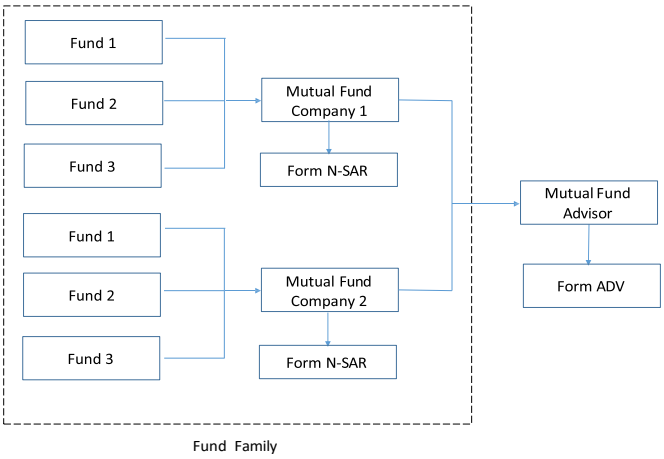
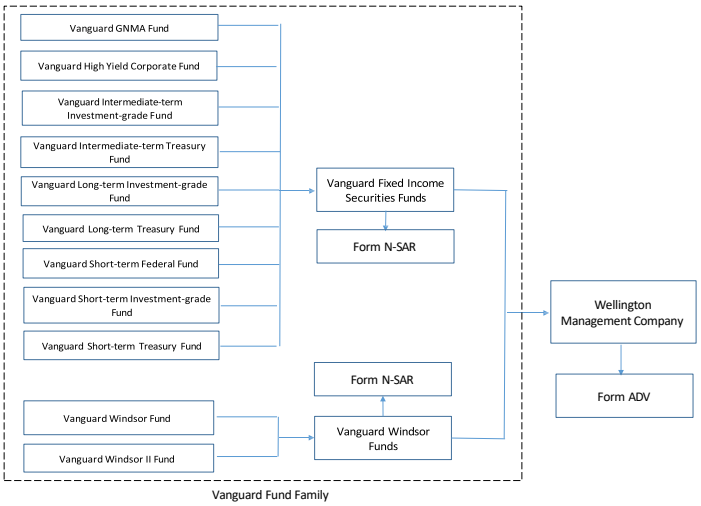
Appendix



(a) Organizational Structure



(b) Mellon Capital Management

Figure A1: Organizational Structure of Mutual Fund Advisory Business

Table A1: Breakdown of Advisory Misconduct Cases

This table reports the number and percentage of advisory misconduct cases concerning the product, regulatory agencies, principal sanctions, and allegation contents, respectively. The sample covers advisory misconduct from 2000 to 2015. In Panel B–Panel D the misconduct events are restricted to mutual fund advisory misconduct. In Panel D, misconduct cases are manually classified into the transaction-, disclosure-, and compliance-related misconduct based on allegation contents. The detailed description of the classification method is presented in Appendix A. The data is obtained from the Regulatory Disclosure Report of Form ADV.

	N	Percent
Panel A: Products		
OTC Equity	940	4.75
Listed Equity	1,224	6.18
Commodity Futures	317	1.60
Financial Futures	252	1.27
Insurance	1,706	8.62
Mutual Fund	1,086	5.49
Options	482	2.44
No Product	5,684	28.72
Others	8,099	40.92
Total	19,790	100.00
Panel B: Regulation Agencies		
Foreign	83	7.64
SEC	280	25.78
SRO	245	22.56
State	420	38.67
Others	58	5.34
Total	1,086	100.00
Panel C: Principal Sanctions		
Cease and Desist	165	15.97
Censure	119	11.52
Civil and Admin. Penalties	489	47.34
Others	260	25.17
Total	1,033	100.00
Panel D: Allegation Contents		
Transaction	121	11.14
Disclosure	116	10.68
Compliance	849	78.18
Total	1,086	100.00

