Internet Appendices for

"Seasonal Asset Allocation: Evidence from Mutual Fund Flows"

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Journal of Financial and Quantitative Analysis

Appendix Version: July 2016

Appendix A-1: Exploring Alternative Capital Gains Overhang Proxies, Alternative Return Chasing Measures, Use of Change in the Length of Night Instead of Onset/Recovery, and Inclusion/Exclusion of Monthly Dummy Variables

In this appendix we provide four sets of robustness checks, exploring alternate capital gains overhang proxies in Section A-1.1, alternative return chasing measures in Section A-1.2, use of the change in the length of night variable in place of the onset/recovery variable in Section A-1.3, and including or excluding monthly dummy variables in Section A-1.4. The data, explanatory variables, and table construction are as defined in the text, unless indicated otherwise.

For the robustness checks described in Sections A-1.1, A-1.2, and A-1.3, we use U.S. data as described in Section IV of the main text, and we report coefficient estimates from jointly estimating the net flows (or net exchanges) regression model for each of the asset classes in a GMM framework (replacing $R_{i,t}^{\text{CAP\_GAINS}}$ with alternate capital gains overhang measures in Section A-1.1, replacing $R_{i,t}^{\text{YEAR}}$ with alternate return chasing measures in Section A-1.2, and replacing OR_t with an alternate seasonal depression measure in Section A-1.3):

The ten alternative measures of capital gains are as follows: (1) the primary asset-class capital gains measure utilized in equations (1) and (2) from the main text modified to incorporate the predicted capital gains for month t;[1] (2) predicted asset-class cumulative returns from the start of the fiscal year November 1;[2] (3) predicted asset-class cumulative

[1]To form this measure of capital gains, we use past (known) realized capital gains, plus a forecast for the current month t. Specifically, in cases where month t is January through October, we first construct predicted capital gains by regressing the capital gains measure on 12 monthly dummy variables (excluding the intercept to avoid perfect multicollinearity) and 12 lags of capital gains. Then the predicted value for month t is the cumulative actual capital gains (price appreciation plus all distributions) from November of the previous year through to month $t-1$ plus the predicted capital gains for month t. In cases where t is November or December, we use the actual October value of the cumulative capital gains, with no special accommodation for predicted capital gains.

[2]To form predicted cumulative returns from the start of the fiscal year, we use past (known) cumulative returns, plus a forecast for the current month t. In cases where t is January through October we first construct predicted cumulative returns by regressing returns on 12 monthly dummy variables (excluding the intercept to avoid perfect multicollinearity). Then the month t value is the cumulative actual capital gains (price appreciation plus all distributions) from November of the previous year through to month $t-1$ plus the predicted returns for month t. In cases where t is November or December, we use the actual October value of the cumulative returns, with no special accommodation for predicted returns.

returns from the start of the fiscal year November 1, less distributions (which is identically proxy (2) less distributions); (4) cumulative asset-class returns over the past two years;[3] (5) cumulative asset-class returns over the past three years; (6) predicted asset-class capital gains set to zero except for November and December (this is identically proxy (1) set to zero except for November and December);[4] (7) for the equity and hybrid categories: predicted asset-class capital gains set to zero except for November and December, and for the corporate bond, government bond, and money market categories: cumulative asset-class returns for the past fiscal year for November and December only, and zero for all other months;[5] (8) for the equity and hybrid categories: predicted asset-class cumulative returns from the start of the fiscal year November 1, less distributions, and for the corporate bond, government bond, and money market categories: cumulative asset-class returns for the past fiscal year for November and December only, and zero for all other months; (9) cumulative equity returns over the past fiscal year (used as a capital gains measure for all five categories, unlike all other proxies we explore where the measure is asset-class specific) and set to zero except for November and December (the value in November and December is the actual October value of the cumulative equity returns); and (10) a combination of several measures all included in the model simultaneously: (a) cumulative asset-class returns for the previous fiscal year set to zero for all months except for November and December (the value in November and December is the actual October value of the cumulative returns), (b) the capital gains measure used in the primary analysis, and (c) cumulative asset-class returns from the start of the fiscal year November 1 to month $t-1$ (in cases where month t is November or December, we use the

[3]We employ proxies (4) and (5) in recognition of the fact that capital gains realization can vary with returns over a longer period than the current fiscal year since funds can hold positions for multiple years and can carry accumulated losses forward.

[4]We form this measure in order to isolate the impact of capital gains in the months when capital gains are most likely to affect a shareholder's decision to buy or sell a fund, November and December.

[5]For proxies (7) and (8) we employ different measures for the bond and money market asset classes relative to the equity and hybrid asset classes. Recall that equity funds realize a large fraction of their return as capital gains, and this may influence individual investors' decisions about the timing of inflows and outflows (motivating our efforts to control carefully for capital gains overhang effects in our primary analysis and in all of these robustness checks). In contrast, for the bond and money market categories there are minimal capital gains. Thus in proxies (7) and (8), we control for capital gains overhang effects in the equity and hybrid categories while instead including an additional variable to capture *return chasing* behavior in the bond categories.

actual October value of the cumulative return) plus the predicted value for month t.
We postpone discussing which regression models are estimated in Section A-1.4 until we reach that section. As an additional robustness check, the Appendix models typically include additional lags of the dependent variable relative to the models used in the main text; results are very similar when using the more parsimonious models for autocorrelation presented in the main text.

A-1.1 Alternative Capital Gains Overhang Proxies

Tables A-1.1 through A-1.20 contain results based on estimating equations (1) and (2), sequentially replacing $R_{i,t}^{\text{CAP\_GAINS}}$ with each of the ten alternative capital gains overhang proxies defined in Section VII of the main text. Tables A-1.1 through A-1.10 employ net flows as the dependent variable and Tables A-1.11 through A-1.20 employ net exchanges. In all cases, the finding of statistically significant seasonally opposing flows in risky versus safe fund categories remains.

A-1.2 Alternative Return Chasing Measures

Tables A-1.21 through A-1.28 contain results based on different measures for return chasing, including a one-month lagged return or a mean monthly return averaged over the prior one, two, or three quarters, rather than a mean monthly return averaged over the prior 12 months. (Tables A-1.21 through A-1.24 correspond to net flows and Tables A-1.25 through A-1.28 correspond to net exchanges.) In all cases, the findings with respect to seasonal variation in flows are robust to these alternate measures.

A-1.3 Use of Change in the Length of Night Instead of Onset/Recovery

To explore robustness of the results to the way we capture seasonal depression, we estimate the net flow and net exchange models making use of change in the length of night rather than onset/recovery. The variable we use, ΔNIGHT, is the change in the number of hours of night, divided by 12 (where 12 is the annual average daily number of hours of night). The results appear in Tables A-1.29 (net flows) and A-1.30 (net exchanges) and are qualitatively identical to the results based on onset/recovery. There is economically large and statistically significant evidence of seasonal flows between safe and risky categories of mutual funds.

A-1.4 Inclusion/Exclusion of Monthly Dummy Variables

Here we explore robustness of the results to the inclusion/exclusion of monthly dummy variables. Table A-1.31 contains results based on estimating the primary U.S. net flows specification excluding the dummy variables for November, December, January, and February. Table A-1.32 contains results based on estimating the primary U.S. net exchanges specification with the addition of the dummy variables for November, December, January, and February. (Appendix A-7 contains results based on estimating the primary Canadian net exchanges specification with the addition of the dummy variables for November, December, January, and February. Appendix A-8 contains results based on estimating the primary Australian net flows specification excluding the dummy variables for May, June, July, and August.) In each and every case, the qualitative result of opposing flows in risky versus safe fund categories due to seasonally varying risk aversion and the statistical significance of the effect remains strong.

Table A-1.1
Dependent Variable: U.S. Net Flows
Capital Gains Proxy 1:
Past Realized Capital Gains Plus Predicted Capital Gains for Month t

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	-0.856***	-1.448***	-1.681***	-1.732***	1.660***
	(-6.08)	(-9.09)	(-7.64)	(-10.2)	(3.63)
$\mu_{\hat{\text{OR}}}$	-0.196***	-0.186***	-0.374***	0.058	1.147***
	(-4.03)	(-3.95)	(-5.88)	(1.18)	(7.23)
μ_{ADS}	0.266***	0.150***	-0.527***	-0.125**	-0.886***
	(4.04)	(2.97)	(-6.57)	(-2.40)	(-5.15)
$\mu_{R^{\text{YEAR}}}$	0.015**	0.018	0.089***	-0.132***	0.101
	(2.03)	(1.17)	(2.69)	(-4.15)	(1.21)
μ_{SAVINGS}	0.491***	1.018***	1.502***	1.474***	-0.501*
	(6.04)	(10.57)	(11.04)	(13.46)	(-1.90)
$\mu_{\text{CAP\_GAINS\_PROXY1}}$	-0.025***	-0.066***	0.096***	-1.066***	-171.2**
	(-8.31)	(-12.2)	(2.78)	(-19.9)	(-2.09)
μ_{NOV}	0.198***	0.331***	0.130***	-0.045	0.632***
	(6.17)	(6.59)	(2.66)	(-1.22)	(5.81)
μ_{DEC}	0.173***	-0.394***	-0.233***	-0.162***	0.624***
	(6.09)	(-9.16)	(-5.27)	(-6.15)	(4.23)
μ_{JAN}	0.411***	0.416***	0.628***	0.350***	-0.653***
	(9.86)	(10.63)	(14.27)	(12.16)	(-4.48)
μ_{FEB}	-0.004	-0.142***	0.005	-0.094***	-0.113
	(-0.12)	(-5.18)	(0.10)	(-2.70)	(-1.20)
ρ_1	0.402***	0.488***	0.511***	0.592***	0.070***
	(31.93)	(26.36)	(39.39)	(51.45)	(4.39)
ρ_3	0.313***	0.349***	0.275***	0.253***	0.337***
	(34.49)	(16.87)	(21.81)	(20.76)	(18.06)
ρ_6	-0.007	0.006	0.028**	0.080***	0.112***
	(-0.71)	(0.41)	(2.38)	(7.31)	(7.24)
ρ_{12}	0.044***	-0.030***	-0.136***	-0.011*	0.234***
	(5.44)	(-3.37)	(-13.2)	(-1.70)	(10.97)
R^2	0.5125	0.7321	0.6918	0.906	0.3186
AR(12)	13.60	5.52	14.61	9.00	11.52
ARCH(12)	39.98***	63.03***	50.65***	55.03***	25.16**

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\hat{\text{OR}}}$ jointly equal to 0 across series	101.4*** [5]
$\mu_{\hat{\text{OR}}}$ equivalent across series	101.3*** [4]
Test of Over-Identifying Restrictions	46.8 [120]

Notes: We estimate equation (1), using an alternate measure of capital gains overhang. One, two, and three asterisks denote significance at the 10, 5, and 1 percent level respectively, based on two-sided tests. To calculate the standard errors we follow Newey and West (1987), (1994) and use the Bartlett kernel and an automatic bandwidth parameter (autocovariance lags) equal to the integer value of $4(T/100)^{2/9}$. We use the full set of explanatory variables as instruments for the regression.

Table A-1.2
Dependent Variable: U.S. Net Flows
Capital Gains Proxy 2:
Predicted Cumulative Returns

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	-0.749***	-1.645***	-1.660***	-1.178***	2.035***
	(-5.24)	(-10.9)	(-7.55)	(-5.76)	(3.61)
$\mu_{\hat{\text{OR}}}$	-0.194***	-0.309***	-0.403***	-0.250***	1.216***
	(-3.72)	(-6.32)	(-5.94)	(-4.37)	(6.72)
μ_{ADS}	0.243***	0.226***	-0.492***	-0.149***	-0.915***
	(3.15)	(4.49)	(-5.99)	(-2.78)	(-5.08)
$\mu_{R^{\text{YEAR}}}$	0.058***	-0.106***	0.026	-0.304***	0.336**
	(4.75)	(-5.78)	(0.66)	(-5.73)	(1.98)
μ_{SAVINGS}	0.382***	0.959***	1.483***	0.907***	-0.750**
	(5.04)	(10.16)	(11.27)	(6.85)	(-2.47)
$\mu_{\text{CAP\_GAINS\_PROXY2}}$	-0.005***	0.017***	0.009**	0.034***	-0.024
	(-4.60)	(7.06)	(2.03)	(6.75)	(-1.27)
μ_{NOV}	0.196***	0.282***	0.109**	-0.174***	0.632***
	(5.59)	(5.80)	(2.26)	(-4.64)	(5.33)
μ_{DEC}	0.163***	-0.439***	-0.246***	-0.319***	0.722***
	(5.23)	(-8.81)	(-5.91)	(-12.1)	(4.27)
μ_{JAN}	0.393***	0.491***	0.628***	0.523***	-0.743***
	(8.44)	(11.47)	(14.22)	(17.87)	(-4.62)
μ_{FEB}	-0.003	-0.119***	0.015	-0.067*	-0.135
	(-0.07)	(-3.92)	(0.29)	(-1.78)	(-1.26)
ρ_1	0.426***	0.503***	0.504***	0.646***	0.073***
	(33.89)	(32.52)	(36.57)	(51.94)	(4.41)
ρ_3	0.324***	0.362***	0.275***	0.267***	0.336***
	(28.83)	(20.58)	(23.67)	(18.55)	(19.22)
ρ_6	-0.027**	0.014	0.039***	0.070***	0.109***
	(-2.27)	(1.15)	(3.26)	(5.40)	(6.85)
ρ_{12}	0.014	-0.034***	-0.120***	-0.084***	0.228***
	(1.56)	(-3.83)	(-11.0)	(-13.5)	(11.18)
R^2	0.5069	0.729	0.6913	0.9012	0.3169
AR(12)	13.14	4.10	12.72	8.88	11.21
ARCH(12)	34.94***	62.77***	46.94***	49.88***	30.05***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\hat{\text{OR}}}$ jointly equal to 0 across series	72.7*** [5]
$\mu_{\hat{\text{OR}}}$ equivalent across series	64.6*** [4]
Test of Over-Identifying Restrictions	46.3 [120]

Notes: See the notes to Table A-1.1

Table A-1.3
Dependent Variable: U.S. Net Flows
Capital Gains Proxy 3:
Predicted Cumulative Returns Less Distributions

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	-0.723***	-1.701***	-1.752***	-1.425***	1.506***
	(-4.99)	(-10.9)	(-7.41)	(-7.09)	(2.90)
$\mu_{\hat{\text{OR}}}$	-0.201***	-0.274***	-0.359***	-0.099*	1.331***
	(-3.89)	(-6.04)	(-5.34)	(-1.95)	(7.63)
μ_{ADS}	0.241***	0.223***	-0.503***	-0.147***	-1.007***
	(3.18)	(4.66)	(-6.18)	(-2.69)	(-5.74)
$\mu_{R^{\text{YEAR}}}$	0.058***	-0.097***	0.018	-0.311***	0.726***
	(4.74)	(-5.24)	(0.44)	(-6.02)	(5.06)
μ_{SAVINGS}	0.362***	1.027***	1.584***	1.160***	-0.396
	(4.72)	(10.58)	(11.00)	(9.24)	(-1.39)
$\mu_{\text{CAP\_GAINS\_PROXY3}}$	-0.005***	0.015***	0.009**	0.037***	-0.095***
	(-4.87)	(6.23)	(2.22)	(7.80)	(-5.80)
μ_{NOV}	0.192***	0.302***	0.123**	-0.124***	0.673***
	(5.50)	(6.49)	(2.57)	(-3.53)	(5.79)
μ_{DEC}	0.162***	-0.425***	-0.218***	-0.256***	0.768***
	(5.50)	(-8.92)	(-5.41)	(-10.7)	(4.77)
μ_{JAN}	0.401***	0.467***	0.613***	0.442***	-0.747***
	(9.18)	(11.29)	(15.13)	(14.64)	(-4.74)
μ_{FEB}	-0.005	-0.129***	0.001	-0.103***	-0.113
	(-0.14)	(-4.15)	(0.01)	(-2.75)	(-1.20)
ρ_1	0.427***	0.503***	0.504***	0.638***	0.070***
	(34.93)	(31.12)	(37.78)	(53.93)	(4.10)
ρ_3	0.325***	0.364***	0.277***	0.267***	0.337***
	(31.48)	(21.42)	(23.58)	(18.65)	(19.29)
ρ_6	-0.028**	0.012	0.038***	0.073***	0.104***
	(-2.53)	(0.95)	(3.12)	(6.10)	(6.96)
ρ_{12}	0.016*	-0.035***	-0.122***	-0.086***	0.215***
	(1.69)	(-3.99)	(-11.2)	(-13.9)	(10.68)
R^2	0.5068	0.7286	0.6914	0.9013	0.3249
AR(12)	13.26	4.28	14.09	9.32	11.70
ARCH(12)	34.79***	62.13***	47.14***	50.34***	28.48***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\hat{\text{OR}}}$ jointly equal to 0 across series	77.5*** [5]
$\mu_{\hat{\text{OR}}}$ equivalent across series	76.7*** [4]
Test of Over-Identifying Restrictions	46.4 [120]

Notes: See the notes to Table A-1.1

Table A-1.4
Dependent Variable: U.S. Net Flows
Capital Gains Proxy 4:
Two-Year Cumulative Returns

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	-0.991***	-1.579***	-1.856***	-1.146***	-0.182
	(-7.84)	(-9.75)	(-8.63)	(-7.28)	(-0.37)
$\mu_{\hat{\text{OR}}}$	-0.248***	-0.276***	-0.417***	-0.025	1.142***
	(-5.40)	(-6.17)	(-6.88)	(-0.57)	(8.03)
μ_{ADS}	0.179***	0.111**	-0.606***	-0.300***	-0.925***
	(2.96)	(2.52)	(-8.08)	(-5.13)	(-5.63)
$\mu_{R^{\text{YEAR}}}$	0.047***	0.061***	0.053	0.387***	0.443***
	(4.52)	(3.75)	(1.32)	(9.34)	(2.86)
μ_{SAVINGS}	0.575***	1.046***	1.687***	0.980***	0.799***
	(7.96)	(10.23)	(12.68)	(9.57)	(2.63)
$\mu_{\text{CAP\_GAINS\_PROXY4}}$	-0.001***	-0.004***	0.002	-0.022***	-0.021***
	(-3.06)	(-4.87)	(1.12)	(-9.02)	(-3.02)
μ_{NOV}	0.164***	0.271***	0.148***	-0.017	0.689***
	(4.56)	(7.40)	(2.62)	(-0.55)	(5.89)
μ_{DEC}	0.154***	-0.392***	-0.225***	-0.146***	0.651***
	(4.97)	(-8.90)	(-5.74)	(-6.14)	(4.09)
μ_{JAN}	0.419***	0.403***	0.631***	0.542***	-0.675***
	(11.91)	(11.57)	(15.63)	(19.24)	(-4.74)
μ_{FEB}	0.031	-0.217***	0.124***	0.103***	0.015
	(0.94)	(-7.06)	(2.94)	(2.94)	(0.18)
μ_{rho_1}	0.433***	0.520***	0.516***	0.647***	0.050**
	(33.33)	(32.72)	(42.56)	(55.22)	(2.56)
μ_{rho_3}	0.291***	0.352***	0.247***	0.168***	0.356***
	(24.99)	(19.14)	(20.58)	(14.42)	(21.92)
μ_{rho_6}	-0.031**	0.003	0.037***	-0.005	0.077***
	(-2.39)	(0.20)	(3.03)	(-0.43)	(4.88)
$\mu_{rho_{12}}$	0.063***	-0.030***	-0.137***	0.031***	0.246***
	(8.16)	(-4.09)	(-14.8)	(4.44)	(12.58)
R^2	0.5217	0.7241	0.6621	0.8297	0.3395
AR(12)	12.62	4.85	12.59	11.73	8.54
ARCH(12)	28.26***	66.32***	45.01***	17.14	29.71***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\hat{\text{OR}}}$ jointly equal to 0 across series	248.9*** [5]
$\mu_{\hat{\text{OR}}}$ equivalent across series	248.9*** [4]
Test of Over-Identifying Restrictions	46.5 [140]

Notes: See the notes to Table A-1.1

Table A-1.5
Dependent Variable: U.S. Net Flows
Capital Gains Proxy 5
Three-Year Cumulative Returns

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	-0.776***	-1.357***	-1.848***	-1.619***	0.105
	(-6.41)	(-9.05)	(-7.81)	(-8.69)	(0.15)
$\mu_{\hat{\text{OR}}}$	-0.160***	-0.212***	-0.444***	-0.055	1.421***
	(-3.78)	(-5.38)	(-7.54)	(-1.26)	(10.18)
μ_{ADS}	0.116**	0.034	-0.705***	-0.356***	-0.975***
	(2.11)	(0.65)	(-10.9)	(-6.41)	(-6.67)
$\mu_{R^{\text{YEAR}}}$	0.024***	-0.020	0.187***	0.327***	0.439***
	(2.67)	(-1.35)	(7.09)	(8.88)	(3.88)
μ_{SAVINGS}	0.476***	0.932***	1.785***	1.419***	0.676
	(6.26)	(9.85)	(12.02)	(11.75)	(1.46)
$\mu_{\text{CAP\_GAINS\_PROXY5}}$	-0.001***	0.001	-0.001	-0.020***	-0.017***
	(-3.98)	(1.34)	(-0.47)	(-12.3)	(-4.03)
μ_{NOV}	0.179***	0.217***	0.167***	-0.021	0.789***
	(4.12)	(6.86)	(2.85)	(-0.68)	(7.03)
μ_{DEC}	0.156***	-0.302***	-0.232***	-0.179***	0.842***
	(5.34)	(-7.59)	(-5.62)	(-7.11)	(5.30)
μ_{JAN}	0.299***	0.339***	0.556***	0.448***	-0.804***
	(9.42)	(9.68)	(12.46)	(15.71)	(-5.00)
μ_{FEB}	-0.015	-0.191***	0.179***	0.102***	0.093
	(-0.44)	(-5.66)	(3.92)	(2.60)	(1.01)
ρ_1	0.474***	0.513***	0.442***	0.609***	0.047***
	(46.24)	(30.12)	(31.58)	(44.63)	(2.83)
ρ_3	0.324***	0.408***	0.139***	0.100***	0.373***
	(24.80)	(18.72)	(12.26)	(8.95)	(19.66)
ρ_6	-0.050***	-0.025**	-0.013	-0.006	0.075***
	(-4.48)	(-1.99)	(-0.99)	(-0.49)	(4.61)
ρ_{12}	0.049***	-0.059***	-0.147***	-0.005	0.244***
	(5.82)	(-7.91)	(-13.4)	(-0.55)	(13.53)
R^2	0.5929	0.7188	0.4787	0.6771	0.3722
AR(12)	21.78**	2.36	7.86	12.54	9.91
ARCH(12)	20.14*	60.42***	52.71***	10.93	31.21***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\hat{\text{OR}}}$ jointly equal to 0 across series	159.2*** [5]
$\mu_{\hat{\text{OR}}}$ equivalent across series	155.7*** [4]
Test of Over-Identifying Restrictions	52.3 [120]

Notes: See the notes to Table A-1.1

Table A-1.6
Dependent Variable: U.S. Net Flows
Capital Gains Proxy 6:
Predicted Capital Gains, Nov/Dec Only

