross-sectional regressions

We run quarterly Fama-MacBeth cross-sectional regressions across all advisers of size-, BM-, and momentum-adjusted $F1M_{i,q}$ measures on a constant, dummies indicating contrarian (cMF) or momentum (mMF) mutual fund and contrarian (cHF) or momentum (mHF) hedge fund adviser, without (Panel A) or with adviser-level controls (Panel B):

$$F1M_{i,q}^{DGTW} = c_q + s_q \log(Sz_{i,q}) + n_q NStk_{i,q} + t_q Turn_{i,q} + d_{mMF,q} mMF_i + d_{cMF,q} cMF_i + d_{mHF,q} mHF_i + d_{cHF,q} cHF_i + e_{iq}$$

where $Sz_{i,q}$ is the market capitalization of adviser i 's equity holdings in quarter q , $NStk_{i,q}$ is the number of stocks per adviser, and $Turn_{i,q}$ is quarterly turnover. The table presents the time-series average of the estimated coefficients with their sample t -statistics in parentheses (bold if significant at the 5% level). Subsections of Panels A and B report results with Newey-West adjusted t -statistics and results from a panel regression with clustered errors both by advisor and by time using the method of [Thompson \(2011\)](#). The sample period is from January 1998 to December 2012.

Panel A. Without controls

Dependent variable	c	d_{mMF}	d_{cMF}	d_{mHF}	d_{cHF}
All	0.005 (0.17)	0.017 (0.44)	0.003 (0.08)	0.079 (0.75)	0.339 (4.08)
Buys	0.017 (0.56)	0.023 (0.58)	0.021 (0.65)	0.117 (1.22)	0.312 (3.52)
Sells	-0.013 (-0.68)	-0.006 (-0.18)	-0.018 (-0.82)	-0.037 (-0.45)	0.027 (0.48)

Newey-West adjusted t-statistics

All	0.005 (0.19)	0.017 (0.40)	0.003 (0.08)	0.079 (0.74)	0.339 (4.26)
Buys	0.017 (0.54)	0.023 (0.58)	0.021 (0.54)	0.117 (1.17)	0.312 (3.08)
Sells	-0.013 (-0.65)	-0.006 (-0.23)	-0.018 (-1.03)	-0.037 (-0.64)	0.027 (0.52)

Thompson panel regression with clustered errors

All	-0.053 (-1.31)	0.011 (0.27)	-0.004 (-0.09)	0.001 (0.01)	0.336 (4.19)
Buys	-0.120 (-1.35)	0.016 (0.39)	0.013 (0.36)	0.040 (0.44)	0.303 (3.12)
Sells	0.037 (0.58)	-0.005 (-0.15)	-0.017 (-0.74)	-0.039 (-0.37)	0.033 (0.59)

Panel B. With controls

Dependent variable	c	s	n	t	d_{mMF}	d_{cMF}	d_{mHF}	d_{cHF}
All	0.037 (0.41)	-0.003 (-0.17)	-0.000 (-0.80)	-0.059 (-0.84)	0.034 (0.80)	0.008 (0.21)	0.108 (1.03)	0.349 (4.60)
Buys	0.007 (0.11)	0.002 (0.20)	-0.000 (-1.47)	0.021 (0.24)	0.023 (0.55)	0.021 (0.55)	0.105 (1.13)	0.298 (3.74)
Sells	0.030 (0.41)	-0.005 (-0.42)	0.000 (0.46)	-0.081 (-1.29)	0.012 (0.29)	-0.013 (-0.60)	0.003 (0.03)	0.051 (0.95)

Newey-West adjusted t-statistics

All	0.037 (0.41)	-0.003 (-0.17)	-0.000 (-0.83)	-0.059 (-0.88)	0.034 (0.66)	0.008 (0.22)	0.108 (0.89)	0.349 (4.70)
Buys	0.007 (0.12)	0.002 (0.23)	-0.000 (-1.51)	0.021 (0.27)	0.023 (0.53)	0.021 (0.50)	0.105 (0.98)	0.298 (3.23)
Sells	0.030 (0.42)	-0.005 (-0.43)	0.000 (0.47)	-0.081 (-1.60)	0.012 (0.37)	-0.013 (-0.50)	0.003 (0.04)	0.051 (1.08)