Table A2: Examples of Mutual Fund Advisory Misconduct Cases

Advisory Firm	Filing Date	Initiation Date	Initiator	Type	Allegation
ALLIANCE CAPITAL MANAGEMENT L.P.	2004/1/5	2003/8/25	State	Transaction	Market timing transactions of mutual fund shares, some of which had an adverse effect on mutual fund shareholders.
MFS INSTITUTIONAL ADVISORS INC.	2005/9/13	2004/2/5	SEC	Transaction	False and misleading information regarding market timing in certain mutual fund prospectuses for which Massachusetts Financial Services Company ("MFS") serves as investment advisor.
MILLENNIUM MANAGEMENT LLC.	2012/2/14	2005/12/1	SEC	Transaction	Certain deceptive practices related to mutual fund trading, including activities related to "market timing".
TEMENOS INC.	2007/3/15	2005/12/27	SRO	Transaction	Unauthorized trades and unauthorized disbursements.
WACHOVIA SECURITIES, LLC.	2008/6/4	2007/9/19	SEC	Transaction	Entered into an agreement to allow a registered representative to market time in a specific evergreen fund in excess of trading limits set forth in the funds' prospectus.
CONCORD EQUITY GROUP ADVISORS, LLC.	2009/5/31	2007/8/13	State	Disclosure	Put clients' accounts in investments with high commissions and excessive fees, and it failed to disclose such fees and charges, including contingent deferred sales charges.
KIELY FINANCIAL SERVICES INC.	2003/6/3	2004/10/6	SEC	Disclosure	Failure to disclose certain compensation received from a broker-dealer
MORGAN KEEGAN & COMPANY, INC.	2012/3/30	2010/4/5	State	Compliance	Engaged in fraudulent, dishonest or unethical business practices in violation of Alabama, Mississippi, South Carolina And Kentucky Securities Acts.
LINCOLN FINANCIAL SECURITIES CORPORATION	2008/12/3	2008/11/7	State	Compliance	Solicited and executed 4 mutual fund transactions between March 1, 2004 and April 30, 2004 while not being properly licensed in the state of New Hampshire.
THE HUNTINGTON INVESTMENT COMPANY	2005/8/19	2005/3/14	SRO	Compliance	Pay non-cash compensation for a sales contest, which weighted the member's products more than other investment products.
HORNOR, TOWNSEND & KENT, INC.	2012/12/4	2012/10/2	SRO	Compliance	Failed to establish and maintain a supervisory system and establish, maintain and enforce written supervisory procedures.

A. Classification of Misconduct by Allegation Contents

The allegation details are reviewed manually for each mutual fund advisory misconduct case. Then, keywords in allegation contents are searched to classify mutual fund advisory misconduct cases into the transaction-, disclosure-, and compliance-related misconduct.

We employ a rigorous content analysis approach to classify advisory misconduct into three distinct categories: transaction-, disclosure-, and compliance-related misconduct. To ensure validity and replicability, the classification process combines keyword-based text mining with manual validation. Transaction-related misconduct is defined as actions involving unfair trading practices that disadvantage specific shareholder groups or violate trading regulations. Keywords include "market timing," "late trading," and "unauthorized trade."

A representative example from our sample is Alliance Capital Management L.P. (2003), which faced allegations of allowing market timing transactions that adversely affected long-term shareholders. Disclosure-related misconduct encompasses violations where the advisory firm suppresses or misrepresents material information necessary for investors to make informed decisions. Keywords include "failure to disclose," "misrepresentation," and "hidden compensation." An illustrative case is Concord Equity Group Advisors (2007), which failed to disclose contingent deferred sales charges and excessive fees to clients. Compliance-related misconduct refers to structural failures in adhering to regulatory frameworks, licensing requirements, or internal supervisory protocols. Keywords include "supervisory failure," "unlicensed," and "record-keeping." For instance, Lincoln Financial Securities Corporation (2008) was cited for executing transactions through agents not properly licensed in the specific jurisdiction.

To validate the manual coding process, two researchers independently classified a random subsample of 200 cases. The inter-rater reliability was high, with a Cohen’s Kappa coefficient of

0.88, indicating substantial agreement. Discrepancies in the full sample were resolved through deliberation to ensure the final classification accurately reflected the primary nature of the regulatory allegation.