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	-0.771***	-1.694***	-1.537***	-1.014***	1.629***
	(-6.35)	(-11.5)	(-7.56)	(-5.86)	(3.62)
$\mu_{\hat{\text{OR}}}$	-0.223***	-0.250***	-0.376***	-0.099**	1.160***
	(-4.18)	(-4.70)	(-5.41)	(-1.99)	(6.40)
μ_{ADS}	0.252***	0.147***	-0.563***	-0.139**	-0.896***
	(3.60)	(2.78)	(-7.14)	(-2.54)	(-4.88)
$\mu_{R^{\text{YEAR}}}$	0.016*	0.006	0.115***	-0.017	0.094
	(1.94)	(0.38)	(3.94)	(-0.46)	(0.89)
μ_{SAVINGS}	0.376***	1.076***	1.446***	0.785***	-0.483**
	(5.96)	(11.94)	(11.28)	(7.02)	(-2.01)
$\mu_{\text{CAP\_GAINS\_PROXY6}}$	-0.025***	-0.054***	0.300***	0.882***	-1338***
	(-4.34)	(-3.68)	(6.94)	(12.25)	(-28.3)
μ_{NOV}	0.315***	0.479***	-0.037	-0.422***	0.797***
	(8.83)	(8.51)	(-0.61)	(-12.8)	(8.06)
μ_{DEC}	0.284***	-0.281***	-0.400***	-0.558***	0.880***
	(7.04)	(-7.36)	(-7.89)	(-15.8)	(7.43)
μ_{JAN}	0.440***	0.438***	0.637***	0.497***	-0.625***
	(10.42)	(11.08)	(14.26)	(12.97)	(-3.93)
μ_{FEB}	0.014	-0.136***	0.013	-0.073**	-0.089
	(0.39)	(-4.71)	(0.28)	(-1.99)	(-0.86)
ρ_1	0.413***	0.505***	0.506***	0.670***	0.067***
	(29.29)	(26.48)	(46.26)	(71.23)	(3.66)
ρ_3	0.325***	0.362***	0.280***	0.270***	0.317***
	(34.73)	(19.99)	(28.20)	(23.45)	(17.66)
ρ_6	-0.015	-0.000	0.033***	0.063***	0.111***
	(-1.37)	(-0.02)	(3.05)	(5.11)	(7.02)
ρ_{12}	0.022**	-0.033***	-0.139***	-0.104***	0.237***
	(2.46)	(-3.89)	(-14.0)	(-16.1)	(11.70)
R^2	0.506	0.7271	0.6931	0.9017	0.3353
AR(12)	14.99	4.60	15.05	12.31	17.02
ARCH(12)	37.03***	58.13***	52.26***	52.19***	27.93***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\hat{\text{OR}}}$ jointly equal to 0 across series	57.2*** [5]
$\mu_{\hat{\text{OR}}}$ equivalent across series	53.6*** [4]
Test of Over-Identifying Restrictions	46.5 [120]

Notes: See the notes to Table A-1.1

Table A-1.7
Dependent Variable: U.S. Net Flows
Capital Gains Proxy 7:
For Equity/Hybrid Classes: Predicted Capital Gains, Nov/Dec Only;
For Corporate Bond, Government Bond, Money Market Classes:
Cumulative Returns for Past Fiscal Year, Nov/Dec Only

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	-0.796***	-1.697***	-1.558***	-1.318***	2.054***
	(-6.37)	(-11.2)	(-6.56)	(-7.33)	(4.46)
$\mu_{\widehat{\text{OR}}}$	-0.220***	-0.253***	-0.367***	-0.081*	1.135***
	(-4.26)	(-4.67)	(-5.32)	(-1.68)	(6.34)
μ_{ADS}	0.276***	0.156***	-0.539***	-0.129**	-0.944***
	(4.55)	(3.20)	(-7.51)	(-2.46)	(-5.31)
$\mu_{R^{\text{YEAR}}}$	0.017**	0.007	0.126***	-0.012	0.381***
	(2.13)	(0.51)	(4.00)	(-0.31)	(3.20)
μ_{SAVINGS}	0.373***	1.073***	1.430***	0.975***	-0.822***
	(5.21)	(11.09)	(9.21)	(8.52)	(-3.24)
$\mu_{\text{CAP\_GAINS\_PROXY7}}$	-0.023***	-0.049***	-0.021***	-0.027***	-0.102***
	(-5.09)	(-3.01)	(-4.44)	(-6.11)	(-7.39)
μ_{NOV}	0.303***	0.452***	0.317***	0.038	1.195***
	(8.20)	(6.51)	(7.00)	(0.99)	(9.14)
μ_{DEC}	0.275***	-0.287***	-0.028	-0.084**	1.264***
	(6.51)	(-6.35)	(-0.61)	(-2.57)	(7.87)
μ_{JAN}	0.436***	0.432***	0.633***	0.492***	-0.635***
	(10.59)	(10.37)	(14.47)	(13.69)	(-3.95)
μ_{FEB}	0.015	-0.135***	0.006	-0.087**	-0.129
	(0.39)	(-4.31)	(0.13)	(-2.38)	(-1.29)
ρ_1	0.417***	0.497***	0.520***	0.672***	0.065***
	(29.05)	(25.90)	(41.38)	(63.41)	(3.42)
ρ_3	0.325***	0.365***	0.280***	0.260***	0.341***
	(33.04)	(20.99)	(25.63)	(19.82)	(18.26)
ρ_6	-0.017	0.002	0.029**	0.055***	0.105***
	(-1.52)	(0.15)	(2.55)	(4.67)	(6.26)
ρ_{12}	0.022**	-0.032***	-0.130***	-0.086***	0.225***
	(2.48)	(-3.36)	(-14.2)	(-13.5)	(11.58)
R^2	0.5061	0.727	0.6924	0.9008	0.3245
AR(12)	14.65	4.68	14.63	9.45	11.65
ARCH(12)	37.05***	58.01***	47.16***	51.20***	31.45***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\widehat{\text{OR}}}$ jointly equal to 0 across series	56.4*** [5]
$\mu_{\widehat{\text{OR}}}$ equivalent across series	53.3*** [4]
Test of Over-Identifying Restrictions	46.4 [120]

Notes: See the notes to Table A-1.1

Table A-1.8
Dependent Variable: U.S. Net Flows
Capital Gains Proxy 8:
For Equity/Hybrid Classes: Predicted Cumulative Returns Less Distributions, Nov/Dec Only;
For Corporate Bond, Government Bond, Money Market Classes: Cumulative Returns for Past Fiscal Year, Nov/Dec Only

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	-0.688***	-1.685***	-1.613***	-1.345***	1.899***
	(-5.64)	(-10.8)	(-6.69)	(-7.43)	(4.31)
$\mu_{\hat{\text{OR}}}$	-0.219***	-0.249***	-0.376***	-0.085*	1.150***
	(-4.26)	(-4.79)	(-5.69)	(-1.70)	(6.60)
μ_{ADS}	0.270***	0.171***	-0.541***	-0.127**	-0.912***
	(3.73)	(3.29)	(-7.25)	(-2.29)	(-5.07)
$\mu_{R^{\text{YEAR}}}$	0.013	-0.002	0.118***	-0.003	0.390***
	(1.54)	(-0.14)	(3.65)	(-0.08)	(3.04)
μ_{SAVINGS}	0.310***	1.055***	1.469***	0.986***	-0.753***
	(4.80)	(10.86)	(9.61)	(8.66)	(-3.14)
$\mu_{\text{CAP\_GAINS\_PROXY8}}$	0.002	0.004	-0.019***	-0.027***	-0.105***
	(1.52)	(1.54)	(-4.67)	(-5.81)	(-7.36)
μ_{NOV}	0.154***	0.292***	0.304***	0.041	1.204***
	(5.65)	(7.59)	(6.16)	(0.92)	(8.82)
μ_{DEC}	0.136***	-0.455***	-0.030	-0.081**	1.322***
	(5.58)	(-9.33)	(-0.62)	(-2.24)	(6.92)
μ_{JAN}	0.434***	0.437***	0.637***	0.498***	-0.628***
	(10.42)	(9.82)	(14.43)	(14.15)	(-4.07)
μ_{FEB}	0.020	-0.135***	0.008	-0.085**	-0.132
	(0.53)	(-4.23)	(0.17)	(-2.32)	(-1.31)
ρ_1	0.427***	0.505***	0.521***	0.673***	0.065***
	(31.35)	(32.12)	(41.00)	(62.66)	(3.41)
ρ_3	0.326***	0.368***	0.281***	0.258***	0.344***
	(32.44)	(21.74)	(25.01)	(20.06)	(19.12)
ρ_6	-0.023**	-0.004	0.025**	0.052***	0.105***
	(-2.11)	(-0.36)	(2.34)	(4.35)	(7.12)
ρ_{12}	0.021**	-0.031***	-0.129***	-0.084***	0.224***
	(2.49)	(-3.46)	(-12.7)	(-13.6)	(11.12)
R^2	0.505	0.7265	0.6924	0.9008	0.3245
AR(12)	13.27	4.21	14.4	9.35	11.63
ARCH(12)	37.49***	59.79***	47.68***	51.18***	31.30***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\hat{\text{OR}}}$ jointly equal to 0 across series	63.1*** [5]
$\mu_{\hat{\text{OR}}}$ equivalent across series	58.7*** [4]
Test of Over-Identifying Restrictions	46.8 [120]

Notes: See the notes to Table A-1.1

Table A-1.9
Dependent Variable: U.S. Net Flows
Capital Gains Proxy 9:
Cumulative Equity Returns Used for All Fund Categories,
Nov/Dec Only

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	-0.671***	-1.701***	-1.634***	-1.231***	1.711***
	(-4.08)	(-8.73)	(-6.09)	(-4.94)	(2.73)
$\mu_{\widehat{\text{OR}}}$	-0.217***	-0.242***	-0.332***	-0.068	1.173***
	(-3.69)	(-4.21)	(-4.11)	(-1.15)	(5.83)
μ_{ADS}	0.254***	0.171***	-0.525***	-0.159**	-0.883***
	(2.96)	(2.59)	(-5.61)	(-2.36)	(-4.23)
$\mu_{R^{\text{YEAR}}}$	0.015	0.025	0.104***	-0.054	0.076
	(1.43)	(1.26)	(2.92)	(-1.15)	(0.64)
μ_{SAVINGS}	0.308***	1.054***	1.486***	0.952***	-0.548
	(3.59)	(8.95)	(9.11)	(6.01)	(-1.55)
$\mu_{\text{CAP\_GAINS\_PROXY9}}$	0.002	-0.004**	-0.006*	0.001	-0.014**
	(0.97)	(-2.37)	(-1.88)	(0.66)	(-2.47)
μ_{NOV}	0.153**	0.356***	0.245***	-0.127**	0.811***
	(2.54)	(6.87)	(3.55)	(-2.56)	(4.89)
μ_{DEC}	0.128***	-0.327***	-0.124*	-0.260***	1.000***
	(3.14)	(-4.97)	(-1.73)	(-6.73)	(4.63)
μ_{JAN}	0.432***	0.426***	0.623***	0.494***	-0.696***
	(8.88)	(8.79)	(11.82)	(10.87)	(-3.66)
μ_{FEB}	0.002	-0.138***	0.003	-0.077*	-0.105
	(0.04)	(-3.86)	(0.05)	(-1.77)	(-0.88)
ρ_1	0.429***	0.511***	0.517***	0.671***	0.059***
	(28.25)	(21.96)	(32.54)	(50.61)	(2.71)
ρ_3	0.320***	0.363***	0.272***	0.261***	0.331***
	(25.94)	(16.96)	(19.03)	(16.43)	(15.48)
ρ_6	-0.016	-0.004	0.028*	0.051***	0.117***
	(-1.23)	(-0.28)	(1.92)	(3.62)	(5.36)
ρ_{12}	0.024**	-0.029***	-0.123***	-0.083***	0.233***
	(2.31)	(-2.76)	(-9.83)	(-11.7)	(9.13)
R^2	0.5049	0.7264	0.6919	0.9002	0.3174
AR(12)	13.58	5.12	14.07	8.55	10.86
ARCH(12)	37.30***	62.05***	48.67***	51.97***	32.40***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\widehat{\text{OR}}}$ jointly equal to 0 across series	45.6*** [5]
$\mu_{\widehat{\text{OR}}}$ equivalent across series	43.4*** [4]
Test of Over-Identifying Restrictions	43.4 [120]

Notes: See the notes to Table A-1.1

Table A-1.10
Dependent Variable: U.S. Net Flows
Capital Gains Proxy 10:
Multiple Proxies: Past Realized Capital Gains, Cumulative Returns (Nov/Dec Only), and Cumulative Returns Plus Predicted Return for Month t

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	-0.838***	-1.481***	-1.715***	-1.232***	1.973***
	(-9.74)	(-15.6)	(-9.46)	(-9.64)	(6.63)
$\mu_{\widehat{\text{OR}}}$	-0.147***	-0.279***	-0.518***	0.003	1.088***
	(-4.99)	(-8.36)	(-12.4)	(0.07)	(8.90)
μ_{ADS}	0.270***	0.221***	-0.516***	-0.102***	-0.896***
	(6.88)	(6.31)	(-10.8)	(-2.77)	(-7.54)
$\mu_{CUMULATIVE\_RETURNS\_NOV/DEC}$	0.006***	-0.002	-0.029***	-0.022***	-0.109***
	(4.42)	(-0.90)	(-8.55)	(-5.97)	(-11.4)
$\mu_{CUMULATIVE\_RETURNS\_PLUS\_PREDICTED}$	-0.007***	0.014***	0.021***	0.021***	0.014
	(-7.75)	(8.40)	(6.22)	(6.06)	(1.12)
$\mu_{PAST\_REALIZED\_CAPITAL\_GAINS}$	-0.029***	-0.065***	0.084***	-1.545***	31.994
	(-15.3)	(-17.4)	(3.05)	(-35.4)	(0.46)
$\mu_{R^{\text{YEAR}}}$	0.057***	-0.071***	0.014	-0.204***	0.274**
	(6.10)	(-5.78)	(0.49)	(-6.16)	(2.26)
μ_{SAVINGS}	0.513***	0.950***	1.455***	1.185***	-0.809***
	(10.03)	(16.47)	(12.62)	(15.33)	(-4.86)
μ_{NOV}	-0.011	0.189***	0.393***	-0.470***	1.212***
	(-0.42)	(5.82)	(9.54)	(-14.9)	(13.13)
μ_{DEC}	-0.022	-0.570***	0.047	-0.536***	1.244***
	(-0.90)	(-14.4)	(1.08)	(-17.1)	(11.13)
μ_{JAN}	0.372***	0.485***	0.711***	0.333***	-0.584***
	(13.89)	(18.83)	(25.71)	(14.75)	(-6.12)
μ_{FEB}	-0.016	-0.114***	0.047	-0.104***	-0.121
	(-0.64)	(-5.50)	(1.45)	(-3.83)	(-1.64)
ρ_1	0.417***	0.482***	0.501***	0.566***	0.072***
	(56.20)	(48.99)	(55.28)	(64.63)	(6.74)
ρ_3	0.316***	0.361***	0.277***	0.245***	0.343***
	(58.62)	(40.23)	(39.03)	(28.34)	(25.04)
ρ_6	-0.030***	0.014*	0.027***	0.126***	0.106***
	(-4.62)	(1.81)	(3.10)	(14.43)	(9.56)
ρ_{12}	0.041***	-0.036***	-0.124***	-0.028***	0.228***
	(7.06)	(-7.48)	(-15.9)	(-5.87)	(20.09)
R^2	0.5154	0.7334	0.6944	0.9115	0.325
AR(12)	15.79	5.13	14.51	11.64	11.21
ARCH(12)	37.01***	64.28***	41.38***	43.30***	31.72***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\widehat{\text{OR}}}$ jointly equal to 0 across series	255.3*** [5]
$\mu_{\widehat{\text{OR}}}$ equivalent across series	234.4*** [4]
Test of Over-Identifying Restrictions	48.7 [160]

Notes: See the notes to Table A-1.1

Table A-1.11
Dependent Variable: U.S. Net Exchanges
Capital Gains Proxy 1:
Past Realized Capital Gains Plus Predicted Capital Gains for Month t

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	0.103***	0.040***	0.264***	0.166***	-0.094***
	(3.71)	(3.03)	(8.87)	(5.69)	(-3.81)
$\mu_{\hat{\text{OR}}}$	-0.148***	0.032***	-0.093***	0.155***	0.253***
	(-6.83)	(3.03)	(-2.94)	(6.19)	(8.83)
μ_{ADS}	-0.088***	-0.017	-0.358***	-0.139***	0.166***
	(-3.37)	(-1.32)	(-12.5)	(-5.28)	(6.57)
$\mu_{R^{\text{YEAR}}}$	-0.002	-0.015***	0.096***	0.092***	0.013*
	(-0.83)	(-5.39)	(8.28)	(10.54)	(1.88)
$\mu_{\text{CAP\_GAINS\_PROXY1}}$	-0.017***	-0.010***	-0.058***	-0.485***	-15.00***
	(-16.7)	(-8.09)	(-5.30)	(-24.9)	(-4.20)
μ_{NOV}	0.096***	0.060***	0.140***	0.028*	-0.119***
	(6.45)	(8.05)	(6.41)	(1.68)	(-6.68)
μ_{DEC}	0.118***	-0.043***	-0.020	-0.009	0.005
	(8.16)	(-6.19)	(-1.26)	(-0.63)	(0.30)
μ_{JAN}	0.127***	0.011	0.171***	0.044***	-0.304***
	(8.21)	(1.08)	(9.28)	(3.49)	(-25.5)
μ_{FEB}	0.039**	0.034***	0.018	-0.020	-0.023
	(2.20)	(4.25)	(0.84)	(-1.15)	(-1.55)
ρ_1	0.013	0.601***	0.214***	0.156***	0.160***
	(1.26)	(48.26)	(16.07)	(9.11)	(11.03)
ρ_3	0.160***	0.169***	0.046***	-0.079***	0.085***
	(17.73)	(12.82)	(3.57)	(-7.70)	(10.48)
ρ_6	0.054***	0.127***	-0.057***	0.079***	0.201***
	(6.78)	(9.20)	(-4.99)	(7.28)	(22.10)
ρ_{12}	-0.001	-0.063***	-0.113***	-0.048***	-0.032***
	(-0.07)	(-5.60)	(-10.0)	(-4.79)	(-4.06)
R^2	0.0964	0.6524	0.1093	0.2297	0.1557
AR(12)	9.77	9.22	17.01	9.16	7.61
ARCH(12)	11.17	13.48	19.80*	25.06**	58.64***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\hat{\text{OR}}}$ jointly equal to 0 across series	189.5*** [5]
$\mu_{\hat{\text{OR}}}$ equivalent across series	142.8*** [4]
Test of Over-Identifying Restrictions	48.5 [120]

Notes: See the notes to Table A-1.1, with the following exception: We estimate equation (2), using an alternate measure of capital gains overhang.

Table A-1.12
Dependent Variable: U.S. Net Exchanges
Capital Gains Proxy 2:
Predicted Cumulative Returns

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	0.059**	0.010	0.224***	0.060**	-0.106***
	(2.22)	(0.80)	(7.11)	(2.36)	(-4.24)
$\mu_{\hat{\text{OR}}}$	-0.138***	0.013	-0.142***	0.015	0.217***
	(-5.73)	(1.38)	(-4.43)	(0.55)	(7.69)
μ_{ADS}	-0.103***	-0.015	-0.348***	-0.137***	0.170***
	(-4.03)	(-1.28)	(-12.1)	(-5.70)	(6.78)
$\mu_{R^{\text{YEAR}}}$	0.022***	-0.029***	0.031*	-0.060***	-0.037***
	(5.79)	(-8.43)	(1.90)	(-4.01)	(-3.51)
$\mu_{\text{CAP\_GAINS\_PROXY2}}$	-0.003***	0.002***	0.008***	0.015***	0.005***
	(-7.46)	(5.35)	(4.12)	(9.29)	(4.79)
μ_{NOV}	0.098***	0.052***	0.114***	-0.022	-0.119***
	(5.64)	(7.39)	(5.76)	(-1.39)	(-6.40)
μ_{DEC}	0.107***	-0.051***	-0.041**	-0.071***	0.010
	(7.64)	(-7.59)	(-2.57)	(-5.57)	(0.50)
μ_{JAN}	0.111***	0.020*	0.195***	0.082***	-0.287***
	(7.66)	(1.81)	(9.32)	(6.40)	(-26.4)
μ_{FEB}	0.031**	0.038***	0.041*	-0.015	-0.023*
	(2.03)	(4.70)	(1.84)	(-0.88)	(-1.66)
ρ_1	0.047***	0.606***	0.205***	0.247***	0.156***
	(4.98)	(43.49)	(17.00)	(17.66)	(13.10)
ρ_3	0.196***	0.174***	0.045***	0.022*	0.089***
	(22.38)	(13.20)	(3.56)	(1.94)	(11.55)
ρ_6	0.055***	0.135***	-0.050***	0.130***	0.207***
	(6.54)	(10.38)	(-3.87)	(12.65)	(19.28)
ρ_{12}	-0.002	-0.044***	-0.097***	-0.057***	-0.031***
	(-0.26)	(-4.26)	(-7.34)	(-6.27)	(-4.06)
R^2	0.0787	0.6492	0.1081	0.157	0.1559
AR(12)	9.73	9.23	17.53	10.32	7.16
ARCH(12)	8.90	15.13	18.05	23.08**	58.99***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\hat{\text{OR}}}$ jointly equal to 0 across series	101.5*** [5]
$\mu_{\hat{\text{OR}}}$ equivalent across series	67.4*** [4]
Test of Over-Identifying Restrictions	45.3 [120]

Notes: See the notes to Table A-1.1, with the following exception: We estimate equation (2), using an alternate measure of capital gains overhang.

Table A-1.13
Dependent Variable: U.S. Net Exchanges
Capital Gains Proxy 3:
Predicted Cumulative Returns Less Distributions

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	0.056**	0.016	0.259***	0.102***	-0.105***
	(2.07)	(1.39)	(8.55)	(3.90)	(-4.39)
$\mu_{\hat{\text{OR}}}$	-0.144***	0.019**	-0.106***	0.081***	0.222***
	(-6.24)	(2.00)	(-3.51)	(3.39)	(8.05)
μ_{ADS}	-0.103***	-0.015	-0.353***	-0.134***	0.183***
	(-4.04)	(-1.28)	(-12.4)	(-5.51)	(7.72)
$\mu_{R^{\text{YEAR}}}$	0.018***	-0.027***	0.043***	-0.040***	-0.072***
	(4.39)	(-8.79)	(3.21)	(-2.77)	(-6.81)
$\mu_{\text{CAP\_GAINS\_PROXY3}}$	-0.003***	0.002***	0.006***	0.014***	0.013***
	(-5.71)	(5.61)	(3.94)	(8.37)	(9.57)
μ_{NOV}	0.099***	0.055***	0.136***	0.003	-0.123***
	(5.89)	(7.96)	(6.96)	(0.17)	(-6.97)
μ_{DEC}	0.102***	-0.050***	-0.023	-0.046***	0.011
	(7.28)	(-7.18)	(-1.48)	(-3.72)	(0.53)
μ_{JAN}	0.113***	0.015	0.174***	0.053***	-0.287***
	(7.68)	(1.49)	(9.36)	(3.99)	(-27.9)
μ_{FEB}	0.033**	0.036***	0.027	-0.034**	-0.028**
	(2.22)	(4.38)	(1.33)	(-2.02)	(-2.17)
ρ_1	0.047***	0.609***	0.207***	0.248***	0.151***
	(5.12)	(40.10)	(17.32)	(18.56)	(12.34)
ρ_3	0.197***	0.174***	0.042***	0.017	0.084***
	(22.51)	(13.29)	(3.11)	(1.43)	(11.36)
ρ_6	0.055***	0.134***	-0.053***	0.125***	0.208***
	(7.18)	(10.08)	(-4.24)	(12.54)	(19.01)
ρ_{12}	-0.001	-0.046***	-0.104***	-0.063***	-0.033***
	(-0.10)	(-4.59)	(-8.58)	(-7.06)	(-4.00)
R^2	0.0769	0.6489	0.1079	0.1555	0.1597
AR(12)	10.49	8.98	17.99	9.85	7.85
ARCH(12)	9.02	15.40	18.78*	23.03**	60.15***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\hat{\text{OR}}}$ jointly equal to 0 across series	149.1*** [5]
$\mu_{\hat{\text{OR}}}$ equivalent across series	85.5*** [4]
Test of Over-Identifying Restrictions	45.9 [120]

Notes: See the notes to Table A-1.1, with the following exception: We estimate equation (2), using an alternate measure of capital gains overhang.