Thompson panel regression with clustered errors

All	-0.043 (-0.46)	-0.001 (-0.03)	-0.000 (-0.96)	-0.056 (-0.99)	0.017 (0.40)	-0.001 (-0.02)	-0.002 (-0.02)	0.333 (4.17)
Buys	-0.090 (-1.44)	0.001 (0.09)	-0.000 (-1.32)	-0.001 (-0.89)	0.020 (0.48)	0.013 (0.30)	0.037 (0.41)	0.300 (3.13)
Sells	0.047 (0.49)	-0.002 (-0.11)	0.000 (0.00)	-0.055 (-0.79)	-0.003 (-0.06)	-0.014 (-0.51)	-0.039 (-0.37)	0.033 (0.60)

Table A9. CS-adjusted returns sorted on aggregate fund trades, portfolio risk-adjusted

We repeat the analysis in Table 6 using returns cross-sectionally adjusted for log(size), log(BM), cumulative past-6-month return, and past-month return, but in addition risk-adjust the resulting buy, sell, and buy-sell portfolio returns with various risk factors, noted above each panel. The table reports the portfolio alphas and sample t -statistics. The factors' sources are described in the paper.

Adviser type	Buys	Sells	Buys–Sells
<i>Panel A. Risk-adjusting with the Fama and French (2015) factors</i>			
Mutual fund	−0.025 (−0.93)	0.131 (4.48)	−0.156 (− 3.27)
Hedge fund	0.136 (4.100)	−0.075 (− 2.27)	0.211 (4.52)
Contrarian hedge fund	0.177 (6.49)	−0.158 (− 5.31)	0.335 (7.66)
Momentum hedge fund	0.052 (1.48)	0.033 (0.86)	0.019 (0.36)
Contrarian mutual fund	0.057 (1.96)	0.044 (1.57)	0.013 (0.27)
Momentum mutual fund	−0.013 (−0.43)	0.117 (3.55)	−0.130 (− 2.40)
<i>Panel B. Risk-adjusting with the Fama and French (2015) + Carhart (1997) momentum factors</i>			
Mutual fund	−0.027 (−1.04)	0.133 (4.58)	−0.160 (− 3.43)
Hedge fund	0.137 (5.12)	−0.077 (− 2.39)	0.215 (4.73)
Contrarian hedge fund	0.178 (6.62)	−0.160 (− 5.39)	0.338 (7.85)
Momentum hedge fund	0.051 (1.46)	0.030 (0.80)	0.021 (0.39)
Contrarian mutual fund	0.056 (1.95)	0.043 (1.53)	0.014 (0.29)
Momentum mutual fund	−0.016 (−0.55)	0.119 (3.65)	−0.134 (− 2.56)
<i>Panel C. Risk-adjusting with the Fama and French (2015) + Carhart (1997) momentum + ST reversal factors</i>			
Mutual fund	−0.028 (−1.09)	0.130 (4.54)	−0.159 (− 3.41)
Hedge fund	0.137 (5.10)	−0.078 (− 2.41)	0.215 (4.73)
Contrarian hedge fund	0.178 (6.60)	−0.161 (− 5.43)	0.338 (7.85)
Momentum hedge fund	0.052 (1.47)	0.029 (0.78)	0.022 (0.42)
Contrarian mutual fund	0.055 (1.90)	0.040 (1.47)	0.014 (0.30)
Momentum mutual fund	−0.016 (−0.56)	0.116 (3.60)	−0.132 (− 2.52)

Table A9. (continued)