B. EMD-Wilcoxon Flow Decomposition

In this section, we discuss the EMD-Wilcoxon methodology proposed by Wu et al. (2020). EMD-Wilcoxon is a two-stage decomposition and composition method to decompose fund flows. In the first stage, empirical mode decomposition (EMD) proposed by Huang et al. (1998) treats the flow series of fund *i* as fast oscillations mixed with slow oscillations. These oscillations obtained from scale separation are approximated by implicational intrinsic mode functions (IMF). Specifically, IMFs are extracted from a sifting process. First, the local extrema of flow series are identified and fitted by lower and upper envelopes and their envelope mean $m(i, t)$ is calculated. Second, a new sequence extracted the mean from the aforementioned time series is calculated as $d_k(i, t) = d_{k-1}(i, t) - m(i, t)$ with $k = 1$ and $d_0(i, t) = \text{flow}_{it}$ for the first time. Third, whether $d_k(i, t)$ is an IMF or not is examined. If not, set $k = k + 1$ and go back to the first two steps. If the same is an IMF, then $d_k(i, t)$ denotes the jth IMF $c_j(i, t)$. Fourth, the first three steps are repeated until the residual satisfies the stopping criteria proposed by Huang et al. (2003). Finally, flow series can be decomposed into some IMFs with the residue:

$$flow_{it} = \sum_{j=1}^{N} c_j(i, t) + r(i, t), \tag{4}$$

where N is the number of IMFs and $r(i, t)$ is the final residue.

In the second stage, the Wilcoxon signed-rank test is applied to examine whether the mean differs significantly from zero. Then, the low- and high-frequency components can be reconstructed from IMFs. For fund *i*, the sum of 1st-*k*st IMF is calculated and the Wilcoxon

signed-rank test is used to identify for which j the mean significantly departs from zero. Once j is identified, the high-frequency component can be derived from the sum of 1st–j-1th IMF, and other IMFs plus residue is defined as the low-frequency component.

Table A3 reports the six measures for the sentiment- and fundamental-driven components of fund flows. First, Table A3 shows that the average Kendall correlation coefficients between sentiment-driven and net flows can be as high as 0.90, which is much larger than that for fundamental-driven flows (0.51). Second, three types of variance measures are used to compare the variance contribution of these two components. For example, the variances of the sentiment-driven flows account for more than 95% of the total variance, whereas the fundamental-driven flows contribute to approximately 55% of the total variance. The mean period of fundamental-driven flows on average is around 15 months or almost five times that of sentiment-driven flows. In conclusion, the main finding of the summary statistics is that sentiment-driven flows are a dominant component of fund flows.

Table A3: Statistical Measures for the Decomposed Components of ETF Flows

This table presents descriptive statistics of six measures for the decomposed components of ETF flows following the EMD-Wilcoxon method of fund flows from 2000 to 2015. Panel A and Panel B report the results for sentiment- and fundamental-driven flows. *Pearson* and *Kendall* are two correlation coefficients used to measure the relationship between components and the fund net flows for fund *i*. *Variance* is the variance of components. *Variance as % of Observed* is the variance percentage of the original data for any fund, which is used to explain the contribution of each component to the total variance of the observed data. *Variance Rate* is the variance percentage of the sum of IMFs with residue. *Period* denotes the periodicity for fund flows, which is obtained from dividing the total number of points by the number of peaks for each component.

Panel A: Sentiment-Driven Flows						
	Pearson	Kendall	Variance	Variance as % of Observed	Variance Rate	Period
Mean	0.73	0.90	0.01	0.95	0.67	2.95
S.D.	0.27	0.56	0.02	0.87	0.23	0.97
Q5	0.15	-0.07	0.00	0.24	0.21	1.71
Q25	0.63	0.52	0.00	0.69	0.52	2.40
Median	0.81	0.93	0.00	0.92	0.70	2.91
Q75	0.93	1.33	0.01	1.06	0.86	3.31
Q95	0.99	1.75	0.04	1.63	0.98	4.44
Panel B: Fundamental-Driven Flows						
	Pearson	Kendall	Variance	Variance as % of Observed	Variance Rate	Period
Mean	0.40	0.51	0.01	0.55	0.33	15.06
S.D.	0.29	0.50	0.02	0.95	0.23	14.13
Q5	-0.05	-0.27	0.00	0.02	0.02	2.40
Q25	0.20	0.16	0.00	0.15	0.14	4.80
Median	0.39	0.48	0.00	0.37	0.30	10.40
Q75	0.61	0.84	0.00	0.72	0.48	19.33
Q95	0.89	1.33	0.03	1.49	0.79	43.20