Table A-1.14
Dependent Variable: U.S. Net Exchanges
Capital Gains Proxy 4:
Two-Year Cumulative Returns

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	0.056**	0.019*	0.395***	0.133***	-0.102***
	(2.47)	(1.66)	(10.73)	(4.72)	(-4.49)
$\mu_{\hat{\text{OR}}}$	-0.157***	0.023**	-0.141***	0.096***	0.259***
	(-6.44)	(2.47)	(-3.95)	(4.44)	(8.67)
μ_{ADS}	-0.093***	-0.018	-0.432***	-0.164***	0.176***
	(-3.97)	(-1.56)	(-12.6)	(-6.21)	(6.99)
$\mu_{R^{\text{YEAR}}}$	0.015***	-0.010***	0.247***	0.159***	0.043***
	(4.36)	(-2.72)	(15.91)	(10.90)	(2.88)
$\mu_{\text{CAP\_GAINS\_PROXY4}}$	-0.001***	-0.000	-0.011***	-0.009***	-0.002**
	(-5.52)	(-1.25)	(-14.8)	(-13.2)	(-2.38)
μ_{NOV}	0.070***	0.059***	0.134***	0.004	-0.112***
	(4.59)	(8.30)	(6.51)	(0.30)	(-7.62)
μ_{DEC}	0.094***	-0.043***	-0.023	-0.047***	0.015
	(6.53)	(-6.05)	(-1.11)	(-3.94)	(0.99)
μ_{JAN}	0.139***	0.013	0.190***	0.078***	-0.321***
	(10.00)	(1.18)	(11.18)	(5.77)	(-28.0)
μ_{FEB}	0.025	0.034***	0.081***	0.050***	-0.039**
	(1.60)	(4.61)	(3.89)	(2.99)	(-2.56)
ρ_1	0.033***	0.613***	0.186***	0.295***	0.162***
	(3.61)	(45.23)	(15.34)	(25.56)	(15.24)
ρ_3	0.211***	0.168***	0.039***	0.050***	0.092***
	(20.48)	(11.99)	(3.19)	(4.57)	(11.60)
ρ_6	0.031***	0.131***	-0.077***	0.071***	0.207***
	(3.20)	(10.22)	(-6.18)	(7.10)	(19.83)
ρ_{12}	0.080***	-0.051***	-0.105***	-0.050***	-0.025***
	(8.50)	(-5.89)	(-9.07)	(-5.71)	(-3.84)
R^2	0.0882	0.6492	0.1471	0.2061	0.1656
AR(12)	10.04	11.12	16.03	11.92	8.10
ARCH(12)	63.59***	12.29	16.15	4.57	108.14***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\hat{\text{OR}}}$ jointly equal to 0 across series	325.0*** [5]
$\mu_{\hat{\text{OR}}}$ equivalent across series	154.0*** [4]
Test of Over-Identifying Restrictions	46.4 [140]

Notes: See the notes to Table A-1.1, with the following exception: We estimate equation (2), using an alternate measure of capital gains overhang.

Table A-1.15
Dependent Variable: U.S. Net Exchanges
Capital Gains Proxy 5
Three-Year Cumulative Returns

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	0.065**	0.014	0.427***	0.238***	-0.125***
	(2.50)	(0.98)	(11.33)	(8.46)	(-4.54)
$\mu_{\hat{\text{OR}}}$	-0.137***	0.020*	-0.139***	0.088***	0.263***
	(-6.24)	(1.88)	(-4.25)	(4.78)	(9.09)
μ_{ADS}	-0.087***	-0.011	-0.419***	-0.176***	0.196***
	(-3.51)	(-0.73)	(-12.1)	(-6.71)	(6.88)
$\mu_{R^{\text{YEAR}}}$	0.015***	-0.014***	0.113***	0.164***	0.020*
	(4.95)	(-4.21)	(10.92)	(11.57)	(1.84)
$\mu_{\text{CAP\_GAINS\_PROXY5}}$	-0.001***	-0.000	-0.006***	-0.013***	-0.001
	(-6.43)	(-1.16)	(-10.6)	(-22.8)	(-1.46)
μ_{NOV}	0.063***	0.061***	0.149***	-0.010	-0.132***
	(3.58)	(7.51)	(7.98)	(-0.75)	(-7.47)
μ_{DEC}	0.094***	-0.036***	-0.009	-0.041***	0.004
	(7.59)	(-5.06)	(-0.48)	(-2.87)	(0.26)
μ_{JAN}	0.059***	0.034***	0.202***	0.052***	-0.276***
	(4.67)	(3.62)	(10.39)	(3.44)	(-25.2)
μ_{FEB}	-0.006	0.030***	0.083***	0.054***	0.008
	(-0.36)	(3.47)	(4.50)	(3.06)	(0.64)
ρ_1	0.136***	0.619***	0.232***	0.242***	0.254***
	(15.96)	(45.97)	(19.00)	(20.99)	(24.06)
ρ_3	0.141***	0.173***	0.040***	-0.012	0.056***
	(15.60)	(14.40)	(3.53)	(-0.94)	(6.87)
ρ_6	0.092***	0.128***	-0.068***	0.067***	0.211***
	(10.78)	(10.33)	(-5.45)	(6.49)	(19.71)
ρ_{12}	0.028***	-0.059***	-0.121***	-0.084***	-0.045***
	(4.07)	(-6.03)	(-10.5)	(-7.39)	(-6.03)
R^2	0.0907	0.6568	0.1477	0.2581	0.2024
AR(12)	14.19	12.64	11.60	10.55	20.58*
ARCH(12)	60.62***	12.06	10.98	3.28	55.28***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\hat{\text{OR}}}$ jointly equal to 0 across series	157.2*** [5]
$\mu_{\hat{\text{OR}}}$ equivalent across series	83.1*** [4]
Test of Over-Identifying Restrictions	54.1 [120]

Notes: See the notes to Table A-1.1, with the following exception: We estimate equation (2), using an alternate measure of capital gains overhang.

Table A-1.16
Dependent Variable: U.S. Net Exchanges
Capital Gains Proxy 6:
Predicted Capital Gains, Nov/Dec Only

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	0.040	0.026**	0.229***	0.051*	-0.096***
	(1.49)	(1.97)	(6.50)	(1.91)	(-4.05)
$\mu_{\hat{\text{OR}}}$	-0.169***	0.020*	-0.108***	0.081***	0.252***
	(-6.32)	(1.92)	(-3.41)	(3.23)	(9.40)
μ_{ADS}	-0.096***	-0.024*	-0.350***	-0.135***	0.166***
	(-3.72)	(-1.82)	(-10.6)	(-5.60)	(7.22)
$\mu_{R^{\text{YEAR}}}$	-0.001	-0.016***	0.090***	0.060***	0.007
	(-0.32)	(-5.77)	(7.87)	(5.58)	(1.00)
$\mu_{\text{CAP\_GAINS\_PROXY6}}$	-0.034***	-0.018***	0.111***	-0.090***	-35.95***
	(-12.3)	(-8.44)	(7.91)	(-4.14)	(-9.18)
μ_{NOV}	0.251***	0.108***	0.079***	0.038***	-0.115***
	(11.38)	(12.11)	(4.36)	(3.07)	(-9.86)
μ_{DEC}	0.268***	0.000	-0.089***	-0.008	0.016
	(12.53)	(0.01)	(-5.37)	(-0.58)	(1.17)
μ_{JAN}	0.135***	0.012	0.175***	0.068***	-0.304***
	(8.25)	(1.11)	(8.68)	(5.54)	(-26.4)
μ_{FEB}	0.039**	0.036***	0.021	-0.022	-0.024*
	(2.49)	(4.40)	(1.08)	(-1.21)	(-1.73)
ρ_1	0.013	0.615***	0.214***	0.264***	0.156***
	(1.50)	(42.71)	(15.83)	(19.25)	(13.07)
ρ_3	0.177***	0.168***	0.054***	0.012	0.085***
	(18.32)	(13.43)	(4.68)	(1.09)	(10.83)
ρ_6	0.072***	0.124***	-0.057***	0.112***	0.204***
	(8.19)	(8.44)	(-4.02)	(10.30)	(19.78)
ρ_{12}	0.000	-0.048***	-0.117***	-0.076***	-0.030***
	(0.03)	(-4.56)	(-9.37)	(-8.03)	(-3.99)
R^2	0.0899	0.6505	0.1093	0.149	0.1555
AR(12)	14.23	16.38	17.45	11.18	7.37
ARCH(12)	9.33	13.72	17.62	26.72***	58.59***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\hat{\text{OR}}}$ jointly equal to 0 across series	168.4*** [5]
$\mu_{\hat{\text{OR}}}$ equivalent across series	89.0*** [4]
Test of Over-Identifying Restrictions	46.1 [120]

Notes: See the notes to Table A-1.1, with the following exception: We estimate equation (2), using an alternate measure of capital gains overhang.

Table A-1.17
Dependent Variable: U.S. Net Exchanges
Capital Gains Proxy 7:
For Equity/Hybrid Classes: Predicted Capital Gains, Nov/Dec Only;
For Corporate Bond, Government Bond, Money Market Classes:
Cumulative Returns for Past Fiscal Year, Nov/Dec Only

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	0.042	0.029**	0.228***	0.073***	-0.104***
	(1.52)	(2.33)	(6.74)	(2.79)	(-4.22)
$\mu_{\hat{\text{OR}}}$	-0.173***	0.020*	-0.108***	0.083***	0.254***
	(-6.04)	(1.93)	(-3.16)	(3.46)	(8.87)
μ_{ADS}	-0.098***	-0.025**	-0.356***	-0.144***	0.171***
	(-3.53)	(-1.99)	(-11.1)	(-6.25)	(7.02)
$\mu_{R^{\text{YEAR}}}$	-0.001	-0.017***	0.101***	0.031***	0.013*
	(-0.33)	(-6.27)	(8.60)	(2.82)	(1.75)
$\mu_{\text{CAP\_GAINS\_PROXY7}}$	-0.034***	-0.018***	-0.007***	0.015***	-0.003**
	(-11.9)	(-7.47)	(-4.56)	(9.96)	(-2.17)
μ_{NOV}	0.245***	0.106***	0.209***	-0.077***	-0.100***
	(9.94)	(9.90)	(9.39)	(-6.34)	(-6.45)
μ_{DEC}	0.267***	0.000	0.047**	-0.119***	0.025
	(11.97)	(0.03)	(2.33)	(-9.51)	(1.49)
μ_{JAN}	0.134***	0.013	0.175***	0.063***	-0.300***
	(8.07)	(1.27)	(8.92)	(4.78)	(-24.4)
μ_{FEB}	0.041**	0.035***	0.021	-0.018	-0.024
	(2.54)	(4.16)	(0.98)	(-0.94)	(-1.60)
ρ_1	0.012	0.613***	0.220***	0.256***	0.159***
	(1.25)	(43.22)	(21.77)	(22.27)	(15.22)
ρ_3	0.176***	0.172***	0.060***	0.018*	0.086***
	(20.07)	(12.55)	(4.69)	(1.67)	(11.81)
ρ_6	0.074***	0.126***	-0.061***	0.122***	0.202***
	(8.37)	(8.35)	(-4.60)	(12.65)	(19.87)
ρ_{12}	-0.000	-0.049***	-0.118***	-0.081***	-0.030***
	(-0.01)	(-4.92)	(-9.46)	(-8.49)	(-3.97)
R^2	0.0899	0.6505	0.1081	0.1557	0.1554
AR(12)	14.28	16.29	17.23	10.39	7.35
ARCH(12)	9.38	13.76	17.89	25.79**	58.48***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\hat{\text{OR}}}$ jointly equal to 0 across series	162.5*** [5]
$\mu_{\hat{\text{OR}}}$ equivalent across series	80.2*** [4]
Test of Over-Identifying Restrictions	46.0 [120]

Notes: See the notes to Table A-1.1, with the following exception: We estimate equation (2), using an alternate measure of capital gains overhang.

Table A-1.18
Dependent Variable: U.S. Net Exchanges
Capital Gains Proxy 8:
For Equity/Hybrid Classes: Predicted Cumulative Returns Less Distributions, Nov/Dec Only;
For Corporate Bond, Government Bond, Money Market Classes: Cumulative Returns for Past Fiscal Year, Nov/Dec Only

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	0.028	0.022*	0.217***	0.066**	-0.101***
	(1.01)	(1.68)	(5.92)	(2.20)	(-4.04)
$\mu_{\hat{OR}}$	-0.158***	0.024**	-0.107***	0.083***	0.250***
	(-5.69)	(2.35)	(-3.08)	(3.32)	(8.60)
μ_{ADS}	-0.077***	-0.017	-0.347***	-0.137***	0.166***
	(-2.87)	(-1.33)	(-9.97)	(-5.22)	(6.63)
$\mu_{R^{\text{YEAR}}}$	-0.005**	-0.018***	0.104***	0.031***	0.012
	(-2.11)	(-6.09)	(8.16)	(2.60)	(1.58)
$\mu_{\text{CAP\_GAINS\_PROXY8}}$	0.002***	0.001**	-0.007***	0.014***	-0.003*
	(3.45)	(2.26)	(-5.38)	(9.90)	(-1.87)
μ_{NOV}	0.068***	0.049***	0.209***	-0.075***	-0.098***
	(4.86)	(8.73)	(11.69)	(-5.81)	(-6.81)
μ_{DEC}	0.089***	-0.053***	0.046***	-0.115***	0.025
	(8.07)	(-9.26)	(2.65)	(-7.60)	(1.64)
μ_{JAN}	0.132***	0.014	0.174***	0.063***	-0.300***
	(8.34)	(1.30)	(9.01)	(4.73)	(-25.1)
μ_{FEB}	0.036**	0.034***	0.018	-0.017	-0.024
	(2.22)	(4.14)	(0.88)	(-0.87)	(-1.55)
ρ_1	0.048***	0.610***	0.214***	0.255***	0.157***
	(5.58)	(45.99)	(15.11)	(18.85)	(14.34)
ρ_3	0.193***	0.178***	0.060***	0.020*	0.089***
	(20.88)	(12.33)	(4.95)	(1.81)	(10.55)
ρ_6	0.063***	0.129***	-0.058***	0.121***	0.199***
	(7.43)	(8.59)	(-4.34)	(11.97)	(18.64)
ρ_{12}	0.009	-0.046***	-0.117***	-0.080***	-0.028***
	(0.90)	(-4.55)	(-9.33)	(-8.25)	(-3.61)
R^2	0.0752	0.6474	0.108	0.1556	0.1553
AR(12)	10.47	8.12	17.23	10.47	7.30
ARCH(12)	10.04	15.15	17.70	25.75**	58.00***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\hat{OR}}$ jointly equal to 0 across series	175.5*** [5]
$\mu_{\hat{OR}}$ equivalent across series	77.7*** [4]
Test of Over-Identifying Restrictions	45.0 [120]

Notes: See the notes to Table A-1.1, with the following exception: We estimate equation (2), using an alternate measure of capital gains overhang.

Table A-1.19
Dependent Variable: U.S. Net Exchanges
Capital Gains Proxy 9:
Cumulative Equity Returns Used for All Fund Categories,
Nov/Dec Only

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	0.029	0.018	0.225***	0.042	-0.090***
	(0.95)	(1.24)	(5.53)	(1.23)	(-3.11)
$\mu_{\hat{OR}}$	-0.150***	0.020*	-0.104***	0.087***	0.240***
	(-4.97)	(1.73)	(-2.66)	(2.90)	(7.28)
μ_{ADS}	-0.077***	-0.017	-0.342***	-0.123***	0.157***
	(-2.60)	(-1.16)	(-8.72)	(-3.97)	(5.40)
$\mu_{R^{\text{YEAR}}}$	-0.004	-0.014***	0.088***	0.058***	0.004
	(-1.49)	(-4.10)	(5.92)	(4.15)	(0.59)
$\mu_{\text{CAP\_GAINS\_PROXY9}}$	0.001	-0.000	-0.002*	0.001**	-0.000
	(1.34)	(-1.23)	(-1.89)	(2.03)	(-0.63)
μ_{NOV}	0.073***	0.061***	0.161***	-0.018	-0.105***
	(2.88)	(6.43)	(4.77)	(-0.82)	(-4.25)
μ_{DEC}	0.084***	-0.040***	0.002	-0.061***	0.027
	(4.53)	(-5.23)	(0.06)	(-3.70)	(1.17)
μ_{JAN}	0.125***	0.011	0.168***	0.065***	-0.295***
	(6.40)	(0.89)	(7.59)	(4.13)	(-19.3)
μ_{FEB}	0.034*	0.034***	0.019	-0.021	-0.022
	(1.82)	(3.80)	(0.89)	(-0.91)	(-1.26)
ρ_1	0.049***	0.609***	0.216***	0.269***	0.158***
	(4.44)	(34.16)	(13.26)	(16.02)	(10.53)
ρ_3	0.195***	0.180***	0.058***	0.023*	0.088***
	(18.34)	(9.86)	(3.96)	(1.83)	(8.90)
ρ_6	0.062***	0.128***	-0.049***	0.117***	0.202***
	(6.37)	(7.32)	(-2.65)	(8.96)	(16.57)
ρ_{12}	0.012	-0.051***	-0.114***	-0.080***	-0.030***
	(0.96)	(-3.86)	(-7.91)	(-7.11)	(-3.25)
R^2	0.075	0.6474	0.1075	0.1486	0.1548
AR(12)	10.83	11.52	17.05	11.02	7.28
ARCH(12)	10.10	14.92	18.84*	25.76**	57.99***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\hat{OR}}$ jointly equal to 0 across series	120.6*** [5]
$\mu_{\hat{OR}}$ equivalent across series	67.3*** [4]
Test of Over-Identifying Restrictions	43.6 [120]

Notes: See the notes to Table A-1.1, with the following exception: We estimate equation (2), using an alternate measure of capital gains overhang.

Table A-1.20
Dependent Variable: U.S. Net Exchanges
Capital Gains Proxy 10:
Multiple Proxies: Past Realized Capital Gains, Cumulative Returns (Nov/Dec Only), and Cumulative Returns Plus Predicted Return for Month t

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	0.133***	0.023***	0.227***	0.235***	-0.115***
	(7.57)	(2.66)	(12.58)	(12.91)	(-6.87)
$\mu_{\widehat{\text{OR}}}$	-0.129***	0.022***	-0.131***	0.197***	0.217***
	(-7.48)	(2.85)	(-6.62)	(12.83)	(11.21)
μ_{ADS}	-0.101***	-0.010	-0.347***	-0.152***	0.179***
	(-6.25)	(-1.24)	(-18.6)	(-9.98)	(10.25)
$\mu_{CUMULATED\_RETURNS\_NOV/DEC}$	0.004***	0.001*	-0.012***	0.021***	-0.007***
	(12.06)	(1.79)	(-12.0)	(19.89)	(-5.74)
$\mu_{CUMULATED\_RETURNS\_PLUS\_PREDICTED}$	-0.005***	0.002***	0.009***	-0.004***	0.009***
	(-11.2)	(4.73)	(7.50)	(-3.30)	(11.24)
$\mu_{PAST\_REALIZED\_CAPITAL\_GAINS}$	-0.016***	-0.007***	-0.107***	-0.628***	-16.76***
	(-25.4)	(-9.57)	(-13.2)	(-43.6)	(-5.57)
$\mu_{R^{\text{YEAR}}}$	0.025***	-0.026***	0.072***	0.083***	-0.046***
	(7.29)	(-10.5)	(6.65)	(6.83)	(-6.83)
μ_{NOV}	-0.024***	0.032***	0.178***	-0.292***	-0.094***
	(-2.65)	(5.50)	(13.87)	(-24.6)	(-9.71)
μ_{DEC}	-0.001	-0.071***	0.026*	-0.302***	0.027**
	(-0.21)	(-11.2)	(1.81)	(-26.8)	(2.42)
μ_{JAN}	0.099***	0.018**	0.194***	0.026**	-0.288***
	(9.50)	(2.44)	(12.42)	(2.51)	(-36.1)
μ_{FEB}	0.027**	0.038***	0.033*	-0.028**	-0.020**
	(2.40)	(7.01)	(1.92)	(-2.01)	(-2.23)
ρ_1	0.037***	0.598***	0.183***	0.147***	0.157***
	(6.12)	(69.70)	(21.02)	(15.29)	(21.80)
ρ_3	0.173***	0.172***	0.031***	-0.069***	0.089***
	(29.06)	(20.65)	(3.80)	(-9.30)	(15.67)
ρ_6	0.037***	0.134***	-0.075***	0.093***	0.202***
	(7.88)	(19.23)	(-11.7)	(13.06)	(37.47)
ρ_{12}	-0.012**	-0.053***	-0.104***	-0.062***	-0.032***
	(-2.24)	(-7.98)	(-17.8)	(-10.9)	(-6.79)
R^2	0.0961	0.6513	0.1191	0.247	0.1577
AR(12)	12.17	9.45	17.17	12.57	6.85
ARCH(12)	9.96	14.19	15.44	15.84	59.24***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\widehat{\text{OR}}}$ jointly equal to 0 across series	488.9*** [5]
$\mu_{\widehat{\text{OR}}}$ equivalent across series	377.1*** [4]
Test of Over-Identifying Restrictions	49.0 [160]

Notes: See the notes to Table A-1.1, with the following exception: We estimate equation (2), using an alternate measure of capital gains overhang.

Table A-1.21
Dependent Variable: U.S. Net Flows
Return Chasing Proxy: Lagged One-Month Return (R_1Month)

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	-0.791***	-1.505***	-1.552***	-1.136***	1.758***
	(-6.17)	(-11.1)	(-6.55)	(-5.71)	(4.07)
$\mu_{\hat{\text{OR}}}$	-0.180***	-0.164***	-0.385***	0.093*	1.146***
	(-3.69)	(-3.28)	(-5.10)	(1.86)	(7.32)
μ_{ADS}	0.267***	0.212***	-0.527***	-0.098*	-0.918***
	(4.72)	(3.76)	(-7.92)	(-1.86)	(-5.28)
μ_{R_1MONTH}	-0.013***	0.039***	0.013	0.022*	-0.174***
	(-4.95)	(10.40)	(1.21)	(1.88)	(-3.81)
μ_{SAVINGS}	0.466***	1.003***	1.447***	1.107***	-0.472*
	(6.55)	(13.45)	(9.29)	(8.42)	(-1.95)
$\mu_{\text{CAP\_GAINS}}$	-0.028***	-0.065***	0.056	-1.568***	13.550
	(-8.47)	(-10.7)	(1.34)	(-19.0)	(0.15)
μ_{NOV}	0.074*	0.152***	0.171***	-0.556***	0.551***
	(1.82)	(2.99)	(3.44)	(-13.7)	(4.45)
μ_{DEC}	0.061*	-0.549***	-0.196***	-0.615***	0.726***
	(1.66)	(-10.2)	(-4.67)	(-18.0)	(4.41)
μ_{JAN}	0.426***	0.385***	0.645***	0.303***	-0.520***
	(10.47)	(9.53)	(14.58)	(8.46)	(-3.15)
μ_{FEB}	0.010	-0.167***	-0.017	-0.106***	-0.284***
	(0.28)	(-5.83)	(-0.41)	(-2.74)	(-2.71)
ρ_1	0.470***	0.465***	0.518***	0.555***	0.110***
	(36.22)	(22.51)	(32.13)	(39.55)	(6.87)
ρ_3	0.291***	0.378***	0.293***	0.248***	0.348***
	(27.59)	(15.42)	(25.04)	(19.31)	(18.40)
ρ_6	-0.028**	0.004	0.039***	0.114***	0.121***
	(-2.27)	(0.27)	(3.26)	(8.56)	(7.73)
ρ_{12}	0.039***	-0.035***	-0.132***	-0.019***	0.231***
	(4.05)	(-4.26)	(-11.4)	(-2.68)	(11.69)
R^2	0.5148	0.7364	0.6906	0.911	0.3204
AR(12)	15.68	5.43	14.71	10.87	11.08
ARCH(12)	37.32***	71.98***	50.56***	45.48***	30.60***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\hat{\text{OR}}}$ jointly equal to 0 across series	85.3*** [5]
$\mu_{\hat{\text{OR}}}$ equivalent across series	83.3*** [4]
Test of Over-Identifying Restrictions	46.6 [120]

Notes: See the notes to Table A-1.1, with the following exception: We estimate equation (1), using an alternate return chasing proxy.