Adviser type	Buys	Sells	Buys–Sells
<i>Panel D. Risk-adjusting with FF5+the Default factor (return spread between of BAA and AAA bonds)</i>			
Mutual fund	-0.026 (-0.97)	0.132 (4.49)	-0.157 (-3.31)
Hedge fund	0.135 (4.99)	-0.076 (-2.35)	0.212 (4.57)
Contrarian hedge fund	0.176 (6.51)	-0.160 (-5.42)	0.336 (7.67)
Momentum hedge fund	0.051 (1.47)	0.032 (0.84)	0.018 (0.35)
Contrarian mutual fund	0.055 (1.95)	0.044 (1.60)	0.011 (0.23)
Momentum mutual fund	-0.013 (-0.45)	0.116 (3.55)	-0.129 (-2.40)
<i>Panel E. Risk-adjusting with the Hou, Xue, and Zhang (2015) factors</i>			
Mutual fund	-0.019 (-0.72)	0.139 (4.70)	-0.158 (-3.32)
Hedge fund	0.154 (5.51)	-0.069 (-2.10)	0.223 (4.82)
Contrarian hedge fund	0.201 (6.98)	-0.158 (-5.20)	0.358 (7.97)
Momentum hedge fund	0.061 (1.73)	0.038 (0.100)	0.023 (0.44)
Contrarian mutual fund	0.075 (2.53)	0.033 (1.17)	0.042 (0.87)
Momentum mutual fund	-0.018 (-0.63)	0.137 (4.07)	-0.155 (-2.89)
<i>Panel F. Risk-adjusting with the Stambaugh and Yuan (2017) factors</i>			
Mutual fund	-0.034 (-1.29)	0.140 (4.73)	-0.174 (-3.65)
Hedge fund	0.165 (5.90)	-0.103 (-3.25)	0.268 (5.92)
Contrarian hedge fund	0.202 (7.02)	-0.176 (-5.93)	0.378 (8.39)
Momentum hedge fund	0.056 (1.58)	0.019 (0.49)	0.037 (0.71)
Contrarian mutual fund	0.055 (1.89)	0.036 (1.28)	0.019 (0.39)
Momentum mutual fund	-0.033 (-1.15)	0.134 (3.100)	-0.167 (-3.10)
<i>Panel G. Risk-adjusting with FF5+the Pástor and Stambaugh (2003) traded liquidity factor</i>			
Mutual fund	-0.023 (-0.84)	0.128 (4.38)	-0.150 (-3.16)
Hedge fund	0.134 (4.93)	-0.071 (-2.16)	0.205 (4.40)
Contrarian hedge fund	0.175 (6.42)	-0.155 (-5.21)	0.330 (7.56)
Momentum hedge fund	0.064 (1.83)	0.037 (0.95)	0.027 (0.51)
Contrarian mutual fund	0.054 (1.86)	0.050 (1.81)	0.003 (0.07)
Momentum mutual fund	-0.003 (-0.09)	0.115 (3.51)	-0.118 (-2.20)

Table A9. (continued)

Adviser type	Buys	Sells	Buys–Sells
<i>Panel H. Risk-adjusting with FF5+the SIR factor (high minus low factor sorted on short interest)</i>			
Mutual fund	−0.007 (−0.27)	0.129 (4.41)	−0.136 (−2.86)
Hedge fund	0.153 (5.66)	−0.034 (−1.05)	0.187 (4.03)
Contrarian hedge fund	0.210 (7.85)	−0.126 (−4.29)	0.336 (7.67)
Momentum hedge fund	0.112 (3.31)	0.101 (2.72)	0.011 (0.21)
Contrarian mutual fund	0.116 (4.27)	0.027 (0.96)	0.090 (1.94)
Momentum mutual fund	0.012 (0.41)	0.123 (3.74)	−0.111 (−2.06)
<i>Panel I. Risk-adjusting with FF5+the Nagel (2012) liquidity provision factor</i>			
Mutual fund	−0.124 (−4.22)	0.193 (5.89)	−0.318 (−6.05)
Hedge fund	0.023 (0.78)	−0.214 (−5.81)	0.237 (4.51)
Contrarian hedge fund	0.047 (1.56)	−0.241 (−7.28)	0.288 (5.88)
Momentum hedge fund	−0.159 (−4.17)	−0.140 (−3.28)	−0.019 (−0.32)
Contrarian mutual fund	−0.063 (−2.00)	0.035 (1.15)	−0.097 (−1.90)
Momentum mutual fund	−0.155 (−4.74)	0.188 (5.10)	−0.343 (−5.74)
<i>Panel J. Risk-adjusting with FF5+the Jylhä, Rinne, and Suominen (2014) liquidity provision factor</i>			
Mutual fund	−0.024 (−0.88)	0.125 (4.34)	−0.149 (−3.14)
Hedge fund	0.134 (4.93)	−0.080 (−2.43)	0.214 (4.58)
Contrarian hedge fund	0.173 (6.39)	−0.160 (−5.36)	0.333 (7.61)
Momentum hedge fund	0.053 (1.50)	0.024 (0.63)	0.029 (0.56)
Contrarian mutual fund	0.051 (1.79)	0.046 (1.64)	0.006 (0.12)
Momentum mutual fund	−0.010 (−0.33)	0.109 (3.38)	−0.119 (−2.23)