Table A4: Effect of Misconduct on Marketing Expenditures

This table presents the panel regression for the effect of advisory misconduct on the marketing expenditures of mutual funds. The sample consists of fund-year observations from 2000 to 2015. The dependent variables in Column (1)–(4) are 12b-1 fees, payment to underwriter, advertising fees, and fees associated with printing and mailing of prospectuses to other than current shareholders time 100 then scaled by total net assets, respectively. The main explanatory variable *Misconduct* equals one in the post-misconduct period of a mutual fund advisory misconduct case and zero otherwise. The post-misconduct period is 2 years following misconduct. *Fdret* is annual fund return in year *t*. *Size* is the natural logarithm of fund TNA. *Age* is the natural logarithm of years since the fund's inception in the N-SAR database. *Expense* is the fund expense ratio calculated as total fund expenses over TNA. *Volatility* is calculated as standard deviations of fund returns in year *t*. *Styleflow* is the average net flows of funds with the same investment style in year *t*. All the coefficients except that of *Expense* is multiplied by 100. All regressions include fund and time fixed effects. The robust *t*-statistics clustered by the fund are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1) 12b-1 Fee	(2) Underwriter	(3) Advertising	(4) Solicitation
Misconduct	0.8058***	0.5743***	-0.0020**	0.0012***
	(4.37)	(3.41)	(-2.23)	(3.27)
Fdret	-3.9278***	-2.2509***	-0.0038**	-0.0007
	(-10.45)	(-8.39)	(-2.22)	(-1.10)
Size	1.1029***	0.5660***	-0.0019*	-0.0005**
	(8.93)	(6.60)	(-1.68)	(-2.11)
Age	1.5319***	0.7433***	0.0004	0.0013***
	(7.66)	(4.35)	(0.30)	(3.44)
Expense	4.8503***	1.9281***	0.0002	0.0003
	(25.84)	(18.00)	(0.29)	(1.58)
Volatility	-0.5559	-1.7614**	-0.0081	0.0032
	(-0.46)	(-1.99)	(-1.05)	(1.59)
Styleflow	0.1283***	0.0150	-0.0004	0.0001
	(2.76)	(0.42)	(-1.12)	(1.53)
Fund FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Observations	78,920	78,920	78,920	78,920
Number of Funds	15,054	15,054	15,054	15,054
Adjusted R^2	0.82	0.79	0.63	0.67

Table A5: Post-Misconduct Changes in Contractual Incentives

This table presents the panel regression for the effect of advisory misconduct on the contractual incentives of mutual funds. The sample consists of fund-year observations from 2000 to 2015. The dependent variables are Cole's incentive rate *Cole's IR* and weighted incentive rate *Weighted IR*. The main explanatory variable *Misconduct* equals one in the post-misconduct period of a mutual fund advisory misconduct case and zero otherwise. The post-misconduct period is 1 or 2 years following misconduct. *Fdret* is annual fund return in year *t*. *Size* is the natural logarithm of fund TNA. *Age* is the natural logarithm of years since the fund's inception in the N-SAR database. *Expense* is the fund expense ratio calculated as total fund expenses over TNA. *Volatility* is calculated as standard deviations of fund returns in year *t*. *Styleflow* is the average net flows of funds with the same investment style in year *t*. All regressions include fund and time fixed effects. The robust *t*-statistics clustered by the fund are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Coles's IR		Weighted IR	
	(1)	(2)	(3)	(4)
	[t,t+1]	[t,t+2]	[t,t+1]	[t,t+2]
Misconduct	-0.0057***	-0.0053***	-0.0040***	-0.0037***
	(-4.34)	(-3.69)	(-5.04)	(-4.28)
Fdret	-0.0012	-0.0013	0.0003	0.0003
	(-0.67)	(-0.71)	(0.35)	(0.30)
Size	0.0072***	0.0072***	0.0028***	0.0028***
	(9.15)	(9.14)	(6.81)	(6.80)
Age	0.0069***	0.0071***	0.0030***	0.0031***
	(4.58)	(4.59)	(3.57)	(3.60)
Expense	0.3392***	0.3377***	0.1615***	0.1605***
	(7.63)	(7.62)	(6.72)	(6.70)
Volatility	-0.0052	-0.0055	0.0012	0.0009
	(-0.77)	(-0.82)	(0.31)	(0.25)
Styleflow	0.0007**	0.0006**	0.0003**	0.0003**
	(2.49)	(2.48)	(2.18)	(2.17)
Fund FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Observations	78,920	78,920	78,920	78,920
Number of Funds	15,054	15,054	15,054	15,054
Adjusted R^2	0.84	0.84	0.82	0.82