Table A-1.22
Dependent Variable: U.S. Net Flows
Return Chasing Proxy: Lagged One-Quarter Return (R_1QUARTER)

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	-0.824***	-1.610***	-1.466***	-1.416***	1.834***
	(-6.52)	(-11.7)	(-6.20)	(-6.63)	(4.15)
$\mu_{\widehat{\text{OR}}}$	-0.175***	-0.124**	-0.362***	0.186***	1.115***
	(-3.61)	(-2.45)	(-4.27)	(3.35)	(7.53)
μ_{ADS}	0.300***	0.219***	-0.494***	-0.053	-0.914***
	(5.83)	(4.17)	(-7.24)	(-0.98)	(-5.60)
$\mu_{R\_1QUARTER}$	-0.017***	0.071***	-0.089***	-0.151***	-0.024
	(-3.76)	(8.46)	(-5.23)	(-10.7)	(-0.53)
μ_{SAVINGS}	0.472***	1.045***	1.422***	1.332***	-0.570**
	(6.38)	(12.42)	(9.50)	(10.17)	(-2.35)
$\mu_{\text{CAP\_GAINS}}$	-0.028***	-0.063***	0.002	-1.727***	-5.391
	(-8.29)	(-9.38)	(0.05)	(-25.0)	(-0.06)
μ_{NOV}	0.055	0.201***	0.115**	-0.599***	0.593***
	(1.40)	(4.39)	(2.00)	(-16.4)	(4.85)
μ_{DEC}	0.050	-0.509***	-0.221***	-0.659***	0.638***
	(1.21)	(-10.8)	(-4.58)	(-20.3)	(4.19)
μ_{JAN}	0.429***	0.406***	0.645***	0.326***	-0.596***
	(9.36)	(10.61)	(15.23)	(10.01)	(-3.96)
μ_{FEB}	0.007	-0.168***	-0.006	-0.105**	-0.124
	(0.20)	(-6.07)	(-0.13)	(-2.55)	(-1.42)
ρ_1	0.444***	0.452***	0.559***	0.604***	0.080***
	(34.29)	(24.43)	(38.87)	(52.13)	(5.75)
ρ_3	0.323***	0.370***	0.311***	0.233***	0.341***
	(28.72)	(18.71)	(30.95)	(18.07)	(18.25)
ρ_6	-0.036***	0.013	0.016	0.096***	0.118***
	(-2.95)	(0.90)	(1.36)	(6.99)	(7.76)
ρ_{12}	0.041***	-0.029***	-0.134***	-0.014*	0.229***
	(3.97)	(-3.68)	(-12.6)	(-1.91)	(12.00)
R^2	0.5138	0.7368	0.6929	0.9124	0.3165
AR(12)	15.51	4.84	14.23	12.38	10.04
ARCH(12)	39.11***	65.78***	52.72***	42.32***	29.19***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\widehat{\text{OR}}}$ jointly equal to 0 across series	100.5*** [5]
$\mu_{\widehat{\text{OR}}}$ equivalent across series	94.2*** [4]
Test of Over-Identifying Restrictions	47.5 [120]

Notes: See the notes to Table A-1.1, with the following exception: We estimate equation (1), using an alternate return chasing proxy.

Table A-1.23
Dependent Variable: U.S. Net Flows
Return Chasing Proxy: Lagged Two-Quarters Return (R_2QUARTERS)

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	-0.823***	-1.536***	-1.477***	-1.402***	1.926***
	(-6.48)	(-10.3)	(-6.20)	(-7.21)	(4.51)
$\mu_{\widehat{\text{OR}}}$	-0.171***	-0.180***	-0.367***	0.117**	1.144***
	(-3.84)	(-3.45)	(-4.92)	(2.17)	(6.88)
μ_{ADS}	0.287***	0.173***	-0.515***	-0.082*	-0.917***
	(5.06)	(3.37)	(-7.45)	(-1.66)	(-5.49)
μ_{SAVINGS}	0.474***	1.021***	1.432***	1.345***	-0.646***
	(6.78)	(12.02)	(9.69)	(10.64)	(-2.62)
$\mu_{R\_2QUARTERS}$	-0.010*	0.091***	-0.054**	-0.164***	0.036
	(-1.67)	(7.17)	(-2.28)	(-4.27)	(0.64)
$\mu_{\text{CAP\_GAINS}}$	-0.028***	-0.067***	0.008	-1.719***	15.614
	(-8.51)	(-10.3)	(0.16)	(-25.4)	(0.16)
μ_{NOV}	0.069	0.184***	0.146**	-0.571***	0.599***
	(1.62)	(3.90)	(2.34)	(-13.8)	(5.11)
μ_{DEC}	0.043	-0.514***	-0.215***	-0.641***	0.647***
	(1.18)	(-10.8)	(-4.90)	(-20.5)	(4.27)
μ_{JAN}	0.415***	0.431***	0.625***	0.313***	-0.621***
	(9.00)	(10.68)	(13.90)	(9.77)	(-4.15)
μ_{FEB}	-0.002	-0.124***	-0.025	-0.113***	-0.113
	(-0.05)	(-4.78)	(-0.54)	(-2.92)	(-1.36)
ρ_1	0.430***	0.461***	0.540***	0.585***	0.073***
	(32.18)	(23.42)	(37.71)	(45.66)	(4.89)
ρ_3	0.322***	0.346***	0.297***	0.249***	0.335***
	(29.26)	(16.92)	(30.11)	(21.76)	(17.69)
ρ_6	-0.022*	0.015	0.035***	0.105***	0.115***
	(-1.95)	(0.96)	(3.30)	(8.10)	(6.58)
ρ_{12}	0.040***	-0.024***	-0.132***	-0.019***	0.231***
	(4.10)	(-2.72)	(-12.1)	(-2.62)	(11.78)
R^2	0.5117	0.7349	0.6909	0.9116	0.3165
AR(12)	15.47	5.64	13.71	13.26	10.17
ARCH(12)	38.60***	67.19***	53.08***	46.04***	30.42***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\widehat{\text{OR}}}$ jointly equal to 0 across series	79.2*** [5]
$\mu_{\widehat{\text{OR}}}$ equivalent across series	77.3*** [4]
Test of Over-Identifying Restrictions	47.3 [120]

Notes: See the notes to Table A-1.1, with the following exception: We estimate equation (1), using an alternate return chasing proxy.

Table A-1.24
Dependent Variable: U.S. Net Flows
Return Chasing Proxy: Lagged Three-Quarters Return (R_3QUARTERS)

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	-0.860***	-1.509***	-1.488***	-1.248***	1.966***
	(-6.83)	(-10.4)	(-6.59)	(-6.88)	(4.60)
$\mu_{\widehat{\text{OR}}}$	-0.156***	-0.189***	-0.350***	0.119**	1.151***
	(-3.31)	(-3.75)	(-4.92)	(2.20)	(7.09)
μ_{ADS}	0.299***	0.189***	-0.533***	-0.109**	-0.903***
	(4.99)	(3.67)	(-7.59)	(-2.22)	(-5.01)
μ_{SAVINGS}	0.496***	1.022***	1.411***	1.226***	-0.704***
	(6.77)	(12.58)	(9.93)	(10.33)	(-2.81)
$\mu_{R\_3QUARTERS}$	-0.018**	0.047***	0.029	-0.071	0.108
	(-2.42)	(3.67)	(0.96)	(-1.64)	(1.52)
$\mu_{\text{CAP\_GAINS}}$	-0.028***	-0.070***	0.027	-1.627***	28.926
	(-8.24)	(-11.6)	(0.62)	(-23.8)	(0.29)
μ_{NOV}	0.071	0.167***	0.166***	-0.565***	0.629***
	(1.64)	(3.67)	(2.81)	(-13.4)	(5.10)
μ_{DEC}	0.044	-0.538***	-0.195***	-0.635***	0.664***
	(1.14)	(-11.6)	(-5.19)	(-19.4)	(4.26)
μ_{JAN}	0.423***	0.418***	0.630***	0.302***	-0.668***
	(10.41)	(10.10)	(15.36)	(9.00)	(-4.52)
μ_{FEB}	0.001	-0.140***	-0.006	-0.110***	-0.107
	(0.02)	(-4.93)	(-0.13)	(-2.66)	(-1.13)
ρ_1	0.425***	0.477***	0.524***	0.572***	0.068***
	(33.11)	(25.58)	(38.60)	(47.20)	(3.81)
ρ_3	0.326***	0.357***	0.284***	0.244***	0.333***
	(33.41)	(17.38)	(25.26)	(21.26)	(16.33)
ρ_6	-0.018	-0.000	0.035***	0.114***	0.116***
	(-1.47)	(-0.04)	(3.12)	(8.58)	(7.05)
ρ_{12}	0.037***	-0.030***	-0.125***	-0.019***	0.228***
	(3.66)	(-3.69)	(-11.4)	(-2.86)	(11.83)
R^2	0.5121	0.7321	0.6904	0.911	0.3165
AR(12)	15.16	5.89	13.52	11.50	10.59
ARCH(12)	39.02***	63.67***	50.95***	45.68***	31.44***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\widehat{\text{OR}}}$ jointly equal to 0 across series	94.4*** [5]
$\mu_{\widehat{\text{OR}}}$ equivalent across series	92.7*** [4]
Test of Over-Identifying Restrictions	47.0 [120]

Notes: See the notes to Table A-1.1, with the following exception: We estimate equation (1), using an alternate return chasing proxy.

Table A-1.25
Dependent Variable: U.S. Net Exchanges
Return Chasing Proxy: Lagged One-Month Return (R_1Month)

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	0.099***	0.027*	0.324***	0.215***	-0.104***
	(3.52)	(1.96)	(10.25)	(7.61)	(-4.39)
$\mu_{\hat{\text{OR}}}$	-0.145***	0.019	-0.070**	0.172***	0.248***
	(-6.16)	(1.53)	(-2.12)	(7.60)	(7.97)
μ_{ADS}	-0.099***	-0.023*	-0.310***	-0.113***	0.171***
	(-3.65)	(-1.84)	(-10.2)	(-4.87)	(6.99)
μ_{R_1MONTH}	0.001	0.003***	-0.016***	-0.013***	0.017***
	(1.56)	(2.95)	(-3.20)	(-2.68)	(6.31)
$\mu_{\text{CAP\_GAINS}}$	-0.014***	-0.008***	-0.088***	-0.552***	-15.58***
	(-11.6)	(-5.82)	(-6.04)	(-21.7)	(-3.85)
μ_{NOV}	0.031**	0.037***	0.079***	-0.158***	-0.117***
	(2.05)	(4.45)	(3.47)	(-7.64)	(-7.90)
μ_{DEC}	0.048***	-0.062***	-0.063***	-0.175***	0.002
	(3.24)	(-7.41)	(-3.35)	(-10.5)	(0.11)
μ_{JAN}	0.113***	0.010	0.150***	0.033**	-0.311***
	(6.42)	(0.98)	(7.40)	(2.47)	(-23.0)
μ_{FEB}	0.035***	0.033***	0.021	-0.021	-0.008
	(2.59)	(5.07)	(1.06)	(-1.14)	(-0.66)
ρ_1	0.023*	0.579***	0.245***	0.221***	0.157***
	(1.82)	(40.97)	(14.76)	(12.85)	(12.47)
ρ_3	0.172***	0.179***	0.082***	-0.029***	0.083***
	(20.50)	(13.15)	(6.52)	(-3.05)	(10.01)
ρ_6	0.051***	0.124***	-0.029**	0.119***	0.200***
	(5.56)	(8.91)	(-2.42)	(12.44)	(19.05)
ρ_{12}	0.007	-0.052***	-0.067***	-0.040***	-0.034***
	(0.78)	(-4.29)	(-6.66)	(-3.94)	(-3.63)
R^2	0.0871	0.6489	0.1053	0.225	0.1566
AR(12)	11.70	16.79	20.00*	11.36	6.67
ARCH(12)	10.70	14.80	18.25	17.82	58.06***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\hat{\text{OR}}}$ jointly equal to 0 across series	167.6*** [5]
$\mu_{\hat{\text{OR}}}$ equivalent across series	119.9*** [4]
Test of Over-Identifying Restrictions	45.7 [120]

Notes: See the notes to Table A-1.1, with the following exception: We estimate equation (2), using an alternate return chasing proxy.

Table A-1.26
Dependent Variable: U.S. Net Exchanges
Return Chasing Proxy: Lagged One-Quarter Return (R_1QUARTER)

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	0.093***	0.031**	0.334***	0.225***	-0.102***
	(3.33)	(2.43)	(10.01)	(7.82)	(-4.61)
$\mu_{\hat{\text{OR}}}$	-0.158***	0.015	-0.101***	0.167***	0.246***
	(-6.40)	(1.38)	(-3.01)	(8.13)	(7.99)
μ_{ADS}	-0.081***	-0.017	-0.283***	-0.104***	0.165***
	(-3.07)	(-1.42)	(-8.86)	(-4.39)	(6.86)
$\mu_{R\_1QUARTER}$	-0.009***	-0.007***	-0.054***	-0.039***	0.028***
	(-6.44)	(-5.03)	(-6.46)	(-5.62)	(6.73)
$\mu_{\text{CAP\_GAINS}}$	-0.014***	-0.009***	-0.092***	-0.568***	-17.05***
	(-11.5)	(-6.45)	(-6.17)	(-22.0)	(-3.83)
μ_{NOV}	0.031*	0.030***	0.074***	-0.163***	-0.121***
	(1.73)	(3.63)	(3.14)	(-8.75)	(-7.49)
μ_{DEC}	0.053***	-0.064***	-0.079***	-0.181***	0.003
	(3.56)	(-7.51)	(-4.14)	(-11.1)	(0.20)
μ_{JAN}	0.122***	0.012	0.136***	0.027**	-0.308***
	(7.14)	(1.33)	(7.48)	(2.04)	(-21.7)
μ_{FEB}	0.040**	0.036***	0.001	-0.024	-0.028*
	(2.41)	(4.51)	(0.06)	(-1.23)	(-1.71)
ρ_1	0.054***	0.612***	0.258***	0.226***	0.162***
	(4.16)	(40.31)	(17.43)	(14.81)	(13.80)
ρ_3	0.188***	0.169***	0.126***	0.002	0.080***
	(18.97)	(12.22)	(8.81)	(0.20)	(9.38)
ρ_6	0.037***	0.109***	-0.029**	0.110***	0.196***
	(4.13)	(8.26)	(-2.49)	(11.75)	(21.49)
ρ_{12}	0.005	-0.055***	-0.062***	-0.037***	-0.030***
	(0.55)	(-4.79)	(-6.61)	(-3.03)	(-3.08)
R^2	0.0901	0.6501	0.1113	0.2291	0.1571
AR(12)	12.21	10.70	21.24 **	10.00	7.29
ARCH(12)	10.54	14.27	18.34	16.75	57.44***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\hat{\text{OR}}}$ jointly equal to 0 across series	174.2*** [5]
$\mu_{\hat{\text{OR}}}$ equivalent across series	133.1*** [4]
Test of Over-Identifying Restrictions	45.7 [120]

Notes: See the notes to Table A-1.1, with the following exception: We estimate equation (2), using an alternate return chasing proxy.

Table A-1.27
Dependent Variable: U.S. Net Exchanges
Return Chasing Proxy: Lagged Two-Quarters Return (R_2QUARTERS)

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	0.088***	0.025**	0.296***	0.218***	-0.097***
	(3.53)	(2.00)	(9.38)	(8.55)	(-4.06)
$\mu_{\hat{\text{OR}}}$	-0.143***	0.024**	-0.073**	0.159***	0.248***
	(-5.57)	(2.52)	(-2.27)	(6.86)	(7.82)
μ_{ADS}	-0.084***	-0.024**	-0.318***	-0.125***	0.160***
	(-3.36)	(-2.00)	(-10.7)	(-5.72)	(6.26)
$\mu_{R\_2QUARTERS}$	-0.002	0.003*	0.025**	0.005	0.025***
	(-1.03)	(1.89)	(2.52)	(0.47)	(5.25)
$\mu_{\text{CAP\_GAINS}}$	-0.014***	-0.008***	-0.085***	-0.552***	-16.09***
	(-13.2)	(-5.70)	(-6.02)	(-21.9)	(-3.83)
μ_{NOV}	0.027	0.038***	0.085***	-0.160***	-0.116***
	(1.55)	(4.57)	(3.46)	(-8.83)	(-6.58)
μ_{DEC}	0.053***	-0.059***	-0.059***	-0.171***	0.008
	(3.67)	(-6.87)	(-3.14)	(-9.90)	(0.47)
μ_{JAN}	0.119***	0.013	0.154***	0.025*	-0.301***
	(6.34)	(1.37)	(8.24)	(1.89)	(-20.9)
μ_{FEB}	0.039**	0.036***	0.009	-0.028	-0.024*
	(2.31)	(4.56)	(0.39)	(-1.56)	(-1.77)
ρ_1	0.036***	0.589***	0.214***	0.189***	0.161***
	(3.27)	(37.09)	(17.52)	(12.93)	(13.97)
ρ_3	0.172***	0.166***	0.063***	-0.027**	0.081***
	(19.10)	(12.53)	(5.13)	(-2.56)	(9.79)
ρ_6	0.050***	0.123***	-0.041***	0.116***	0.200***
	(5.94)	(9.21)	(-3.33)	(12.88)	(22.66)
ρ_{12}	0.007	-0.053***	-0.077***	-0.036***	-0.030***
	(0.83)	(-4.29)	(-7.49)	(-3.52)	(-3.82)
R^2	0.0872	0.6483	0.1048	0.2239	0.1561
AR(12)	11.33	9.76	18.00	10.12	7.40
ARCH(12)	10.66	14.09	18.04	17.44	58.21***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\hat{\text{OR}}}$ jointly equal to 0 across series	138.8*** [5]
$\mu_{\hat{\text{OR}}}$ equivalent across series	96.1*** [4]
Test of Over-Identifying Restrictions	46.5 [120]

Notes: See the notes to Table A-1.1, with the following exception: We estimate equation (2), using an alternate return chasing proxy.

Table A-1.28
Dependent Variable: U.S. Net Exchanges
Return Chasing Proxy: Lagged Three-Quarters Return (R_3QUARTERS)

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	0.098***	0.034***	0.284***	0.196***	-0.110***
	(3.92)	(2.70)	(9.41)	(6.50)	(-4.83)
$\mu_{\hat{\text{OR}}}$	-0.127***	0.029***	-0.078**	0.174***	0.245***
	(-5.26)	(3.03)	(-2.34)	(6.59)	(7.98)
μ_{ADS}	-0.071***	-0.018	-0.338***	-0.136***	0.168***
	(-2.95)	(-1.60)	(-11.7)	(-5.14)	(7.04)
$\mu_{R\_3QUARTERS}$	-0.018***	-0.010***	0.070***	0.068***	0.035***
	(-6.33)	(-4.08)	(6.07)	(7.82)	(6.28)
$\mu_{\text{CAP\_GAINS}}$	-0.015***	-0.009***	-0.099***	-0.560***	-15.80***
	(-13.4)	(-6.33)	(-8.04)	(-23.6)	(-3.70)
μ_{NOV}	0.015	0.033***	0.083***	-0.158***	-0.112***
	(0.89)	(3.91)	(3.77)	(-9.66)	(-6.34)
μ_{DEC}	0.045***	-0.065***	-0.059***	-0.166***	0.009
	(3.18)	(-7.41)	(-3.12)	(-9.66)	(0.48)
μ_{JAN}	0.122***	0.011	0.162***	0.032**	-0.303***
	(7.12)	(1.10)	(8.41)	(2.26)	(-24.3)
μ_{FEB}	0.036**	0.034***	0.011	-0.028	-0.024*
	(1.98)	(4.57)	(0.51)	(-1.37)	(-1.69)
ρ_1	0.046***	0.603***	0.202***	0.165***	0.161***
	(4.18)	(42.31)	(14.99)	(10.94)	(12.93)
ρ_3	0.184***	0.172***	0.049***	-0.054***	0.084***
	(23.27)	(13.28)	(4.24)	(-4.84)	(10.32)
ρ_6	0.051***	0.123***	-0.054***	0.096***	0.200***
	(6.83)	(8.57)	(-4.25)	(8.31)	(22.58)
ρ_{12}	-0.000	-0.061***	-0.087***	-0.038***	-0.032***
	(-0.01)	(-4.61)	(-9.07)	(-3.42)	(-4.11)
R^2	0.0919	0.6495	0.1105	0.2303	0.1565
AR(12)	12.10	11.43	19.15*	9.93	7.41
ARCH(12)	10.69	14.72	18.93*	15.62	58.31***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\hat{\text{OR}}}$ jointly equal to 0 across series	165.2*** [5]
$\mu_{\hat{\text{OR}}}$ equivalent across series	118.9*** [4]
Test of Over-Identifying Restrictions	47.0 [120]

Notes: See the notes to Table A-1.1, with the following exception: We estimate equation (2), using an alternate return chasing proxy.