Table A10. Cross-product of de-meaned changes in SIR and returns by aggregate fund trades

Each month, stocks are included in equally weighted monthly buy (sell) portfolios if their aggregate holdings by a particular type of adviser increased (decreased) over the previous quarter. The table reports time-series averages and sample t -statistics of the cross-product of the de-meaned monthly change in the short interest ratio (in percent) and the contemporaneous monthly stock return. A positive number indicates contrarian behavior. Panel A summarizes buy, sell, and buy minus sell by adviser category and style. Panel B summarizes the cross-product based on the interaction between the trades of mutual and hedge fund advisers. The sample period is from January 1998 to December 2012.

Panel A. Buys and sells by fund adviser type

Portfolio	Buys	Sells	Buy-Sells
Across all stocks			0.241 (1.32)
All advisers	0.290 (2.10)	0.288 (1.12)	0.003 (0.01)
Mutual fund advisers	0.203 (1.12)	0.312 (1.22)	-0.109 (-0.53)
Hedge fund advisers	0.366 (1.94)	0.344 (1.55)	0.023 (0.23)
Contrarian hedge fund	0.330 (1.48)	0.434 (2.08)	-0.104 (-1.07)
Momentum hedge fund	0.337 (1.70)	0.244 (0.93)	0.094 (0.66)
Contrarian mutual fund	0.188 (1.04)	0.479 (2.11)	-0.291 (-2.78)
Momentum mutual fund	0.234 (1.19)	0.296 (1.09)	-0.062 (-0.29)

Panel B. Buy-Sell interactions by fund style

	Momentum MF		Contrarian MF		Momentum HF	
	Buys	Sells	Buys	Sells	Buys	Sells
Contrarian hedge fund buys	0.290 (1.52)	0.281 (1.00)	0.124 (0.57)	0.454 (1.89)	0.207 (0.86)	0.262 (0.92)
Contrarian hedge fund sells	0.463 (3.05)	0.366 (1.19)	0.319 (1.70)	0.578 (2.22)	0.448 (2.17)	0.299 (1.11)
Momentum hedge fund buys	0.526 (2.72)	0.065 (0.25)	0.183 (0.91)	0.437 (1.93)		
Momentum hedge fund sells	0.097 (0.54)	0.349 (0.94)	0.127 (0.53)	0.370 (1.23)		
Contrarian mutual fund buys	0.210 (1.31)	0.167 (0.69)				
Contrarian mutual fund sells	0.456 (2.72)	0.413 (1.24)				

Table A11. Cross-product of de-meaned SIR changes and past returns by aggregate fund trades

Each month, stocks are included in equally weighted monthly buy (sell) portfolios if their aggregate holdings by a particular type of adviser increased (decreased) over the previous quarter. The table reports time-series averages and sample t -statistics of the cross product of the de-meaned monthly change in the short interest ratio (in percent) and the previous month stock return. A positive number indicates contrarian behavior. Panel A summarizes buy, sell, and buy-minus-sell by adviser category and by style. Panel B summarizes the cross-product based on the interaction between the trades of mutual and hedge fund advisers. The sample period is from January 1998 to December 2012.

Panel A. Buys and sells by fund adviser type

Portfolio	Buys	Sells	Buy–Sells
Across all stocks			0.319 (2.86)
All advisers	0.278 (2.36)	0.243 (1.46)	0.035 (0.20)
Mutual fund advisers	0.198 (1.77)	0.350 (2.22)	−0.152 (−1.03)
Hedge fund advisers	0.417 (3.53)	0.255 (1.72)	0.162 (1.46)
Contrarian hedge fund	0.446 (3.32)	0.299 (2.11)	0.147 (1.34)
Momentum hedge fund	0.233 (1.63)	0.221 (1.33)	0.012 (0.09)
Contrarian mutual fund	0.253 (2.30)	0.281 (1.80)	−0.028 (−0.26)
Momentum mutual fund	0.215 (1.81)	0.381 (2.41)	−0.167 (−1.18)