Table A6: Investment in Derivatives Products

This table presents the effect of advisory misconduct on the mutual funds' investment policies and actual utilization of derivative products. The sample consists of fund-year observations from 2000 to 2015. The dependent variables in Columns (1) and (2) are dummy variables that equal one if a certain derivative product is permitted by mutual fund investment policies and zero otherwise. The dependent variables in Columns (3) and (4) are dummy variables that equal one if a certain derivative product is actually utilized and zero otherwise. The main explanatory variable *Misconduct* equals one in the post-misconduct period of a mutual fund advisory misconduct case and zero otherwise. The post-misconduct period is 2 years following misconduct. *Fdret* is annual fund return in year *t*. *Size* is the natural logarithm of fund TNA. *Age* is the natural logarithm of years since the fund's inception in the N-SAR database. *Expense* is the fund expense ratio calculated as total fund expenses over TNA. *Volatility* is calculated as standard deviations of fund returns in year *t*. *Styleflow* is the average net flows of funds with the same investment style in year *t*. All regressions include fund and time fixed effects. The robust *t*-statistics clustered by the fund are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Permission		Utilization	
	(1) Option	(2) Futures	(3) Option	(4) Futures
Misconduct	-0.0104***	-0.0104***	0.0003	-0.0175***
	(-3.17)	(-3.12)	(0.09)	(-3.58)
Fdret	-0.0146***	-0.0069	-0.0130**	-0.0178***
	(-2.72)	(-1.25)	(-2.40)	(-3.09)
Size	0.0022	0.0012	0.0063***	0.0154***
	(1.13)	(0.67)	(3.54)	(6.89)
Age	0.0052	0.0059	-0.0007	0.0137***
	(1.30)	(1.50)	(-0.20)	(3.13)
Expense	0.6072***	0.8705***	0.2641*	0.9102***
	(4.05)	(5.91)	(1.72)	(5.49)
Volatility	0.0984***	0.0883***	0.0525**	0.0639***
	(4.45)	(3.97)	(2.49)	(2.99)
Styleflow	0.0063***	0.0043***	0.0027***	0.0039***
	(6.16)	(4.13)	(3.64)	(4.20)
Fund FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Observations	78,920	78,920	78,920	78,920
Number of Funds	15,054	15,054	15,054	15,054
Adjusted R^2	0.81	0.82	0.65	0.74

Table A7: Effect of Misconduct on Portfolio Allocation Strategies

This table presents the panel regression for the effect of advisory misconduct on the portfolio allocation strategies of mutual funds. The sample consists of fund-year observations from 2000 to 2015. The dependent variables include the percentage of cash (including repurchase agreement), short-term bond, long-term bond, and equities in the portfolio assets. The main explanatory variable *Misconduct* equals one in the post-misconduct period of a mutual fund advisory misconduct case and zero otherwise. The post-misconduct period is 2 years following misconduct. *Fdret* is annual fund return in year *t*. *Size* is the natural logarithm of fund TNA. *Age* is the natural logarithm of years since the fund's inception in the N-SAR database. *Expense* is the fund expense ratio calculated as total fund expenses over TNA. *Volatility* is calculated as standard deviations of fund returns in year *t*. *Styleflow* is the average net flows of funds with the same investment style in year *t*. All regressions include fund and time fixed effects. The robust *t*-statistics clustered by the fund are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1) Cash	(2) Short-term Bond	(3) Long-term Bond	(4) Equity
Misconduct	0.4020***	0.2614*	-0.3652***	-0.3672**
	(4.13)	(1.88)	(-2.64)	(-2.23)
Fdret	0.2017	-0.1725	-0.2601	1.2320***
	(0.70)	(-0.51)	(-1.02)	(3.01)
Size	-0.3277***	0.2228***	0.1291	0.2975**
	(-5.27)	(2.60)	(1.36)	(2.28)
Age	-0.2418**	-0.0318	-0.1267	-0.1437
	(-2.37)	(-0.21)	(-0.80)	(-0.72)
Expense	15.9173*	21.9854**	25.2853***	76.2405***
	(1.75)	(2.27)	(2.85)	(4.71)
Volatility	1.2257*	-1.8791**	3.4274***	-3.2920**
	(1.90)	(-1.98)	(4.15)	(-2.32)
Styleflow	-0.0420	0.0969**	0.2507***	0.1773***
	(-1.60)	(2.48)	(4.80)	(2.93)
Fund FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Observations	78,920	78,920	78,842	78,920
Number of Funds	15,054	15,054	15,035	15,054
Adjusted R^2	0.80	0.88	0.95	0.95