Table A-1.29
Dependent Variable: U.S. Net Flows
Seasonal Depression Measure:
Change in the Length of Night Rather than Onset/Recovery

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	-0.737***	-1.405***	-1.429***	-1.408***	1.195*
	(-3.47)	(-4.46)	(-4.16)	(-4.69)	(1.74)
$\mu_{\Delta\text{NIGHT}}$	-0.552***	-0.006	-0.466*	0.541**	3.497***
	(-2.59)	(-0.03)	(-1.67)	(2.44)	(5.15)
μ_{ADS}	0.223**	0.278***	-0.443***	-0.096	-0.875***
	(2.42)	(2.90)	(-3.73)	(-1.08)	(-3.44)
$\mu_{R^{\text{YEAR}}}$	0.009	0.023	0.063	-0.084	0.333**
	(0.71)	(0.98)	(1.47)	(-1.42)	(2.39)
μ_{SAVINGS}	0.434***	0.885***	1.322***	1.267***	-0.253
	(3.61)	(4.61)	(6.10)	(6.56)	(-0.60)
$\mu_{\text{CAP\_GAINS}}$	-0.019***	-0.061***	-0.142**	-1.377***	70.149
	(-3.31)	(-5.83)	(-2.08)	(-13.6)	(0.37)
μ_{NOV}	0.132**	0.132*	0.104	-0.511***	0.863***
	(2.16)	(1.95)	(0.99)	(-7.64)	(4.80)
μ_{DEC}	0.067	-0.525***	-0.237***	-0.538***	0.840***
	(1.08)	(-6.37)	(-3.40)	(-10.7)	(3.38)
μ_{JAN}	0.383***	0.392***	0.519***	0.425***	-0.468*
	(5.47)	(5.28)	(7.67)	(6.92)	(-1.65)
μ_{FEB}	0.015	-0.104*	-0.009	-0.071	-0.020
	(0.24)	(-1.74)	(-0.12)	(-1.18)	(-0.11)
ρ_1	0.424***	0.478***	0.525***	0.625***	0.006
	(20.06)	(16.74)	(27.43)	(38.80)	(0.19)
ρ_3	0.312***	0.351***	0.258***	0.281***	0.395***
	(16.57)	(11.99)	(12.10)	(13.29)	(10.82)
R^2	0.5105	0.7296	0.6784	0.9093	0.25
AR(12)	18.38	3.79	16.70	14.63	23.04**
ARCH(12)	38.41***	63.66***	39.80***	46.62***	33.72***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\Delta\text{NIGHT}}$ jointly equal to 0 across series	49.7*** [5]
$\mu_{\Delta\text{NIGHT}}$ equivalent across series	46.4*** [4]
Test of Over-Identifying Restrictions	51.0 [80]

Notes: See the notes to Table A-1.1, with the following exception: We estimate a modified version of equation (1), replacing OR_t with the change in the length of the night:

$$NET\_FLOW_{i,t} = \mu_i + \mu_{i,\Delta\text{NIGHT}}\Delta\text{NIGHT}_t + \mu_{i,\text{ADS}}\text{ADS}_t + \mu_{i,R^{\text{YEAR}}}R_{i,t}^{\text{YEAR}} \tag{1'}$$
$$+\mu_{i,\text{CAP\_GAINS}}R_{i,t}^{\text{CAP\_GAINS}} + \mu_{i,\text{NOV}}\text{NOV}_t + \mu_{i,\text{DEC}}\text{DEC}_t + \mu_{i,\text{JAN}}\text{JAN}_t + \mu_{i,\text{FEB}}\text{FEB}_t$$
$$+\mu_{i,\text{SAVINGS}}\text{SAVINGS}_{t-1} + \rho_{i,1}NET\_FLOW_{i,t-1} + \rho_{i,3}NET\_FLOW_{i,t-3} + \epsilon_{i,t}.$$

Table A-1.30
Dependent Variable: U.S. Net Exchanges
Seasonal Depression Measure:
Change in the Length of Night Rather than Onset/Recovery

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	0.148***	0.034	0.326***	0.142***	-0.154***
	(3.66)	(1.49)	(6.09)	(2.97)	(-4.27)
$\mu_{\Delta\text{NIGHT}}$	-0.533***	-0.030	-0.372***	0.142*	0.583***
	(-5.99)	(-0.82)	(-3.14)	(1.68)	(5.69)
μ_{ADS}	-0.122***	-0.020	-0.330***	-0.144***	0.186***
	(-2.94)	(-0.91)	(-6.47)	(-3.29)	(4.97)
$\mu_{R^{\text{YEAR}}}$	0.001	-0.013***	0.049***	0.076***	0.029**
	(0.14)	(-3.75)	(2.89)	(4.31)	(2.34)
$\mu_{\text{CAP\_GAINS}}$	-0.016***	-0.006***	-0.112***	-0.406***	-21.66***
	(-9.26)	(-3.12)	(-5.67)	(-13.0)	(-4.73)
ρ_1	0.039**	0.623***	0.199***	0.197***	0.186***
	(2.25)	(23.67)	(8.37)	(9.30)	(9.90)
ρ_3	0.155***	0.221***	0.053**	-0.017	0.067***
	(10.45)	(8.36)	(2.56)	(-0.82)	(4.63)
R^2	0.0854	0.6317	0.091	0.1863	0.0724
AR(12)	11.36	8.98	19.93*	8.65	16.37
ARCH(12)	10.99	18.63*	18.46	17.74	37.26***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\Delta\text{NIGHT}}$ jointly equal to 0 across series	70.1*** [5]
$\mu_{\Delta\text{NIGHT}}$ equivalent across series	61.1*** [4]
Test of Over-Identifying Restrictions	50.7 [80]

Notes: See the notes to Table A-1.1, with the following exception: We estimate a modified version of equation (2), replacing OR_t with the change in the length of the night:

$$NET\_EXCHANGE_{i,t} = \mu_i + \mu_{i,\Delta\text{NIGHT}}\Delta\text{NIGHT}_t + \mu_{i,\text{ADS}}\text{ADS}_t + \mu_{i,R^{\text{YEAR}}}R^{\text{YEAR}}_{i,t} \qquad (2')$$

$$+\mu_{i,\text{CAP\_GAINS}}R^{\text{CAP\_GAINS}}_{i,t} + \mu_{i,\text{NOV}}\text{NOV}_t + \mu_{i,\text{DEC}}\text{DEC}_t + \mu_{i,\text{JAN}}\text{JAN}_t + \mu_{i,\text{FEB}}\text{FEB}_t$$

$$+\rho_{i,1}NET\_EXCHANGE_{i,t-1} + \rho_{i,3}NET\_EXCHANGE_{i,t-3} + \epsilon_{i,t}.$$

Table A-1.31
Dependent Variable: U.S. Net Flows
Robustness Check: Exclusion of Dummy Variables for
November, December, January, and February

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	-0.845***	-1.761***	-1.796***	-1.580***	2.241***
	(-7.02)	(-12.4)	(-7.57)	(-8.29)	(5.66)
$\mu_{\hat{\text{OR}}}$	-0.201***	-0.156***	-0.405***	-0.021	1.183***
	(-4.40)	(-3.67)	(-6.73)	(-0.43)	(7.66)
μ_{ADS}	0.274***	0.195***	-0.530***	-0.122**	-1.015***
	(4.23)	(3.50)	(-7.12)	(-2.17)	(-5.88)
$\mu_{R^{\text{YEAR}}}$	0.019**	0.038**	0.097***	-0.099**	0.121
	(2.52)	(2.53)	(3.20)	(-2.22)	(1.36)
μ_{SAVINGS}	0.517***	1.153***	1.619***	1.308***	-0.793***
	(7.89)	(13.68)	(11.12)	(10.28)	(-3.48)
$\mu_{\text{CAP\_GAINS}}$	-0.032***	-0.052***	0.025	-0.975***	-34.99
	(-12.4)	(-10.4)	(0.64)	(-16.3)	(-0.44)
ρ_1	0.406***	0.445***	0.484***	0.586***	0.094***
	(32.59)	(22.71)	(32.51)	(45.88)	(6.59)
ρ_3	0.289***	0.378***	0.275***	0.262***	0.323***
	(31.53)	(18.52)	(24.53)	(18.80)	(16.71)
ρ_6	-0.014	-0.006	0.038***	0.101***	0.105***
	(-1.26)	(-0.40)	(3.19)	(6.40)	(6.63)
ρ_{12}	0.071***	-0.007	-0.109***	-0.044***	0.257***
	(7.87)	(-0.90)	(-10.5)	(-4.83)	(12.04)
R^2	0.4946	0.7078	0.6694	0.901	0.2979
AR(12)	18.18	5.51	10.92	23.14**	11.47
ARCH(12)	57.18***	67.40***	44.57***	45.00***	22.27**

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\hat{\text{OR}}}$ jointly equal to 0 across series	100.2*** [5]
$\mu_{\hat{\text{OR}}}$ equivalent across series	98.5*** [4]
Test of Over-Identifying Restrictions	48.6 [120]

Notes: See the notes to Table A-1.1, with the following exception: We estimate a modified version of equation (1), excluding the monthly dummy variables:

$$\text{NET\_FLOW}_{i,t} = \mu_i + \mu_{i,\hat{\text{OR}}}\hat{\text{OR}}_t + \mu_{i,\text{ADS}}\text{ADS}_t + \mu_{i,R^{\text{YEAR}}}R_{i,t}^{\text{YEAR}} \qquad (1'')$$
$$+\mu_{i,\text{CAP\_GAINS}}R_{i,t}^{\text{CAP\_GAINS}} + \rho_{i,1}\text{NET\_FLOW}_{i,t-1} + \rho_{i,3}\text{NET\_FLOW}_{i,t-3}$$
$$+\rho_{i,6}\text{NET\_FLOW}_{i,t-6} + \rho_{i,12}\text{NET\_FLOW}_{i,t-12} + \epsilon_{i,t}$$

Table A-1.32
Dependent Variable: U.S. Net Exchanges
Robustness Check: Inclusion of Dummy Variables for
November, December, January, and February

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter or Statistic	Equity	Hybrid	Corporate Fixed Income	Government Fixed Income	Money Market
μ	0.086***	0.031**	0.283***	0.190***	-0.094***
	(3.41)	(2.41)	(9.83)	(6.64)	(-3.95)
$\mu_{\hat{\text{OR}}}$	-0.142***	0.029***	-0.075**	0.173***	0.245***
	(-6.31)	(2.93)	(-2.41)	(7.39)	(8.48)
μ_{ADS}	-0.080***	-0.012	-0.357***	-0.134***	0.163***
	(-3.21)	(-1.01)	(-12.4)	(-5.37)	(6.49)
$\mu_{R^{\text{YEAR}}}$	-0.003	-0.014***	0.107***	0.087***	0.013*
	(-1.47)	(-5.42)	(8.42)	(9.34)	(1.94)
$\mu_{\text{CAP\_GAINS}}$	-0.015***	-0.008***	-0.117***	-0.589***	-14.53***
	(-14.5)	(-7.21)	(-9.85)	(-28.7)	(-3.58)
μ_{NOV}	0.026	0.038***	0.070***	-0.167***	-0.117***
	(1.62)	(4.97)	(3.24)	(-10.6)	(-7.12)
μ_{DEC}	0.049***	-0.065***	-0.078***	-0.181***	0.010
	(3.64)	(-8.87)	(-4.53)	(-11.0)	(0.53)
μ_{JAN}	0.127***	0.008	0.160***	0.033**	-0.303***
	(7.79)	(0.85)	(8.33)	(2.30)	(-24.2)
μ_{FEB}	0.040**	0.034***	0.013	-0.030	-0.021
	(2.35)	(4.40)	(0.63)	(-1.56)	(-1.41)
ρ_1	0.036***	0.607***	0.201***	0.165***	0.163***
	(3.81)	(43.27)	(15.87)	(10.40)	(12.80)
ρ_3	0.171***	0.169***	0.035***	-0.064***	0.083***
	(19.87)	(12.24)	(2.78)	(-6.54)	(9.59)
ρ_6	0.049***	0.128***	-0.061***	0.088***	0.203***
	(6.20)	(9.23)	(-5.17)	(8.56)	(23.00)
ρ_{12}	0.004	-0.062***	-0.116***	-0.055***	-0.031***
	(0.47)	(-5.24)	(-11.0)	(-5.39)	(-4.02)
R^2	0.0873	0.65	0.1145	0.2331	0.1555
AR(12)	10.77	10.32	17.63	10.99	7.54
ARCH(12)	10.61	14.34	18.72*	15.46	58.71***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\hat{\text{OR}}}$ jointly equal to 0 across series	167.3*** [5]
$\mu_{\hat{\text{OR}}}$ equivalent across series	117.3*** [4]
Test of Over-Identifying Restrictions	48.3 [120]

Notes: See the notes to Table A-1.1, with the following exception: We estimate a modified version of equation (2), including the monthly dummy variables:

$$\begin{aligned}\text{NET\_EXCHANGE}_{i,t} &= \mu_i + \mu_{i,\hat{\text{OR}}}\hat{\text{OR}}_t + \mu_{i,\text{ADS}}\text{ADS}_t + \mu_{i,R^{\text{YEAR}}}R^{\text{YEAR}}_{i,t} \\ &+\mu_{i,\text{CAP\_GAINS}}R^{\text{CAP\_GAINS}}_{i,t} + \mu_{i,\text{NOV}}\text{NOV}_t + \mu_{i,\text{DEC}}\text{DEC}_t + \mu_{i,\text{JAN}}\text{JAN}_t \\ &+\mu_{i,\text{FEB}}\text{FEB}_t + \rho_{i,1}\text{NET\_EXCHANGE}_{i,t-1} + \rho_{i,3}\text{NET\_EXCHANGE}_{i,t-3} \\ &+\rho_{i,6}\text{NET\_EXCHANGE}_{i,t-6} + \rho_{i,12}\text{NET\_EXCHANGE}_{i,t-12} + \epsilon_{i,t}.\end{aligned} \tag{2''}$$

Appendix A-2: Including the Financial Crisis Period

In the main text, we present results based on a sample period that excludes the financial crisis, to avoid the possibility that reallocations between risky and safe categories of funds driven by the crisis itself might drive the findings. In this appendix we extend the sample to include the financial crisis by using the full sample of data provided to us by ICI, ending in January 2010. Results appear in Tables A-2.1 and A-2.2. The primary results remain qualitatively unchanged, with a significantly negative $\widehat{\text{OR}}$ coefficient estimate for the equity asset class and a significantly positive estimate for the money market class.

Table A-2.1
Dependent Variable: U.S. Net Flows
Including the Financial Crisis Period

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	-0.645***	-0.777***	-0.041	-0.375**	0.631
	(-4.51)	(-4.58)	(-0.27)	(-2.07)	(0.83)
$\mu_{\hat{\text{OR}}}$	-0.286***	-0.194**	-0.211**	0.021	2.181***
	(-3.43)	(-2.24)	(-2.12)	(0.23)	(5.56)
μ_{ADS}	0.162*	0.285***	-0.407***	-0.093	-0.857**
	(1.68)	(3.29)	(-3.82)	(-0.97)	(-2.50)
$\mu_{R^{\text{YEAR}}}$	0.041***	0.013	-0.016	-0.147***	0.449**
	(3.76)	(0.78)	(-0.54)	(-3.00)	(2.47)
μ_{SAVINGS}	0.430***	0.471***	0.379***	0.602***	0.129
	(6.43)	(5.15)	(4.27)	(5.19)	(0.31)
$\mu_{\text{CAP\_GAINS}}$	-0.022***	-0.068***	-0.101	-1.282***	173.31
	(-3.91)	(-6.95)	(-1.40)	(-11.5)	(1.03)
μ_{NOV}	-0.002	0.164**	0.065	-0.428***	0.982***
	(-0.02)	(2.30)	(0.75)	(-6.42)	(5.40)
μ_{DEC}	0.020	-0.472***	-0.190***	-0.574***	0.518**
	(0.33)	(-7.05)	(-3.04)	(-9.91)	(2.06)
μ_{JAN}	0.363***	0.409***	0.584***	0.474***	-0.829**
	(4.42)	(5.95)	(8.41)	(6.51)	(-2.53)
μ_{FEB}	-0.032	-0.068	-0.012	0.014	0.498***
	(-0.55)	(-1.19)	(-0.16)	(0.20)	(2.63)
ρ_1	0.357***	0.509***	0.575***	0.644***	0.159***
	(13.48)	(16.80)	(28.79)	(29.65)	(7.19)
ρ_3	0.296***	0.329***	0.287***	0.304***	0.237***
	(12.16)	(10.33)	(13.10)	(12.07)	(6.37)
R^2	0.4346	0.7117	0.6582	0.8807	0.1781
AR(12)	16.28	4.14	16.36	5.18	13.15
ARCH(12)	42.66***	76.22***	47.50***	52.80***	2.97

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\hat{\text{OR}}}$ jointly equal to 0 across series	37.3*** [5]
$\mu_{\hat{\text{OR}}}$ equivalent across series	37.0*** [4]
Test of Over-Identifying Restrictions	45.7 [80]

Notes: See the notes to Table 3, with the following exception: The sample period is February 1985 through January 2010.

Table A-2.2
Dependent Variable: U.S. Net Exchanges
Including the Financial Crisis Period

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter	Equity (t-test)	Hybrid (t-test)	Corp. Bond (t-test)	Gov. Bond (t-test)	MMkt (t-test)
μ	0.182***	0.045**	0.311***	0.149***	-0.133***
	(4.30)	(2.14)	(6.52)	(3.54)	(-3.44)
$\mu_{\hat{\text{OR}}}$	-0.134***	0.007	-0.065	0.108***	0.177***
	(-3.72)	(0.31)	(-1.34)	(2.93)	(4.37)
μ_{ADS}	-0.167***	-0.027	-0.299***	-0.106***	0.170***
	(-4.01)	(-1.28)	(-6.71)	(-2.83)	(4.36)
$\mu_{R^{\text{YEAR}}}$	0.006	-0.016***	0.028**	0.004	0.015*
	(1.48)	(-3.46)	(2.23)	(0.24)	(1.84)
$\mu_{\text{CAP\_GAINS}}$	-0.017***	-0.007***	-0.096***	-0.376***	-20.97***
	(-9.94)	(-3.80)	(-4.94)	(-12.1)	(-4.35)
ρ_1	0.006	0.545***	0.203***	0.207***	0.173***
	(0.33)	(20.77)	(9.17)	(9.27)	(9.14)
ρ_3	0.075***	0.266***	0.071***	0.097***	0.067***
	(3.57)	(9.93)	(3.65)	(4.91)	(4.24)
R^2	0.0403	0.5345	0.0855	0.1582	0.0580
AR(12)	9.25	10.54	19.88*	10.87	16.44
ARCH(12)	13.22	26.33***	22.43**	25.10**	41.06***

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\hat{\text{OR}}}$ jointly equal to 0 across series	40.7*** [5]
$\mu_{\hat{\text{OR}}}$ equivalent across series	28.9*** [4]
Test of Over-Identifying Restrictions	49.2 [80]

Notes: See the notes to Table 4, with the following exception: The sample period is February 1985 through January 2010.

Appendix A-3: Retail Share Classes Only

Recall that individuals hold 90 percent of total mutual fund assets according to the ICI (2014). While institutions clearly hold a relatively small fraction of overall mutual fund assets, flows driven by institutions may nevertheless swamp those driven by retail investors. To evaluate this possibility, we now consider the subset of the ICI data pertaining to the retail share classes only. We present detailed summary statistics, correlations between asset-class flows, and regression results based on retail-share-class-only flows, analogous to results presented above for the total of retail and institutional share class flows. Table A-3.1 contains summary statistics for the retail share class flows, analogous to Table 2. Table A-3.2 contains regression results, analogous to Table 3, based on the retail-share-class-only net flows data. Table A-3.3 contains regression results, analogous to Table 4, based on the retail-share-class-only net exchanges data.

The results based on retail share classes only are qualitatively very similar to those for the aggregate flows. Specifically, after controlling for other known regularities, we find for both net flows and net exchanges that the equity asset-class category has a statistically significant negative onset/recovery coefficient estimate, and the mutual fund has a statistically significant positive coefficient estimate. The intermediate-risk categories have coefficient estimates of various signs, with coefficient magnitudes in between those of the riskiest and safest categories.[6]

[6]Note that multicollinearity between some of the variables of secondary interest, such as the return-chasing variable and the capital gains overhang variable, can lead to instability of the coefficient estimates for these variables across different sub-periods. (For instance, for the equity flows, the coefficient on return chasing moves from 0.007 and insignificant in Table 3 – based on the sample period for which we have the retail-share-class-only data, starting in 1996 – to -.061 and significant in Table A-3.2– based on the full sample period starting in 1986. Similarly, the capital gains proxy's coefficient shifts from -.019 and significant in Table 3 to 0.016 and significant in Table A-3.2.) To the extent there are some differences in the retail–share-class-only coefficient estimates relative to those presented in the paper, these may arise due to sample period instability related to multicollinearity. The coefficient estimates for the onset/recovery variable, in contrast, are very stable across the different models.

Table A-3.1: Summary Statistics on U.S. Monthly Percentage Asset Class Net Exchanges, Explanatory Variables, and Associated Returns to Holding These Funds, Retail Share Classes Only

This table contains summary statistics on U.S. monthly fund percentage net flows, percentage net exchanges, explanatory variables, and returns over February 1996 through December 2006, coming from retail share classes only, for a total of 131 months. Our sample is restricted by lack of retail share class flow data prior to 1996. Flows data are from the Investment Company Institute, and returns were calculated using fund flow and total net asset changes available from the Investment Company Institute. The returns in Panel D are in excess of the 30-day T-bill rate, with the 30-day T-bill rate available from CRSP. $R^{\text{CAP\_GAINS}}$, the capital gains measure, equals the realized capital gains return to holding the fund from the previous year's November 1 (the start of the tax year for U.S. mutual funds) to the current year's October 31. R^{YEAR} is the mean monthly fund percentage return over the prior 12 months, to capture return chasing. The advertising variable is monthly print advertisement expenditures by mutual fund families, detrended by dividing by the previous year's total advertisement expenditure, resulting in a proportion. The advertising data originate from Gallaher, Kaniel, and Starks (2006), Figure 3. Savings are based on real disposable income and expenditures as a percent of real disposable income, annualized, obtained from the Bureau of Economic Analysis. For each set of fund flows and returns we present the mean monthly values (Mean), standard deviation (Std), minimum (Min), maximum (Max), skewness (Skew) and kurtosis (Kurt). For excess returns we also present the CAPM beta and the coefficient estimate on the onset/recovery variable, each estimated in a separate regression. These coefficients are produced in a system-equation estimation using the seemingly unrelated regression technique and MacKinnon and White (1985) bootstrap heteroskedasticity consistent standard errors. We use the CRSP value-weighted total market return, including dividends for the market return. The instruments used for the onset/recovery regression are the onset/recovery variable ($\hat{\text{OR}}$) and a constant. One, two, and three asterisks denote significance at the 10 percent, 5 percent, and 1 percent level respectively, based on two-sided tests.

Panel A: Asset Class Percentage Net Flows

Index	Mean	Std	Min	Max	Skew	Kurt
Equity	0.404	0.53	-1.95	1.86	-0.416	2.73
Hybrid	0.230	0.53	-1.63	1.29	-1.047	2.10
Corporate Fixed Income	0.539	0.78	-1.72	2.26	-0.456	0.38
Government Fixed Income	-0.074	0.82	-2.34	4.13	1.038	5.18
Money Market	0.051	2.09	-6.05	5.60	0.040	0.65

Panel B: Asset Class Percentage Net Exchanges

Index	Mean	Std	Min	Max	Skew	Kurt
Equity	-0.009	0.15	-0.82	0.28	-1.604	6.82
Hybrid	-0.076	0.19	-0.93	0.23	-2.031	6.53
Corporate Fixed Income	-0.001	0.27	-0.75	0.94	-0.144	1.43
Government Fixed Income	-0.083	0.30	-0.94	1.88	2.018	14.58
Money Market Money Market	0.074	0.45	-1.45	1.41	0.087	1.62

Table A-3.1 continues on next page

Table A-3.1, Continued

Panel C: Explanatory Variables

Index	Mean	Std	Min	Max	Skew	Kurt
Equity Fund Specific:						
$R^{\text{CAP\_GAINS}}$	3.188	3.02	0.00	8.55	0.448	-1.37
R^{YEAR}	0.765	1.37	-3.04	3.02	-0.877	-0.02
Hybrid Fund Specific:						
$R^{\text{CAP\_GAINS}}$	2.421	2.20	0.00	6.63	0.311	-1.56
R^{YEAR}	0.628	0.68	-0.93	2.13	-0.152	-0.26
Corporate Fixed Income Fund Specific:						
$R^{\text{CAP\_GAINS}}$	0.512	0.37	0.00	1.10	-0.015	-1.51
R^{YEAR}	0.338	0.37	-0.57	1.07	-0.386	0.29
Government Fixed Income Fund Specific:						
R^{YEAR}	0.239	0.27	-0.49	0.77	-0.629	-0.09
$R^{\text{CAP\_GAINS}}$	0.211	0.16	0.00	0.52	0.307	-1.09
Money Market Fund Specific:						
R^{YEAR}	-0.110	1.25	-4.18	0.91	-2.638	5.57
$R^{\text{CAP\_GAINS}}$	0.000	0.00	0.00	0.00	3.027	7.41

Panel D: Asset Class Excess Returns

Index	Mean	Std	Min	Max	Skew	Kurt	Beta	$\hat{\text{OR}}$
Equity	0.488	4.38	-15.88	9.18	-0.756	0.93	1.031***	-0.1416
Hybrid	0.335	2.48	-9.79	5.73	-0.804	1.68	0.613***	0.1934
Corporate Fixed Income	0.132	1.21	-3.78	2.93	-0.136	0.27	0.116***	0.2798
Government Fixed Income	-0.044	0.91	-2.20	2.06	-0.148	-0.46	-0.016	0.9012**
Money Market	-0.017	1.01	-4.57	6.40	1.626	17.37	-0.004	-0.0408

Panel E: Asset Class Net Flow Correlations

Asset Class	Equity	Hybrid	Corporate Fixed Income	Government Fixed Income
Hybrid	0.212**	1.00***	0.403***	-0.03
Corporate Fixed Income	-0.13	0.403***	1.00***	0.625***
Government Fixed Income	-0.63***	-0.03	0.625***	1.00***
Money Market	-0.27***	-0.28***	-0.00	0.143

Panel F: Asset Class Net Exchange Correlations

Asset Class	Equity	Hybrid	Corporate Fixed Income	Government Fixed Income
Hybrid	0.028	1.00***	0.291***	-0.02
Corporate Fixed Income	-0.38***	0.291***	1.00***	0.598***
Government Fixed Income	-0.70***	-0.02	0.598***	1.00***
Money Market	-0.49***	-0.19**	-0.03	0.183**

Table A-3.2: Regression Results for U.S. Asset Class Net Flows, Retail Share Classes Only

We report coefficient estimates from jointly estimating the following regression for each U.S. asset class in a GMM framework:

$$\begin{aligned}\text{NET\_FLOW}_{i,t} &= \mu_i + \mu_{i,\hat{\text{OR}}}\hat{\text{OR}}_t + \mu_{i,\text{ADS}}\text{ADS}_t + \mu_{i,R^{\text{YEAR}}}R_{i,t}^{\text{YEAR}} \\ &+\mu_{i,\text{CAP\_GAINS}}R_{i,t}^{\text{CAP-GAINS}} + \mu_{i,\text{NOV}}\text{NOV}_t + \mu_{i,\text{DEC}}\text{DEC}_t + \mu_{i,\text{JAN}}\text{JAN}_t + \mu_{i,\text{FEB}}\text{FEB}_t \\ &+\mu_{i,\text{SAVINGS}}\text{SAVINGS}_{t-1} + \rho_{i,1}\text{NET\_FLOW}_{i,t-1} + \rho_{i,3}\text{NET\_FLOW}_{i,t-3} + \epsilon_{i,t}.\end{aligned} \tag{1}$$

The data used to estimate the model span November 1996 through December 2006. The monthly net flows are computed as sales, minus redemptions, plus exchanges in, minus exchanges out, all divided by the previous month's total net assets. The explanatory variables are defined in the text. In Panel A we present coefficient estimates with HAC robust t-tests in parentheses. At the bottom of Panel A we present the value of adjusted R^2 for each estimation, a Wald χ^2 test statistic for the presence of up to 12 lags of autocorrelation (AR), and a Wald χ^2 test statistic for the presence of up to 12 lags of ARCH (both with 12 degrees of freedom). The test for ARCH is a standard LM test of order 12. See Engle (1982). To perform the test for autocorrelation, we augment the regression with 12 lags of the residuals, estimate MacKinnon and White (1985) bootstrap heteroskedasticity-consistent standard errors with OLS and test for the joint significance of these terms. Panel B contains joint test statistics. The first is a χ^2 statistic (with 5 degrees of freedom) testing the null that the onset/recovery coefficient estimates are jointly zero across the asset classes, the second is a χ^2 statistic (with 4 degrees of freedom) testing the null that the onset/recovery coefficient estimates are jointly equal to each other across the asset classes, and the third is the Hansen (1982) χ^2 goodness-of-fit test of the model based on the optimized value of the objective function produced by GMM. To calculate the standard errors we follow Newey and West (1987), (1994) and use the Bartlett kernel and an automatic bandwidth parameter (autocovariance lags) equal to the integer value of $4(T/100)^{2/9}$. We use the full set of explanatory variables as instruments for the regression. One, two, and three asterisks denote significance at the 10 percent, 5 percent, and 1 percent level respectively, based on two-sided tests.