Panel B. Buy-Sell interactions by fund style

	Momentum MF		Contrarian MF		Momentum HF	
	Buys	Sells	Buys	Sells	Buys	Sells
Contrarian hedge fund buys	0.265 (1.79)	0.510 (2.85)	0.351 (2.50)	0.431 (2.58)	0.288 (1.88)	0.294 (1.64)
Contrarian hedge fund sells	0.198 (1.42)	0.459 (2.34)	0.271 (2.16)	0.284 (1.46)	0.262 (1.54)	0.232 (1.27)
Momentum hedge fund buys	0.376 (2.22)	0.013 (0.08)	0.193 (1.29)	0.240 (1.27)		
Momentum hedge fund sells	−0.240 (−1.71)	0.641 (2.80)	0.196 (1.31)	0.195 (0.89)		
Contrarian mutual fund buys	0.174 (1.27)	0.320 (2.31)				
Contrarian mutual fund sells	0.173 (1.16)	0.406 (1.84)				

Table A12. Alternative style and performance measures

The table presents time-series means of alternative style and performance measures. Panel A compares the LOM measure from Table 2 Panel A to an alternative style measure, L1M, which is based on the vector product of an adviser’s current quarter weights changes with prior quarter returns. Panel B compares style and performance measures calculated using alternative measures of returns, where ‘Raw’ indicates raw returns and ‘Excess’ indicates that each stock month- t return is demeaned by the month- t CRSP value-weighted return. The SzBm (DGTW) label indicates that the measure uses returns adjusted for size and book-to-market (and momentum).

Panel A: Alternative formation period: LOM versus L1M

Mutual fund adviser		Hedge fund adviser	
LOM	L1M	LOM	L1M
0.71 (14.88) [1.00]	0.18 (3.64) [0.70]	-0.34 (- 3.62) [0.30]	-0.18 (- 3.10) [0.28]

Panel B: Alternative return adjustments

Measure	Mutual fund adviser				Hedge fund adviser			
	SzBm	DGTW	Excess	Raw	SzBm	DGTW	Excess	Raw
L0M	0.69 (14.71)	0.63 (16.60)	0.71 (14.88)	0.71 (14.88)	-0.31 (- 3.45)	-0.30 (- 3.89)	-0.34 (- 3.62)	-0.34 (- 3.62)
F1M	0.13 (2.67)	0.02 (0.51)	0.14 (2.71)	0.14 (2.71)	0.27 (3.61)	0.25 (3.72)	0.28 (3.79)	0.28 (3.79)

Table A13. Performance of momentum and contrarian fund advisers by subperiod

The table presents the time-series average performance measures $F1M^{SzBm}$ and $F1M^{DGTW}$ for contrarian and momentum traders for both mutual and hedge fund advisers (as in Table 4) for the first half (Panel A) and second half (Panel B) of the sample period. The SzBm (DGTW) label indicates that the measure uses returns adjusted for size and book-to-market (and momentum). Momentum (contrarian) fund advisers are those with a positive (negative) average performance measure LOM over the life of the adviser. There are 396 (193) momentum (contrarian) mutual fund advisers and 475 (867) momentum (contrarian) hedge fund advisers, respectively. Sample t -statistics are presented in parentheses (bold if significant at the 5% level).

Measure	Mutual fund advisers			Hedge fund advisers		
	All	Buys	Sells	All	Buys	Sells
<i>Panel A: January 1998–June 2005</i>						
Contrarian fund advisers (LOM<0)						
$F1M^{SzBm}$	-0.038 (-0.75)	0.071 (1.31)	-0.108 (-1.88)	0.398 (2.81)	0.435 (2.42)	-0.037 (-0.29)
$F1M^{DGTW}$	0.013 (0.32)	0.092 (2.08)	-0.079 (-2.23)	0.396 (2.88)	0.441 (3.14)	-0.045 (-0.46)
Momentum fund advisers (LOM>0)						
$F1M^{SzBm}$	0.283 (2.06)	0.216 (1.40)	0.067 (0.75)	0.306 (1.44)	0.383 (1.60)	-0.077 (-0.58)
$F1M^{DGTW}$	0.018 (0.20)	0.069 (0.72)	-0.051 (-0.79)	0.270 (1.51)	0.350 (1.85)	-0.080 (-0.92)
<i>Panel B: July 2005–December 2012</i>						
Contrarian fund advisers (LOM<0)						
$F1M^{SzBm}$	0.005 (0.16)	-0.015 (-0.38)	0.020 (0.71)	0.311 (2.86)	0.254 (1.56)	0.057 (0.49)
$F1M^{DGTW}$	0.002 (0.06)	-0.016 (-0.56)	0.017 (0.76)	0.291 (2.98)	0.218 (1.78)	0.073 (0.81)
Momentum fund advisers (LOM>0)						
$F1M^{SzBm}$	0.152 (2.54)	0.065 (0.73)	0.086 (1.03)	-0.101 (-0.68)	-0.098 (-0.58)	-0.003 (-0.01)
$F1M^{DGTW}$	0.025 (0.46)	0.011 (0.16)	0.014 (0.21)	-0.101 (-0.68)	-0.081 (-0.62)	-0.020 (-0.12)