Table A-3.2 continues on next page

Table A-3.2, Continued

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter or Statistic	Equity	Hybrid	Corporate Fixed Income	Government Fixed Income	Money Market
μ	-0.367	-0.698***	-1.031*	-0.526	-5.720***
	(-1.03)	(-2.99)	(-1.77)	(-1.36)	(-2.77)
$\mu_{\hat{\text{OR}}}$	-0.211***	0.069*	-0.041	0.231***	1.325***
	(-3.09)	(1.84)	(-0.38)	(3.50)	(4.70)
μ_{ADS}	0.197***	0.226***	-0.435***	-0.180**	-1.136***
	(3.83)	(3.63)	(-4.33)	(-2.05)	(-4.75)
$\mu_{R^{\text{YEAR}}}$	0.061***	-0.021	-0.157***	0.246***	-0.005
	(5.51)	(-1.23)	(-3.02)	(4.58)	(-0.10)
μ_{SAVINGS}	0.137	0.405**	1.162***	0.563**	4.659***
	(0.53)	(2.18)	(2.95)	(2.15)	(3.24)
$\mu_{\text{CAP\_GAINS}}$	0.016***	-0.024***	-0.074	-0.732***	532.04*
	(4.27)	(-3.09)	(-1.07)	(-7.23)	(1.77)
μ_{NOV}	0.259***	0.037	0.289***	-0.358***	0.553***
	(6.24)	(1.05)	(4.06)	(-7.60)	(3.27)
μ_{DEC}	0.011	-0.220***	-0.274***	-0.446***	3.208***
	(0.36)	(-8.04)	(-3.57)	(-9.56)	(15.50)
μ_{JAN}	0.386***	0.250***	0.494***	0.349***	-4.074***
	(8.05)	(7.36)	(8.77)	(11.44)	(-20.3)
μ_{FEB}	-0.052	-0.109***	0.197***	0.206***	0.948***
	(-0.93)	(-4.11)	(2.89)	(3.65)	(5.62)
ρ_1	0.353***	0.749***	0.604***	0.699***	0.077***
	(16.14)	(28.77)	(20.68)	(31.83)	(2.98)
ρ_3	0.104***	0.075***	0.079***	0.027	0.259***
	(5.65)	(3.60)	(3.23)	(1.42)	(14.24)
R^2	0.4479	0.7068	0.5037	0.67	0.5892
AR(12)	18.13	10.89	16.18	12.87	23.46 **
ARCH(12)	9.18	15.18	9.94	8.54	6.39

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\hat{\text{OR}}}$ jointly equal to 0 across series	30.9 *** [5]
$\mu_{\hat{\text{OR}}}$ equivalent across series	27.0*** [4]
Test of Over-Identifying Restrictions	26.1 [80]

Table A-3.3: Regression Results for U.S. Asset Class Net Exchanges, Retail Share Classes Only

In this table we report coefficient estimates from jointly estimating the following regression for each of the U.S. asset classes in a GMM framework:

$$NetExchange_{i,t} = \mu_i + \mu_{i,\hat{\mathrm{OR}}}\hat{\mathrm{OR}}_t + \mu_{i,\mathrm{ADS}}\mathrm{ADS}_t + \mu_{i,R^{\mathrm{YEAR}}}R_{i,t}^{\mathrm{YEAR}} + \mu_{i,\mathrm{CAP\_GAINS}}R_{i,t}^{\mathrm{CAP\_GAINS}} + \rho_{i,1}NetExchange_{i,t-1} + \rho_{i,3}NetExchange_{i,t-3} + \epsilon_{i,t}. \quad (2)$$

The data used to estimate the model span November 1996 through December 2006. The monthly net exchanges are computed as exchanges in minus exchanges out. The dependent variable is monthly fund net exchanges as a proportion of the previous month's TNA. The explanatory variables are defined in the text. In Panel A we present coefficient estimates with HAC robust t-tests in parentheses. At the bottom of Panel A we present the value of adjusted R^2 for each estimation, a Wald χ^2 test statistic for the presence of up to 12 lags of autocorrelation (AR), and a Wald χ^2 test statistic for the presence of up to 12 lags of ARCH (both with 12 degrees of freedom). The test for ARCH is a standard LM test of order 12. See Engle (1982). To perform the test for autocorrelation, we augment the regression with 12 lags of the residuals, estimate MacKinnon and White (1985) bootstrap heteroskedasticity-consistent standard errors with OLS and test for the joint significance of these terms. Panel B contains joint test statistics. The first is a χ^2 statistic (with 5 degrees of freedom) testing the null that the onset/recovery coefficient estimates are jointly zero across the fund asset classes, the second is a χ^2 statistic (with 4 degrees of freedom) testing the null that the onset/recovery coefficient estimates are jointly equal to each other across the asset classes, and the third is the Hansen (1982) χ^2 goodness-of-fit test of the model based on the optimized value of the objective function produced by GMM. To calculate the standard errors we follow Newey and West (1987), (1994) and use the Bartlett kernel and an automatic bandwidth parameter (autocovariance lags) equal to the integer value of $4(T/100)^{2/9}$. We use the full set of explanatory variables as instruments for the regression. One, two, and three asterisks denote significance at the 10 percent, 5 percent, and 1 percent level respectively, based on two-sided tests.

Table A-3.3 continues on next page

Table A-3.3, Continued

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter or Statistic	Equity	Hybrid	Corporate Fixed Income	Government Fixed Income	Money Market
μ	-0.027***	-0.059***	0.154***	0.012	0.433***
	(-2.82)	(-7.04)	(7.93)	(0.53)	(11.30)
$\mu_{\hat{\text{OR}}}$	-0.027***	0.053***	0.032	0.021	0.294***
	(-2.81)	(7.40)	(1.41)	(1.32)	(5.27)
μ_{ADS}	-0.004	0.065***	-0.117***	-0.041*	-0.310***
	(-0.51)	(8.23)	(-5.96)	(-1.74)	(-8.73)
$\mu_{R^{\text{YEAR}}}$	0.027***	-0.011***	-0.084***	0.095***	-0.027***
	(14.54)	(-4.68)	(-6.97)	(7.60)	(-6.79)
$\mu_{\text{CAP\_GAINS}}$	-0.001*	-0.004***	0.001	-0.138***	-466.7***
	(-1.75)	(-5.85)	(0.09)	(-8.47)	(-10.50)
ρ_1	0.162***	0.773***	0.433***	0.514***	-0.235***
	(12.01)	(58.79)	(36.11)	(63.23)	(-9.56)
ρ_3	-0.015	0.030***	0.037***	0.035**	0.100***
	(-1.58)	(2.82)	(3.61)	(2.44)	(6.20)
R^2	0.142	0.6473	0.2316	0.3495	0.1212
AR(12)	16.54	8.22	19.19*	12.32	39.35***
ARCH(12)	2.94	25.64**	21.38**	5.76	17.48

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\hat{\text{OR}}}$ jointly equal to 0 across series	233.4 *** [5]
$\mu_{\hat{\text{OR}}}$ equivalent across series	157.2 *** [4]
Test of Over-Identifying Restrictions	28.9 [80]

Appendix A-4: Alternate Classification of U.S. Funds

As a supplement to studying the five asset classes, we explored a less coarse classification of the ICI fund categories. In Table A-4.1 we map the ICI categories into nine asset classes, allowing more variation in risk across the classes. Instead of "equity", we now consider "risky equity" and "safe equity." "Hybrid" remains as previously defined. "Corporate fixed income" is split into "global bond" and "corporate bond". "Government fixed income" is split into "munis," "medium and short-term government," and "general-term government." The "money market" class remains as previously defined. Table A-4.2 contains summary statistics on the net flows, excess returns, and other variables for these nine asset classes, as well as correlations between net flows across classes.

In Table A-4.3, we present results from estimating the following as a system of nine equations (across the expanded set of nine asset classes) using GMM and HAC standard errors:[7]

$$\text{(A-1)} \qquad \text{NET\_FLOW}_{i,t} = \mu_i + \mu_{i,\hat{\text{OR}}}\hat{\text{OR}}_t + \mu_{i,\text{ADS}}\text{ADS}_t + \mu_{i,R^{\text{YEAR}}}R^{\text{YEAR}}_{i,t}$$

$$+\mu_{i,\text{CAP\_GAINS}}R^{\text{CAP\_GAINS}}_{i,t} + \mu_{i,\text{NOV}}\text{NOV}_t + \mu_{i,\text{DEC}}\text{DEC}_t$$

$$+\mu_{i,\text{JAN}}\text{JAN}_t + \mu_{i,\text{FEB}}\text{FEB}_t + \mu_{i,\text{SAVINGS}}\text{SAVINGS}_{t-1} + \epsilon_{i,t}.$$

Panels A and B contain coefficient estimates and some regression diagnostic statistics, and Panel C contains joint test statistics across the classes. We find the onset/recovery variable coefficient estimates are negative and significant for the risky equity, safe equity, hybrid, and U.S. corporate bond asset classes, with the equity case showing the largest economic magnitude of these four.

We find positive and significant coefficient estimates for the global corporate bond and money market classes. Once again, the money market coefficient estimate is the largest of all considered. Joint tests in Panel C support the notion that the safest and riskiest fund

[7] This is equation (1) excluding lagged dependent variables (and estimated over nine asset classes instead of five). The results are very similar for a model with sufficient lags to purge autocorrelation. The model is fully detailed in Appendix A-6.

flows exhibit opposing seasonal cycles related to seasonally varying risk aversion and that the onset/recovery estimates are jointly statistically different from zero, again strongly rejecting the null of no seasonal effect.

Table A-4.1: Classification of Funds into Enlarged Set of Nine Asset Classes

In this table we map funds from thirty investment objective categories into a set of nine asset classes, based on characteristics of the individual funds provided in the Investment Company Institute (2003) Mutual Fund Factbook. The asset classes are "Risky Equity," "Safe Equity," "Hybrid," "U.S. Corporate Bond," "Global Corporate Bond," "General-Term Government," "Medium and Short-Term Government," "Munis," and "Money Market."

Number	ICI Fund	Asset Class (Based on Enlarged Set of Nine)
1	Aggressive Growth	Risky Equity
2	Growth	Risky Equity
3	Sector	Risky Equity
4	Emerging Markets	Risky Equity
5	Global Equity	Safe Equity
6	International Equity	Safe Equity
7	Regional Equity	Safe Equity
8	Growth and Income	Safe Equity
9	Income Equity	Safe Equity
10	Asset Allocation	Hybrid
11	Balanced	Hybrid
12	Flexible Portfolio	Hybrid
13	Income Mixed	Hybrid
14	Corporate - General	U.S. Corporate Bond
15	Corporate - Intermediate	U.S. Corporate Bond
16	Corporate - Short Term	U.S. Corporate Bond
17	High Yield	U.S. Corporate Bond
18	Global Bond - General	Global Bond
19	Global Bond - Short Term	Global Bond
20	Other World Bond	Global Bond
21	Government Bond - General	General-Term Government
22	Government Bond - Intermediate	Medium and Short-Term Government
23	Government Bond - Short Term	Medium and Short-Term Government
24	Mortgage Backed	Medium and Short-Term Government
25	Strategic Income	U.S. Corporate Bond
26	State Municipal Bond - General	Munis
27	State Municipal Bond - Short Term	Munis
28	National Municipal Bond - General	Munis
29	National Municipal Bond - Short Term	Munis
30	Taxable Money Market - Government	Money Market

Table A-4.2: Summary Statistics on U.S. Monthly Percentage Flows for Nine Asset Classes

This table contains summary statistics on U.S. monthly percentage fund flows, explanatory variables, and returns over February 1985 through December 2006, for a total of 263 months for nine asset classes. Flows data are from the Investment Company Institute, and returns were calculated using fund flow and total net asset changes available from the Investment Company Institute. The returns in Panel C are in excess of the 30-day T-bill rate, with the 30-day T-bill rate available from CRSP. $R^{\text{CAP\_GAINS}}$ is the capital gains measure based on cumulated fund percentage returns for November and December, and R^{YEAR} is the mean monthly fund percentage return over the prior 12 months, to capture return chasing. For each set of fund flows and returns we present the mean monthly values (Mean), standard deviation (Std), minimum (Min), maximum (Max), skewness (Skew) and kurtosis (Kurt). For excess returns we also present the CAPM beta and the coefficient estimate on the onset/recovery variable, each estimated separately of the other. These coefficients are produced in a system-equation estimation using GMM and HAC standard errors. To calculate the standard errors we follow Newey and West (1987), (1994) and use the Bartlett kernel and an automatic bandwidth parameter (autocovariance lags) equal to the integer value of $4(T/100)^{2/9}$. For instruments for the CAPM regression, we use the market return, a constant, and one lag of each excess return. We use the CRSP value-weighted total market return, including dividends for the market return. For instruments for the onset/recovery regression, we use the onset/recovery variable ($\hat{\text{OR}}$), a constant, and one lag of each excess return.

Panel A: Asset Class Fund Percentage Net Flows

Index	Mean	Std	Min	Max	Skew	Kurt
Risky Equity	0.561	1.00	-3.87	3.31	-0.538	2.12
Safe Equity	0.620	0.82	-2.55	4.25	0.861	2.99
Hybrid	0.795	1.36	-1.68	6.67	1.157	1.47
U.S. Corporate Bond	0.780	1.26	-2.42	5.84	0.979	1.98
Global Bond	1.917	9.67	-7.05	138.57	11.301	154.18
General-Term Government	0.626	3.58	-3.92	25.94	3.613	15.87
Medium and Short-Term Government	0.624	3.09	-5.00	15.25	2.472	6.74
Munis	0.615	1.47	-3.89	6.02	1.479	3.48
Money Market	0.378	2.01	-5.02	8.50	0.797	2.48

Table A-4.2 continues on next page

Table A-4.2, Continued

Panel B: Explanatory Variables

Index	Mean	Std	Min	Max	Skew	Kurt
Risky Equity Fund Specific:						
$R^{\text{CAP\_GAINS}}$	4.144	3.57	0.00	14.37	0.827	0.36
R^{YEAR}	1.173	1.34	-3.70	3.50	-1.079	1.12
Safe Equity Fund Specific:						
$R^{\text{CAP\_GAINS}}$	2.837	2.55	0.00	12.10	1.484	3.18
R^{YEAR}	1.195	1.18	-2.12	4.76	-0.324	0.86
Hybrid Fund Specific:						
$R^{\text{CAP\_GAINS}}$	1.830	1.62	0.00	6.29	0.854	-0.28
R^{YEAR}	0.826	0.69	-0.98	2.22	-0.276	-0.49
U.S. Corporate Bond Fund Specific:						
$R^{\text{CAP\_GAINS}}$	0.394	0.40	0.00	1.78	1.317	1.24
R^{YEAR}	0.775	0.54	-0.45	2.00	-0.164	-0.59
Global Bond Fund Specific:						
$R^{\text{CAP\_GAINS}}$	0.959	1.30	0.00	5.87	2.409	5.97
R^{YEAR}	1.269	1.65	-0.88	8.50	2.301	6.46
General-Term Government Fund Specific:						
$R^{\text{CAP\_GAINS}}$	0.338	0.32	0.00	1.32	0.929	-0.04
R^{YEAR}	0.539	0.51	-0.79	2.51	0.746	2.02
Medium and Short-Term Government Fund Specific:						
$R^{\text{CAP\_GAINS}}$	0.122	0.14	0.00	0.58	1.521	1.67
R^{YEAR}	0.480	0.64	-0.55	3.10	1.391	3.14
Munis Fund Specific:						
$R^{\text{CAP\_GAINS}}$	0.243	0.25	0.00	1.00	1.589	1.99
R^{YEAR}	0.508	0.44	-0.58	2.04	0.528	1.24
Money Market Fund Specific:						
$R^{\text{CAP\_GAINS}}$	0.000	0.00	0.00	0.00	4.422	18.75
R^{YEAR}	0.508	0.37	-0.44	1.40	-0.470	0.33

Table A-4.2 continues on next page

Table A-4.2, Continued

Panel C: Fund Excess Returns

Index	Mean	Std	Min	Max	Skew	Kurt	Beta	$\hat{\text{OR}}$
Risky Equity	0.768	4.58	-23.05	11.90	-0.996	3.28	1.026***	-1.532**
Safe Equity	0.806	4.12	-18.91	31.74	0.769	13.70	0.834***	-1.960***
Hybrid	0.434	2.51	-10.80	8.44	-0.767	2.27	0.509***	-.9224**
U.S. Corporate Bond	0.384	1.34	-3.24	7.37	0.340	2.54	0.116***	-.3693*
Global Bond	0.933	4.74	-8.10	60.24	7.632	93.43	0.106***	0.5592
General-Term Government	0.089	1.47	-7.07	6.56	-0.064	3.25	0.005	0.8897***
Medium and Short-Term Government	0.033	1.34	-4.51	9.93	1.313	11.31	0.000	0.7380***
Munis	0.106	1.33	-6.34	4.19	-0.494	2.64	0.048***	0.6850***
Money Market	0.125	0.91	-2.75	5.98	1.317	7.74	-0.004	0.2552**

Panel D: Asset Class Net Flow Correlations

Asset Class	Risky Equity	Safe Equity	Corp. Hybrid	Corp. Bond - U.S.	Bond - Global	Govt. General	Govt. Med., Short	Munis
Safe Equity	0.634***	—	—	—	—	—	—	—
Hybrid	0.437***	0.747***	—	—	—	—	—	—
Corp. Bond - U.S.	0.233***	0.518***	0.525***	—	—	—	—	—
Corp. Bond - Global	0.029	0.214***	0.131**	0.220***	—	—	—	—
Govt. Bond - General	-0.060	0.254***	0.405***	0.579***	0.188***	—	—	—
Govt. Bond - Med., Short	0.015	0.300***	0.446***	0.704***	0.233***	0.895***	—	—
Munis	0.131**	0.453***	0.536***	0.797***	0.341***	0.708***	0.807***	—
Money Market	-0.124**	-0.157**	-0.130**	-0.095	0.046	-0.102*	-0.034	-0.023

Table A-4.3: Regression Results for Enlarged Set of Nine Asset Class: Net Flows

In this table we report coefficient estimates from jointly estimating the following regression for each of nine asset classes in a GMM framework:

$$\begin{aligned}\text{NET\_FLOW}_{i,t} = \mu_i + \mu_{i,\hat{\text{OR}}}\hat{\text{OR}}_t + \mu_{i,\text{ADS}}\text{ADS}_t + \mu_{i,R^{\text{YEAR}}}R_{i,t}^{\text{YEAR}} \qquad (A-1)\\ +\mu_{i,\text{CAP\_GAINS}}R_{i,t}^{\text{CAP\_GAINS}} + \mu_{i,\text{NOV}}\text{NOV}_t + \mu_{i,\text{DEC}}\text{DEC}_t + \mu_{i,\text{JAN}}\text{JAN}_t\\ +\mu_{i,\text{FEB}}\text{FEB}_t + \mu_{i,\text{SAVINGS}}\text{SAVINGS}_{t-1} + \epsilon_{i,t}.\end{aligned}$$

The data used to estimate the model span February 1985 through December 2006. The monthly net flows are computed as sales, minus redemptions, plus exchanges in, minus exchanges out, all divided by the previous month's total net assets. The explanatory variables are defined in the text. In Panels A and B we present coefficient estimates with HAC robust t-tests in parentheses. At the bottom of Panels A and B we present the value of adjusted R^2 for each estimation, a Wald χ^2 test statistic for the presence of up to 12 lags of autocorrelation (AR), and a Wald χ^2 test statistic for the presence of up to 12 lags of ARCH (both with 12 degrees of freedom). The test for ARCH is a standard LM test of order 12. See Engle (1982). To perform the test for autocorrelation, we augment the regression with 12 lags of the residuals, estimate MacKinnon and White (1985) bootstrap heteroskedasticity-consistent standard errors with OLS and test for the joint significance of these terms. Panel C contains joint test statistics. The first is a χ^2 statistic (with 10 degrees of freedom) testing the null that the onset/recovery coefficient estimates are jointly zero across the fund asset classes, the second is a χ^2 statistic (with nine degrees of freedom) testing the null that the onset/recovery coefficient estimates are jointly equal to each other across the fund asset classes, and the third is the Hansen (1982) χ^2 goodness-of-fit test of the model based on the optimized value of the objective function produced by GMM. To calculate the standard errors we follow Newey and West (1987), (1994) and use the Bartlett kernel and an automatic bandwidth parameter (autocovariance lags) equal to the integer value of $4(T/100)^{2/9}$. We use the full set of explanatory variables as instruments for the regression. One, two, and three asterisks denote significance at the 10 percent, 5 percent, and 1 percent level respectively, based on two-sided tests.

Table A-4.3 continues on next page

Table A-4.3, Continued

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter or Statistic	Risky Equity	Safe Equity	Hybrid	Corporate Bond - U.S.	Corporate Bond - Global
μ	-0.403***	-3.032***	-5.259***	-6.279***	-23.99***
	(-2.59)	(-33.8)	(-36.8)	(-40.4)	(-40.8)
$\mu_{\hat{\text{OR}}}$	-0.785***	-0.423***	-0.209***	-0.464***	0.609***
	(-13.4)	(-11.0)	(-3.47)	(-6.93)	(3.55)
μ_{ADS}	-0.089	0.279***	-0.053	-0.826***	-1.664***
	(-1.27)	(6.39)	(-0.75)	(-13.4)	(-6.39)
$\mu_{R^{\text{YEAR}}}$	0.174***	0.192***	0.696***	1.053***	-0.047
	(25.14)	(47.78)	(53.77)	(56.75)	(-1.49)
μ_{SAVINGS}	0.520***	2.244***	3.905***	4.477***	16.292***
	(5.99)	(43.88)	(50.05)	(47.41)	(47.05)
$\mu_{\text{CAP\_GAINS}}$	-0.001	-0.089***	-0.215***	0.359***	2.356***
	(-0.23)	(-50.2)	(-56.3)	(13.17)	(30.65)
μ_{NOV}	0.087	-0.373***	-0.179***	0.260***	2.168***
	(1.54)	(-11.7)	(-2.67)	(5.78)	(12.43)
μ_{DEC}	0.096**	-0.365***	-0.781***	-0.062	1.583***
	(2.39)	(-9.87)	(-14.2)	(-1.56)	(10.50)
μ_{JAN}	0.331***	0.219***	0.120***	0.381***	-0.413**
	(8.67)	(6.24)	(2.81)	(10.93)	(-2.54)
μ_{FEB}	0.126**	-0.069**	0.031	0.221***	1.152***
	(2.10)	(-2.16)	(0.55)	(4.46)	(5.46)
R^2	0.101	0.2924	0.3718	0.4866	0.1492
AR(12)	111.03***	134.15***	280.48***	114.51***	6.09
ARCH(12)	29.99***	92.42***	75.23***	49.75***	32.68***

Table A-4.3 continues on next page

Table A-4.3, Continued

Panel B: Parameter Estimates and Diagnostic Statistics

Parameter or Statistic	Government General	Government Medium-, Short-Term	Munis	Money Market
μ	-17.85***	-7.624***	-5.835***	0.514**
	(-53.7)	(-24.6)	(-31.7)	(2.03)
$\mu_{\hat{\text{OR}}}$	0.182	0.127	-0.058	1.384***
	(1.16)	(0.80)	(-0.75)	(11.11)
μ_{ADS}	-0.046	-0.753***	-0.370***	-0.647***
	(-0.29)	(-4.32)	(-3.81)	(-4.95)
$\mu_{R^{\text{YEAR}}}$	4.161***	3.380***	1.751***	0.915***
	(95.13)	(148.2)	(81.63)	(17.38)
μ_{SAVINGS}	10.789***	5.150***	3.985***	-0.112
	(65.42)	(35.65)	(43.61)	(-0.75)
$\mu_{\text{CAP\_GAINS}}$	-0.626***	-3.355***	-0.722***	208.19***
	(-10.4)	(-49.3)	(-20.3)	(3.46)
μ_{NOV}	-0.260***	-0.725***	-0.219***	1.249***
	(-2.76)	(-7.82)	(-4.57)	(13.62)
μ_{DEC}	-0.463***	-0.685***	-0.450***	0.700***
	(-5.45)	(-7.11)	(-10.5)	(5.66)
μ_{JAN}	-0.228**	-0.095	0.422***	-0.063
	(-2.51)	(-1.51)	(12.26)	(-0.49)
μ_{FEB}	0.109	0.200**	0.180***	0.432***
	(0.93)	(2.04)	(3.40)	(6.11)
R^2	0.5895	0.7024	0.5843	0.0974
AR(12)	157.49***	203.97***	103.24***	49.06***
ARCH(12)	52.17***	101.05***	70.75***	56.37***

Panel C: Joint Tests on Onset/Recovery Coefficient Estimates

Joint Test Across Fund Asset Classes	χ^2 [Degrees of Freedom]
$\mu_{\hat{\text{OR}}}$ jointly equal to 0 across series	371.3*** [9]
$\mu_{\hat{\text{OR}}}$ equivalent across series	287.9*** [8]
Test of Over-Identifying Restrictions	50.8 [144]

Appendix A-5: Additional Details on Several Explanatory Variables

A-5.1 Controlling for Capital-Gains Distributions

Capital gains and (to a much lesser extent) dividend distributions by mutual funds to shareholders exhibit seasonality in the U.S., even in data prior to the 1986 Tax Reform Act (TRA), which synchronized the tax year-end of all funds to October 31 (see, for example, Gibson, Safieddine, and Titman (2000)). This requirement of TRA went into full effect by 1990. Table A-5.1 illustrates the seasonality in capital gains and dividend distributions to shareholders by presenting the percentage of such distributions that are paid during each calendar month, computed over the 1984 to 2007 period using the CRSP Mutual Fund Database. The results show that capital gains are predominantly paid at the end of the calendar year, with 9.8 percent being paid during November and 72 percent during December. Presumably, fund administrators wait until the end of their tax year (October 31) to compute their capital gains distributions, rather than attempting to distribute them more evenly through the year which could result in an unnecessary distribution of gains that are lost later in the year. To a much lesser extent, dividend distributions are also paid in greater quantity at the end of the year, with 14.1 percent being paid during December. In untabulated results, we find similar seasonality in distributions when we focus on the post-TRA period (i.e., 1990-2007).

Since distributions of capital gains are highly seasonal and since over 90 percent of dividends and realized gains are reinvested at equity mutual funds (see Bergstresser and Poterba (2002) and Johnson (2010)), we must consider their effect on seasonal variations in mutual fund flows. There are a couple of potential influences that distributions may have on seasonal flow patterns. First, we would expect flows of funds to increase when distributions are large, simply by reinvestment of such distributions by investors. To address this, we assume that the choice of the reinvestment of capital gains and dividend distributions is usually made once by a new shareholder, who instructs the fund company to automatically reinvest (or not to reinvest) distributions, and that this decision is not subsequently changed.[8] Thus, we consider flows from reinvestment of distributions as "passive flows." Fortunately,

[8]Johnson (2010) reports that as a practical matter mutual fund shareholders "do not change their reinvestment option after account opening."

our data set reports such flows separately from other shareholder flows, and, thus, we exclude reinvestments from the measure of flows.

Another influence of distributions is that potential shareholders may delay their purchase or advance their sale of shares of a fund with substantial realized capital gains to be distributed in the near future.[9] For instance, suppose that a fund realized a capital gain of one hundred dollars by October 31, based on trades during the year ending at this date. If the fund does not distribute these gains until December, shareholders may avoid purchasing such shares until the ex-distribution date to avoid the associated taxation. (See Bergstresser and Poterba (2002) and Johnson and Poterba (2008).) Also, investors who planned to sell the shares in January may sell before the distribution in December in order to avoid the capital gain realization, depending on the magnitude of the direct capital gain that will be realized by their sale of fund shares. For example, consider a shareholder who purchased his fund shares part way through the year, and only ten dollars of the year's one hundred dollars in total capital gains accrued since the time of his recent purchase. If that shareholder held his shares, he would be unable to recover taxes paid on the ninety dollars of excess capital gains until he ultimately sells the shares, thus he may sell prior to the distribution instead of holding the stock and incurring the taxation associated with the one hundred dollar capital gain distribution.

Hence expected capital gains distributions likely impact the tendency of shareholders to buy or sell a fund. Accordingly, we construct a measure of capital gains overhang for each fund class and observation, derived using the CRSP mutual funds database, eliminating capital gains distributions that are a return of capital (i.e., are non-taxable). This measure is realized capital gains. In robustness checks we consider an extensive set of alternative measures of capital gains overhang. In Section V of the main text, where we detail the full range of our robustness checks, we explain how we form these alternative measures of capital gains overhang, and we provide tables of regression results based on each alternative in Appendix A-1.

We find that these capital gains overhang measures, minor variations on these

[9]In contrast, capital losses cannot be distributed by mutual funds; capital losses can only be banked to be applied against later capital gains.

measures, and various other combinations of measures we explored in untabulated analysis deliver results qualitatively identical to those produced by the primary model. While it is never possible to rule out every possible alternative explanation, it is evident that seasonality in capital gains, however modeled, does not appear to explain the seasonal variation in mutual fund flows we explore.

A-5.2 Other Turn-of-the-Year Effects

Turn-of-the-year effects beyond those related to capital gains overhang, although not typically modeled in this literature, have the potential to induce seasonal variation in mutual fund flows. We consider several possibilities. For instance, some investors do not automatically reinvest dividend and capital gains distributions back into their mutual funds, but these investors are nonetheless still likely to reinvest these distributions at some point, either immediately upon receiving the distributions or soon thereafter. Since the bulk of distributions occur in December, we expect many individuals may be reinvesting those funds in December, January, or February. These discretionary reinvestments would be counted as new inflows and would inflate flows in those months. Furthermore, variable employee compensation, in particular year-end bonuses, may inflate flows in January and February. Likewise, uncertainty experienced by investors awaiting the announcement of the specific amount of their variable compensation may inhibit flows in November and December. As a result of these possibilities, when we model flows we include dummy variables for each of the months November through February. The use of these four dummy variables is an ad hoc adjustment, with the potential to pick up and partially wash away the very effect we seek to identify. However, with most individuals who suffer from seasonal depression experiencing onset in September or October and recovering in March or April, we maintain some power to detect the effect even with the inclusion of these dummy variables and we do indeed find strong evidence of seasonal-depression-related flows. In Appendix A-1 we exclude the November, December, January, and February dummy variables from the models and confirm that use of these dummy variables does not drive the results.

A-5.3 Other Empirical Regularities in Mutual Fund Flows

There have been several studies of the causal links between fund flows and past or

contemporaneous returns (either of mutual funds or the market as a whole). For instance, Ippolito (1992) and Sirri and Tufano (1998) find that investor capital is attracted to funds that have performed well in the past. Edwards and Zhang (1998) study the causal link between bond and equity fund flows and aggregate bond and stock returns, and the Granger (1969) causality tests they perform indicate that asset returns cause fund flows, but not the reverse. Warther (1995) finds no evidence of a relation between flows and past aggregate market performance. However, he does find that mutual fund flows are correlated with contemporaneous aggregate returns, with stock fund flows showing correlation with stock returns, bond fund flows showing correlation with bond returns, and so on. We include past returns in the models to control for return-chasing behavior and find this does not explain the seasonality in flows we identify.

Some researchers have looked for fund-specific characteristics that might explain fund flows. See, for instance, Sirri and Tufano (1998) and Del Guercio and Tkac (2008), who study the impact on fund flows of fund-specific characteristics, including fund age, investment style, and Morningstar rating. For our study, since we consider aggregated flows for a given asset class (e.g. money market funds), there is no need to control for fund age or rating. Jain and Wu (2000) and Gallaher, Kaniel, and Starks (2006) find investors react significantly to fund family advertising. In turn, the mutual fund industry spends more than half a billion dollars on advertising annually to attract investment inflows (see Pozen (2002)). In our models we control for aggregate print ad expenditures and find the seasonal movements between risky and safe categories do not appear to be driven by that factor. We also study the possibility that investor liquidity drives seasonal movements in flows, by controlling for aggregate personal savings; this factor also does not appear to drive our findings.

Table A-5.1: Seasonality in U.S. Capital Gain & Dividend Distributions to Mutual Fund Shareholders

We report seasonal patterns in capital gains and dividend distributions among all mutual funds over 1984 to 2007. To compute the percent of capital gains distributed during a given month, we first eliminate capital gains distributions that are a return of capital (i.e., are non-taxable). Then, we divide the value of capital gains distributions occurring during that month (across all years) by the total value of capital gains distributions across all months. The column on the left presents these percentages, while the column on the right presents results computed for dividend distributions. For dividend distributions, we exclude all non-taxable distributions, such as the tax-exempt portion of dividends distributed by municipal bond funds.

Average Percentage Taxable Distributions (Percent of Total Value of Distributions, by Month)

Month	Capital Gains	Taxable Dividend
January	1.1	6.9
February	0.9	7.0
March	2.4	8.9
April	1.1	7.3
May	1.5	7.2
June	3.8	9.3
July	1.9	7.5
August	1.8	7.3
September	2.2	9.3
October	1.6	7.7
November	9.8	7.6
December	72.0	14.1

Appendix A-6:

A Model for U.S. Net Flows Excluding Lagged Dependent Variable Terms

We explore the impact of excluding lagged dependent variables and instead adjust for autocorrelation with Hansen's (1982) GMM and Newey and West (1987), (1994) heteroskedasticity and autocorrelation consistent (HAC) standard errors. The regression model we estimate is as follows:

$$
\begin{aligned}
\text{(A-2)}\quad \text{NET\_FLOW}_{i,t} &= \mu_i + \mu_{i,\hat{\text{OR}}}\hat{\text{OR}}_t + \mu_{i,\text{ADS}}\text{ADS}_t + \mu_{i,R^{\text{YEAR}}}R_{i,t}^{\text{YEAR}} \\
&+ \mu_{i,\text{CAP\_GAINS}}R_{i,t}^{\text{CAP\_GAINS}} + \mu_{i,\text{NOV}}\text{NOV}_t + \mu_{i,\text{DEC}}\text{DEC}_t \\
&+ \mu_{i,\text{JAN}}\text{JAN}_t + \mu_{i,\text{FEB}}\text{FEB}_t + \mu_{i,\text{SAVINGS}}\text{SAVINGS}_{t-1} + \epsilon_{i,t},
\end{aligned}
$$

where i indexes the five U.S. mutual fund asset classes. Variables are defined as in the primary estimation introduced in the main text.

We estimate equation (5) as a system of equations using Hansen's (1982) GMM and Newey and West (1987), (1994) HAC standard errors. To calculate standard errors, we follow Newey and West (1987), (1994) and use the Bartlett kernel and an automatic bandwidth parameter (autocovariance lags) equal to the integer value of $4(T/100)^{2/9}$. The instruments for the regression are constrained to the full set of explanatory variables. Results from estimating this set of equations are shown in Table A-6.1. In Panel A we present coefficient estimates and two-sided t-tests. Our use of HAC standard errors is consistent with the strong statistical evidence of autocorrelation. The bottom of Panel A contains the adjusted R^2 for each asset class model and χ^2 statistics for testing for the presence of up to 12 lags of autocorrelation (AR) or ARCH. The test for ARCH is a standard LM test of order 12. To perform the test for autocorrelation, we augment the regression with 12 lags of the residuals, estimate MacKinnon and White (1985) bootstrap HAC standard errors with OLS, and test for the joint significance of these terms.

Consider first the coefficient estimates on the onset/recovery variable. The equity, hybrid, corporate, and government fixed income asset classes all have negative coefficients on $\hat{\text{OR}}_t$, but only equity fund flows display statistically significant negative effects, and equity

funds also display the largest economic magnitude effect of these four. Recall that the onset/recovery variable itself is positive in the summer/fall and negative in the winter/spring (see Figure 1 in the main text). Thus, the implication is that equity fund flows are expected to be below-average in the summer/fall and above-average in the winter/spring, as displayed in the unconditional plot in Figure 2 in the main text. The onset/recovery variable is positive and statistically significant for the money market asset class, implying money market fund flows are expected to be above average in the summer/fall and below average in the winter/spring, again as we see unconditionally. The impact of advertising is again to divert flows from safe asset classes to risky asset classes, there is strong evidence of return-chasing and capital-gains avoidance. (Recall that average realized capital gains are virtually zero for the money market fund class, and only 24 basis points for the government versus roughly 3.5 percent for the equity fund class, hence the anomalously large estimate on the capital gains variable for the money market class is not economically meaningful.) The savings variable is strongly significantly positive for all classes of funds except the money market class, consistent with results in the paper.

Panel B contains statistics testing the joint significance of the onset/recovery coefficient estimates across the asset classes, using Wald χ^2 statistics based on the HAC covariance estimates. The first statistic tests whether the onset/recovery estimates are jointly equal to zero across the series. We strongly reject the null of no seasonal effect. The second joint statistic tests whether the onset/recovery coefficient estimates are jointly equal to each other, not necessarily zero. This null is strongly rejected as well, supporting the position that the safe and risky funds do indeed exhibit different seasonal cycles in flows related to the onset/recovery variable. The χ^2 goodness-of-fit test indicates that the over-identifying moment restrictions we use to estimate the model are not rejected.

Table A-6.1: Regression Results for U.S. Asset Class Net Flows, No Autocorrelation Controls

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter or Statistic	Equity	Hybrid	Corporate Fixed Income	Government Fixed Income	Money Market
μ	-1.771***	-5.523***	-6.712***	-9.194***	-0.073
	(-3.54)	(-7.38)	(-8.84)	(-6.34)	(-0.07)
$\mu_{\hat{\text{OR}}}$	-0.493***	-0.113	-0.379	-0.165	1.385***
	(-2.66)	(-0.34)	(-1.57)	(-0.38)	(4.17)
μ_{ADS}	0.042	-0.109	-0.688***	-0.503	-0.549
	(0.25)	(-0.36)	(-3.08)	(-1.19)	(-1.56)
$\mu_{R^{\text{YEAR}}}$	0.198***	0.607***	0.940***	2.701***	0.809***
	(7.63)	(8.28)	(10.15)	(11.69)	(4.82)
μ_{SAVINGS}	1.422***	4.157***	4.800***	6.214***	0.228
	(5.40)	(10.30)	(9.93)	(6.78)	(0.35)
$\mu_{\text{CAP\_GAINS}}$	-0.033***	-0.212***	0.115	-1.699***	273.39
	(-3.09)	(-10.5)	(0.73)	(-4.60)	(1.35)
μ_{NOV}	-0.114	-0.201	0.103	-0.604**	1.433***
	(-0.89)	(-0.93)	(0.61)	(-2.49)	(5.42)
μ_{DEC}	-0.133	-0.778***	-0.194	-0.747***	0.821**
	(-1.22)	(-4.60)	(-1.37)	(-3.41)	(2.22)
μ_{JAN}	0.258*	0.099	0.280*	-0.004	-0.173
	(1.80)	(0.56)	(1.95)	(-0.02)	(-0.36)
μ_{FEB}	0.009	0.024	0.152	0.095	0.405*
	(0.08)	(0.18)	(1.17)	(0.53)	(1.73)
R^2	0.1964	0.3691	0.4557	0.6195	0.0955
AR(12)	178.35***	275.63***	122.73***	239.74***	49.10***
ARCH(12)	55.27***	75.66***	40.63***	62.98***	57.66***

Panel B: Joint Tests on Onset/Recovery Coefficient Estimates

Joint Test Across Asset Classes	χ^2 [Degrees of Freedom]
$\mu_{\hat{\text{OR}}}$ jointly equal to 0 across series	29.9*** [5]
$\mu_{\hat{\text{OR}}}$ equivalent across series	29.9*** [4]
Test of Over-Identifying Restrictions	43.6 [40]

Notes: See the notes to Table A-1.1, with the following exception: We estimate the following model, which excludes lags of the dependent variable.

$$\begin{aligned}\text{NET\_FLOW}_{i,t} = \mu_i + \mu_{i,\hat{\text{OR}}}\hat{\text{OR}}_t + \mu_{i,\text{ADS}}\text{ADS}_t + \mu_{i,R^{\text{YEAR}}}R^{\text{YEAR}}_{i,t} \qquad (A-2)\\ +\mu_{i,\text{CAP\_GAINS}}R^{\text{CAP\_GAINS}}_{i,t} + \mu_{i,\text{NOV}}\text{NOV}_t + \mu_{i,\text{DEC}}\text{DEC}_t\\ +\mu_{i,\text{JAN}}\text{JAN}_t + \mu_{i,\text{FEB}}\text{FEB}_t + \mu_{i,\text{SAVINGS}}\text{SAVINGS}_{t-1} + \epsilon_{i,t},\end{aligned}$$

Appendix A-7: Canadian Flows

Here we provide supplementary information about the Canadian data. Table A-7.1 contains details about the translation of 10 categories of funds into the four broad categories we use for analysis: equity, hybrid, fixed income, and global fixed income. In an untabulated robustness check, we estimated the flows models on the 10 asset classes. We found strong evidence consistent with seasonally varying risk aversion impacting returns in this more granular view of the Canadian data.

Table A-7.2 contains summary statistics on the Canadian net exchange data. The range of the data extends from January 1992 through November 2010. (The need for lagged values restricts the estimation period to start in January 1993.) As we remarked for the U.S. data, concerns about the chaotic flows during the financial crisis, in particular flows in and out of money market funds, motivates us to end the sample in December 2006 for the purposes of model estimation. Net exchanges are reported as a proportion of the fund's prior end-of-month total net assets. Panel A reports summary statistics on net exchanges across asset classes, the means of which net to close to zero (after weighting by the respective asset class prior-month asset values). The volatility of net exchanges is similar to that for U.S. fund exchanges, the skewness is negative except for equities, and the net exchanges are strongly fat-tailed, again similar to U.S. net exchanges. Panel B contains summary statistics for the mean monthly return over the past year (R_t^{YEAR}, the return-chasing measure) and the capital gains measure ($R_t^{\text{CAP\_GAINS}}$, the cumulated return to holding the fund from the previous year's January 1 – the start of the tax year in Canada – until month $t-1$), by asset class.

Panel C of Table A-7.2 contains summary statistics for the monthly excess asset class returns (in excess of the 30-day U.S. Treasury rate, although results are not sensitive to the risk-free rate employed). The month t return for asset class i is calculated as $R_{i,t} = \frac{\text{TNA}_{\text{i,t}} - \text{TNA}_{\text{i,t-1}} - \text{NET\_FLOW}_{\text{t}}}{\text{TNA}_{\text{t-1}}}$, which assumes that all distributions are reinvested in the funds. The data reveal familiar patterns, with equity and hybrid excess returns being the largest and most volatile, although global fixed income has been quite volatile over the sample period. The excess returns show a virtually monotonically declining CAPM beta, suggesting declining exposure to systematic risk across this ordering of fund asset classes. We also

present $\hat{\text{OR}}$ coefficient estimates from a regression of excess returns on onset/recovery. These estimates are consistent with the seasonally varying risk aversion hypothesis: large and negative for equity and hybrid classes, and large and positive for both fixed income classes.[10] Panel D contains correlations between monthly net exchanges across the asset classes. Note that the strongest correlation is -0.78, which is the correlation between the equity and fixed income categories. As with the U.S. data, investors tend to commonly substitute equity fund investments with safer fixed income investments, and vice-versa.

Table A-7.3 contains regression results that explore the robustness of the findings to excluding monthly dummy variables from the regression model. Specifically, it provides results based on estimating equation (3) from the main text without dummy variables for November, December, January, and February.

In Figure A-7.1, we consider unconditional patterns in net exchanges for the riskiest and safest IFIC asset classes, equity funds (Panel A) and fixed income funds (Panel B), represented by thick solid lines. The unconditional seasonal patterns in the Canadian net exchanges are very similar to that seen in the U.S.: net exchanges are below (above) average for equity (fixed income) funds during the summer/early fall, and above (below) average during the winter/early spring. This unconditional evidence is consistent with individual investors' seasonally varying risk aversion impacting exchanges, with depression-affected individuals shifting their portfolios between risky and safe funds depending on their seasonally varying risk aversion. In each panel, the thin dotted lines surrounding the thick solid line are the 90 percent confidence intervals around the average monthly exchanges.[11] We see several instances of statistically significant (unconditional) deviations of the equity fund exchanges from annual mean exchanges, lower in the

[10]The CAPM beta and the coefficient estimate on the onset/recovery variable are estimated in separate regressions, as was performed for the U.S. Coefficients are produced in a system-equation estimation using the seemingly unrelated regression technique and heteroskedasticity consistent standard errors, again as was done for the U.S.