Table A14. DGTW-adjusted returns by momentum factor state

The table replicates results in Table 5 but splits the sample into bad and good states based on whether Carhart's (1997) momentum factor is below or above its median. For these periods, each month, stocks are included in equally weighted buy (sell) portfolios if their aggregate holdings by a particular adviser increased (decreased) over the previous quarter. The table reports time-series averages and sample *t*-statistics of DGTW-adjusted monthly portfolio returns.

Panel A. By fund adviser type

Adviser type	Below-median momentum state			Above-median momentum state		
	Buys	Sells	Buys–Sells	Buys	Sells	Buys–Sells
Mutual Fund	−0.397 (− 3.70)	0.219 (2.33)	−0.616 (− 4.42)	0.236 (3.59)	0.044 (0.51)	0.192 (1.94)
Hedge Fund	−0.029 (−0.32)	−0.071 (−1.19)	0.042 (0.44)	0.278 (4.31)	−0.079 (−1.54)	0.358 (4.87)
Contrarian Hedge Funds	0.147 (2.02)	−0.239 (− 3.94)	0.387 (5.09)	0.169 (2.89)	−0.036 (−0.63)	0.205 (3.21)
Momentum Hedge Funds	−0.203 (−1.85)	0.205 (3.49)	−0.408 (− 3.00)	0.400 (4.50)	−0.048 (−0.79)	0.448 (4.48)
Contrarian Mutual Funds	−0.050 (−0.81)	−0.060 (−0.85)	0.010 (0.13)	0.080 (1.46)	0.191 (3.28)	−0.111 (−1.64)
Momentum Mutual Funds	−0.436 (− 3.85)	0.257 (2.71)	−0.693 (− 4.18)	0.324 (4.78)	−0.001 (−0.01)	0.325 (3.12)

Panel B. Buy-sell interactions by mutual fund-hedge fund adviser style

	Momentum MF		Contrarian MF		Momentum HF	
	Buys	Sells	Buys	Sells	Buys	Sells
<i>Below median values of the momentum factor—bad momentum states</i>						
Contrarian hedge fund buys	−0.279 (− 2.16)	0.598 (5.37)	0.233 (3.34)	0.100 (0.97)	−0.010 (−0.09)	0.440 (5.20)
Contrarian hedge fund sells	−0.503 (− 4.62)	0.135 (1.12)	−0.173 (− 2.30)	−0.207 (− 2.69)	−0.390 (− 3.08)	−0.015 (−0.18)
Momentum hedge fund buys	−0.471 (− 2.67)	0.165 (2.28)	−0.087 (−0.80)	−0.237 (−1.78)		
Momentum hedge fund sells	−0.196 (− 2.14)	0.618 (4.27)	0.283 (3.24)	0.131 (1.61)		
Contrarian mutual fund buys	−0.320 (− 2.87)	0.255 (3.03)				
Contrarian mutual fund sells	−0.388 (− 2.96)	0.425 (2.77)				
<i>Above median values of the momentum factor—good momentum states</i>						
Contrarian hedge fund buys	0.358 (4.23)	−0.007 (−0.08)	0.071 (0.100)	0.259 (3.43)	0.371 (4.39)	0.086 (1.11)
Contrarian hedge fund sells	0.230 (2.49)	−0.354 (− 3.75)	−0.091 (−1.41)	0.014 (0.17)	0.286 (2.50)	−0.247 (− 2.73)
Momentum hedge fund buys	0.620 (4.41)	0.085 (1.01)	0.267 (2.84)	0.531 (4.88)		
Momentum hedge fund sells	0.135 (1.66)	−0.181 (−1.78)	−0.072 (−1.10)	0.019 (0.24)		
Contrarian mutual fund buys	0.223 (2.71)	−0.054 (−0.79)				
Contrarian mutual fund sells	0.402 (4.82)	−0.046 (−0.43)				