[11]These confidence intervals are produced similarly to the approach for U.S. flows and exchanges. We exploit the information in the cross-sectional variability across the fund asset classes by using a system of equations and estimating a fixed-effects model with twelve dummy variables (one for each month). Again, to calculate the standard errors we follow Newey and West (1987), (1994) and use the Bartlett kernel and an automatic bandwidth parameter (autocovariance lags) equal to the integer value of $4(T/100)^{2/9}$. The instruments used for the regression are the 12 monthly dummy variables.

summer/fall and higher in the winter/spring. The dashed line marked with diamonds represents the average monthly fitted values predicted from the impact of the onset/recovery variable in a regression model that controls for various other conditional effects (equation (3) from the main text). Unconditional plots and summary statistics are consistent with seasonally varying risk aversion influencing exchanges, just as we find based on formal regression analysis.

The time-series fit from estimating the model in equation (3) is shown in Figure A-7.2, Panels A and B, for the equity and fixed income asset fund cases respectively. The noisiness of the series is evident from these plots, as are the impacts of some notable macro events such as the currency crises of the late 1990s and the year-2000 tech boom.

Table A-7.1: Classification of Canadian Funds

We construct a set of four asset classes (equity, hybrid, fixed income, and global fixed income) from the ten Investment Funds Institute of Canada (IFIC) categories of funds available. The ten IFIC categories are listed, alongside the more detailed Canadian Investment Funds Standards Committee (CIFSC) categories.

IFIC Category	CIFSC Category	Asset Class
Global and International Equity	Asia Pacific Equity	Equity
	Asia Pacific ex-Japan Equity	Equity
	Emerging Markets Equity	Equity
	European Equity	Equity
	Global Equity	Equity
	Global Small/Mid Cap Equity	Equity
	International Equity	Equity
	Japanese Equity	Equity
Domestic Equity	Canadian Dividend and Income Equity	Equity
	Canadian Equity	Equity
	Canadian Focused Equity	Equity
	Canadian Focused Small/Mid Cap Equity	Equity
	Canadian Income Trust Equity	Equity
	Canadian Small/Mid Cap Equity	Equity
Sector Equity	Financial Services Equity	Equity
	Health Care Equity	Equity
	Natural Resources Equity	Equity
	Precious Metals Equity	Equity
	Real Estate Equity	Equity
	Science and Technology Equity	Equity
U.S. Equity	North American Equity	Equity
	U.S. Equity	Equity
	U.S. Small/Mid Cap Equity	Equity
Domestic Balanced	Canadian Equity Balanced	Hybrid
	Canadian Fixed Income Balanced	Hybrid
	Canadian Neutral Balanced	Hybrid
Global Balanced	2010 Target Date Portfolio	Hybrid
	2015 Target Date Portfolio	Hybrid
	2020 Target Date Portfolio	Hybrid
	2020+ Target Date Portfolio	Hybrid
	Global Equity Balanced	Hybrid
	Global Fixed Income Balanced	Hybrid
	Global Neutral Balanced	Hybrid
	Tactical Balanced	Hybrid
Specialty	Alternative Strategies	Hybrid
	Miscellaneous (including Geographic Equity, Commodity, Income and Real Property, Leveraged, Other, Sector Equity, and Undisclosed Holdings)	Hybrid
Domestic Fixed Income	Canadian Fixed Income	Fixed Income
	Canadian Inflation Protected Fixed Income	Fixed Income
	Canadian Long Term Fixed Income	Fixed Income
	Canadian Short Term Fixed Income	Fixed Income
Money Market	Canadian Money Market	Fixed Income
	Canadian Synthetic Money Market	Fixed Income
	U.S. Synthetic Money Market	Fixed Income
	U.S. Money Market	Fixed Income
Global and High Yield Fixed Income	Global Fixed Income	Global Fixed Income
	High Yield Fixed Income	Global Fixed Income

Table A-7.2: Summary Statistics on Canadian Monthly Percentage Asset Class Net Exchanges, Explanatory Variables, and Associated Returns to Holding These Funds

In this table we present summary statistics on Canadian monthly fund percentage net exchanges, and explanatory variables over January 1992 through November 2010, for a total of 227 months (with the exception of R^{YEAR}, the return-chasing measure, for which the data starts in January of 1993). Flows data are from the Investment Funds Institute of Canada (IFIC), and returns were calculated using fund flow and total net asset changes available from IFIC. The returns are in excess of the 30-day T-bill rate, available from CRSP. $R^{\text{CAP\_GAINS}}$ is the capital gains measure and equals the cumulated return to holding the fund from the previous January 1 (the start of the tax year for mutual funds in Canada) to the month $t-1$, and 0 for January. Unlike the U.S., mutual funds in Canada did not face the U.S. Tax Reform Act of 1986, and tax reporting on capital gains follows the tax year, January through December. R^{YEAR} is the mean monthly fund percentage return over the prior 12 months, to capture return chasing. For each set of fund flows and returns we present the mean monthly values (Mean), standard deviation (Std), minimum (Min), maximum (Max), skewness (Skew) and kurtosis (Kurt). For excess returns we also present the CAPM beta and the coefficient estimate on the onset/recovery variable, estimated as described in Table 2. One, two, and three asterisks denote significance at the 10 percent, 5 percent, and 1 percent level respectively, based on two-sided tests.

Panel A: Asset Class Percentage Net Exchanges

Index	Mean	Std	Min	Max	Skew	Kurt
Equity	0.017	0.27	-1.29	1.25	0.460	4.71
Hybrid	0.113	0.39	-2.65	1.64	-1.673	14.08
Global Fixed Income	-0.192	1.04	-6.30	3.86	-1.497	11.17
Fixed Income	-0.142	0.49	-2.22	1.73	-0.280	3.22

Table A-7.2 continues on next page

Table A-7.2, Continued

Panel B: Explanatory Variables

Index	Mean	Std	Min	Max	Skew	Kurt
Equity Fund Specific:						
$R^{\text{CAP\_GAINS}}$	1.675	8.17	-36.64	26.07	-0.517	3.36
R^{YEAR}	0.450	1.25	-3.53	2.88	-0.855	0.66
Hybrid Fund Specific:						
$R^{\text{CAP\_GAINS}}$	5.334	9.85	-19.20	40.50	1.391	2.53
R^{YEAR}	0.777	1.04	-1.84	3.77	0.480	1.19
Global Fixed Income Fund Specific:						
$R^{\text{CAP\_GAINS}}$	0.626	7.98	-26.88	20.05	-1.052	3.40
R^{YEAR}	0.370	0.86	-2.53	1.95	-1.296	2.47
Fixed Income Fund Specific:						
$R^{\text{CAP\_GAINS}}$	1.058	4.01	-15.11	8.37	-2.129	6.80
R^{YEAR}	0.282	0.37	-1.18	0.85	-2.381	6.46

Panel C: Asset Class Excess Returns

Index	Mean	Std	Min	Max	Skew	Kurt	Beta	$\hat{\text{OR}}$
Equity	0.196	3.63	-15.45	9.10	-0.848	1.86	0.721***	-1.758
Hybrid	0.548	3.49	-9.97	33.77	4.217	38.58	0.456***	-1.231
Global Fixed Income	0.123	2.75	-26.45	16.92	-3.123	44.05	-0.015	1.131**
Fixed Income	0.022	1.27	-15.46	3.17	-8.220	99.51	0.011	0.443*

Panel D: Asset Class Net Exchange Correlations

Asset Class	Equity	Hybrid	Fixed Income
Hybrid	-0.140**	—	—
Global Fixed Income	-0.390***	0.129*	—
Fixed Income	-0.780***	-0.160**	0.215***

Table A-7.3
Dependent Variable: Canadian Net Exchanges
Robustness Check: Inclusion of Dummy Variables for November, December, January, and February

Panel A: Parameter Estimates and Diagnostic Statistics

Parameter or Statistic	Equity	Hybrid	Fixed Income	Global Fixed Income
μ	-0.022**	-0.064***	-0.053	-0.082***
	(-2.15)	(-6.79)	(-1.34)	(-3.32)
$\mu_{\hat{\text{OR}}}$	-0.100**	-0.192***	0.259**	0.310***
	(-2.25)	(-4.90)	(2.01)	(3.56)
$\mu_{R^{\text{YEAR}}}$	0.025***	0.044***	-0.222***	0.274***
	(2.90)	(3.14)	(-5.03)	(4.76)
$\mu_{\text{CAP\_GAINS}}$	-0.001	-0.001	0.026***	-0.026***
	(-0.65)	(-0.48)	(4.12)	(-4.96)
μ_{NOV}	0.203***	0.335***	-0.637***	-0.354***
	(4.58)	(7.18)	(-5.65)	(-4.13)
μ_{DEC}	-0.031	0.008	-0.712***	0.210***
	(-1.13)	(0.36)	(-5.15)	(3.84)
μ_{JAN}	0.217***	0.201***	0.485***	-0.532***
	(6.04)	(8.25)	(4.56)	(-9.41)
μ_{FEB}	0.023	0.057	-0.263**	-0.100
	(0.63)	(1.61)	(-2.40)	(-1.26)
ρ_1	0.229***	0.461***	0.265***	0.308***
	(6.71)	(10.07)	(10.42)	(9.62)
ρ_3	0.068***	0.237***	0.052**	0.087***
	(3.58)	(7.09)	(2.56)	(3.41)
ρ_6	0.033	0.050***	0.055**	0.070***
	(1.60)	(3.35)	(2.29)	(2.64)
R^2	0.1466	0.4466	0.1493	0.223
AR(12)	22.44 **	6.29	7.06	17.81
ARCH(12)	12.68	40.15 ***	29.76 ***	11.27

Panel B: Systems Equations Joint Tests

Joint Tests Across Indices	χ^2 [degrees of freedom]
$\mu_{\hat{\text{OR}}}$ jointly equal to 0 across series	34 *** [4]
$\mu_{\hat{\text{OR}}}$ equivalent across series	34 *** [3]
Test of Over-Identifying Restrictions	34.3 [60]

Notes: See the notes to Table A-1.1, with the following exception: We estimate a modified version of equation (3), using net exchange data for Canadian asset classes, and including monthly dummy variables:

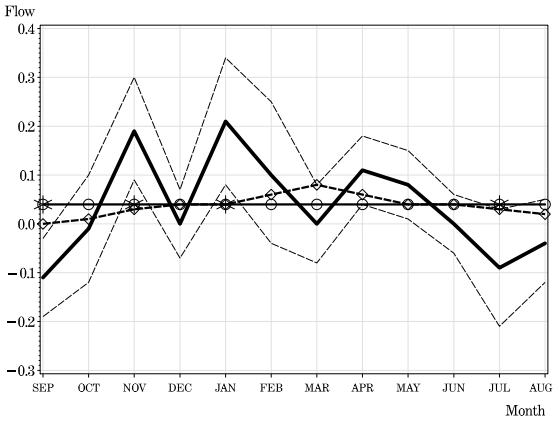
$$\text{NET\_EXCHANGE}_{i,t} = \mu_i + \mu_{i,\hat{\text{OR}}}\hat{\text{OR}}_t + \mu_{i,R^{\text{YEAR}}} R^{\text{YEAR}}_{i,t} + \mu_{i,\text{CAP\_GAINS}} R^{\text{CAP\_GAINS}}_{i,t} \qquad (3')$$

$$+\mu_{i,\text{NOV}}\text{NOV}_t + \mu_{i,\text{DEC}}\text{DEC}_t + \mu_{i,\text{JAN}}\text{JAN}_t + \mu_{i,\text{FEB}}\text{FEB}_t + \rho_{i,1} NetExchange_{i,t-1}$$

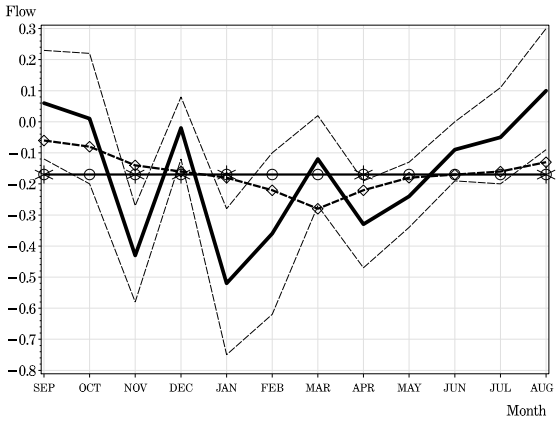
$$+\rho_{i,3} NetExchange_{i,t-3} + \rho_{i,6} NetExchange_{i,t-6} + \rho_{i,12} NetExchange_{i,t-12} + \epsilon_{i,t}$$

Figure A-7.1
Average Canadian Monthly Net Exchanges

Panel A: Equity



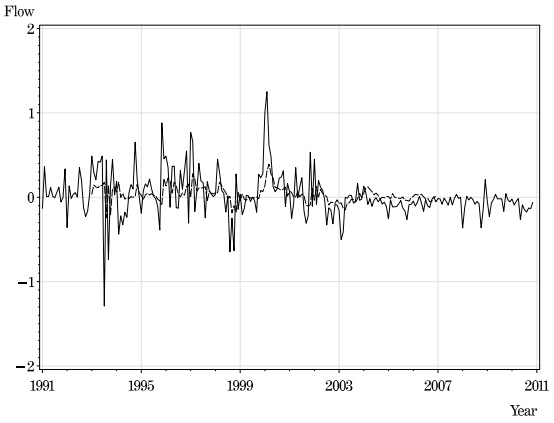
Panel B: Fixed Income



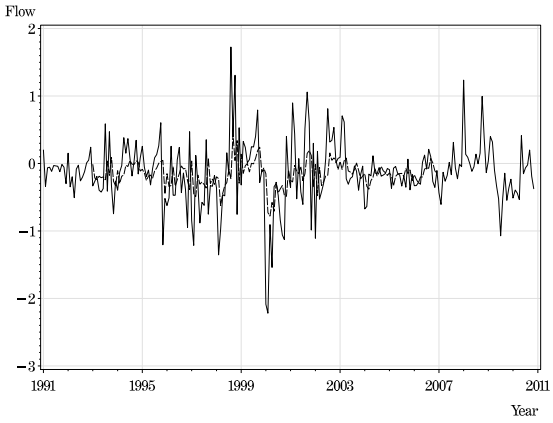
Panel A plots monthly average **equity** asset class fund total net exchanges, Panel B monthly average **fixed income** asset class fund total net exchanges (both as a proportion of prior-month fund TNA), indicated with a thick solid line, and average fitted values implied by the onset/recovery coefficient from estimating equation (3), indicated with a dashed line with diamonds. The plots also include a 90 percent confidence interval around the monthly means (shown with thin dashed lines) and the average exchanges throughout the year (represented by solid lines with circles – and an x mark in cases where the average return falls outside of the confidence interval). The data, provided by the Investment Funds Institute of Canada, span January 1993 through December 2006.

Figure A-7.2
Time Series of Canadian Net Exchanges

Panel A: Equity



Panel B: Fixed Income



Panel A contains the time series of monthly **equity** fund net exchanges and Panel B the time series of monthly **fixed income** fund net exchanges (both as a proportion of fund TNA), indicated with a solid line, and the monthly fitted values from estimating equation (3),indicated with a dashed line. The data, provided by the Investment Funds Institute of Canada, span January 1992 through December 2010. The model is estimated over the period January 1993 through December 2006, hence the fitted series starts later and ends earlier than the realized series in the plot.

Appendix A-8: Australian Flows

Here we provide supplementary information about the Australian data. Table A-8.1 contains summary statistics on the Australian net flows, cumulated returns ($R_{i,t}^{\text{CAP\_GAINS}}$), and returns over the past 12 months (R^{YEAR}). R^{YEAR} is expressed as a monthly mean return and $R_{i,t}^{\text{CAP\_GAINS}}$ equals the cumulated return to holding the fund from the previous year's July 1 (the start of the tax year in Australia) until month $t-1$.[12] The mean equity net flow is around half a percent of TNA, and the standard deviation is almost 0.6. The return-chasing measure for Australian equity flows, R^{YEAR}, and the capital gains overhang measure, $R_{i,t}^{\text{CAP\_GAINS}}$, behave similarly to the U.S. and Canada counterparts. Panel B of Table A-8.1 contains summary statistics for the monthly excess asset class returns (in excess of the 30-day U.S. Treasury rate). The month t return for asset class i is calculated as $R_{i,t} = \frac{TNA_{i,t} - TNA_{i,t-1} - NetFlow_t}{TNA_{t-1}}$, which assumes that all distributions are reinvested in the funds. The excess returns show fairly high mean returns and comparable volatility to U.S. and Canadian equity returns, with a CAPM beta of about 0.5. The $\hat{\text{OR}}$ coefficient estimate is not significant for Australia.[13]

Table A-8.2 contains regression results that explore the robustness of the model to excluding monthly dummy variables. Specifically, it providesresults based on estimating equation (4) from the main text without dummy variables for May, June, July, and August.

In Figure A-8.1 we informally consider seasonal patterns in net flows associated with Australian equity funds. Consider first Panel A. Notice that we plot monthly returns from March through February, that is, starting in the fall and ending in the summer. The Australian equity net flows, denoted by a thick solid line, appear noisier than their U.S. counterparts in Figure 2. The thin dotted lines surrounding the thick solid line are the 90 percent confidence interval around the monthly equity net flows. Compared to the U.S. and Canadian flow data, the Australian evidence shows little statistically significant

[12]This definition of $R_{i,t}^{\text{CAP\_GAINS}}$ is most directly comparable to the Canadian definition of this variable, taking on non-zero values for all months of the year except the first month of the tax year, July in Australia. The variable equals zero in July by construction. We specify $R^{\text{CAP\_GAINS}}$ in this manner for Australia since, unlike the U.S., the start of the Australian tax year for mutual funds aligns with the overall start of the tax year. Our primary results are robust to excluding this capital gains variable from the model.

[13]The CAPM beta and the coefficient estimate on the onset/recovery variable are estimated in separate regressions. Coefficients are produced using OLS and heteroskedasticity consistent standard errors.

unconditional seasonality.

The average fitted values implied by the onset/recovery coefficient from estimating (equation (4) are represented by the dashed line with diamonds in Panel A. Those fitted values are consistent with seasonally varying risk preferences having an impact on flows, and the pattern is identical to U.S. and Canadian equity fund flows, but six months out-of-phase, just as are the seasons. We see equity fund net inflows are lower than average during the Australian fall and are higher than average during most of the Australian winter and spring. Overall, this pattern of onset/recovery fitted values is consistent with seasonal-depression-affected individuals shifting their portfolios out of risky funds coinciding in time with their seasonally declining risk aversion, and offset by six months relative to the U.S.

The dashed line with diamonds in Panel B of Figure A-8.1 represents the average fitted values from estimating equation (4), controlling not only for onset/recovery but also the monthly dummies, capital gains, return chasing, and lagged dependent variable. The model appears to closely fit the seasonality in the Australian flow data.[14] Unincluded plots (based on Table A-8.2) show that even when the model excludes the turn-of-tax-year dummy variables, the model captures the end-of-tax-year variation that the onset/recovery variable alone does not capture in Panel A.

In Figure A-8.2 we provide the time-series fit from estimating the regression model shown in equation (4).

[14]The appearance of an especially close fit in the months of May, June, July, and August is a combination of the inclusion of dummy variables for those months and the simplicity of the Australian model relative to the U.S. and Canadian models.

Table A-8.1: Summary Statistics for Australian Equity Fund Net Flows and Returns

In this table we present summary statistics on Australian monthly percentage net flows and explanatory variables for January 1991 through December 2007. Net flows and equally-weighted monthly fund return data are from Morningstar. R^{YEAR} is the mean monthly fund percentage return over the prior 12 months, to capture return chasing. $R^{\text{CAP\_GAINS}}$ is the capital gains measure and equals the cumulated return to holding the fund from the previous July 1 (the start of the tax year in Australia) to the month $t-1$, and 0 for July. We present the mean monthly values (Mean), standard deviation (Std), minimum (Min), maximum (Max), skewness (Skew) and kurtosis (Kurt). For excess returns we also present the CAPM beta and the coefficient estimate on the onset/recovery variable, offset by six months from its U.S. counterpart to align with the southern hemisphere seasons, estimated as described in Table 2. One, two, and three asterisks denote significance at the 10 percent, 5 percent, and 1 percent level respectively, based on two-sided tests.

Panel A: Equity Fund Flows

Index	Mean	Std	Min	Max	Skew	Kurt
Equity Percentage Net Flow	0.452	0.59	-1.01	1.98	-0.042	-0.41
$R^{\text{CAP\_GAINS}}$	6.177	8.74	-11.55	32.60	0.495	-0.27
R^{YEAR}	1.133	0.95	-1.52	3.96	-0.350	0.41

Panel B: Equity Fund Excess Returns

Index	Mean	Std	Min	Max	Skew	Kurt	Beta	$\hat{\text{OR}}$
Equity	0.876	3.15	-11.32	7.65	-0.520	0.58	0.522^{***}	0.3822

Table A-8.2
Dependent Variable: Australian Net Flows
Robustness Check: Exclusion of Dummy Variables for May, June, July, and April

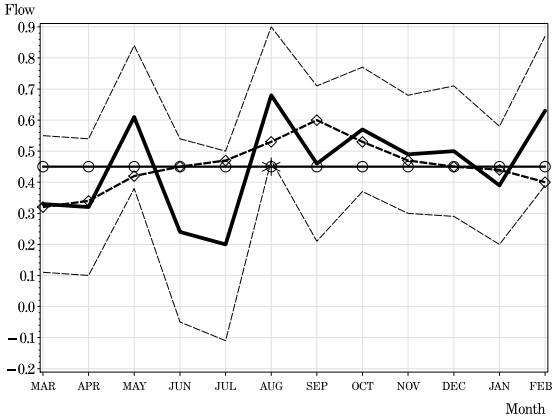
Parameter	Equity (t-test)
μ	-0.140**
	(-2.20)
$\mu_{\hat{\text{OR}}_{\text{SOUTH}}}$	-0.435***
	(-2.82)
$\mu_{R^{\text{YEAR}}}$	0.106**
	(1.99)
$\mu_{\text{CAP\_GAINS}}$	0.005
	(0.78)
ρ_1	0.129**
	(2.50)
ρ_2	0.272***
	(3.70)
ρ_3	0.264***
	(3.81)
ρ_6	0.131*
	(1.65)
ρ_{12}	0.153**
	(2.55)
R^2	0.5779
AR(12)	13.34
ARCH(12)	12.49

Notes: See the notes to Table A-1.1, with the following exception: We estimate a modified version of equation (4), using net flow data for the Australian equity class, and excluding monthly dummy variables:

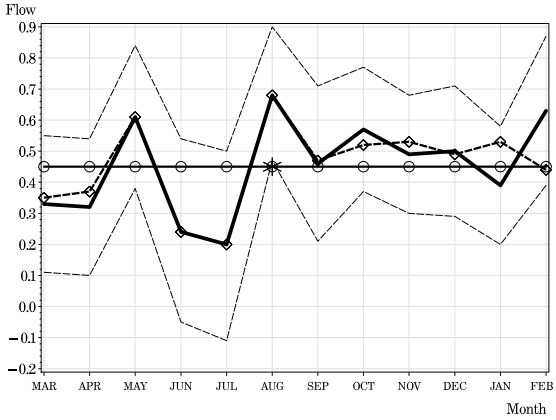
$$\text{NET\_FLOW}_{i,t} = \mu_i + \mu_{\hat{\text{OR}}_{\text{SOUTH}}}\hat{\text{OR}}_{\text{SOUTH}_t} + \mu_{i,R^{\text{YEAR}}}R^{\text{YEAR}}_{i,t} \tag{4'}$$
$$+\mu_{i,\text{CAP\_GAINS}}R^{\text{CAP\_GAINS}}_{i,t} + \rho_1\text{NET\_FLOW}_{t-1} + \rho_2\text{NET\_FLOW}_{t-2} + \rho_3\text{NET\_FLOW}_{t-3}$$
$$+\rho_{i,6}\text{NET\_FLOW}_{i,t-6} + \rho_{i,12}\text{NET\_FLOW}_{i,t-12} + \epsilon_{i,t}$$

Figure A-8.1
Australian Net Flows

Panel A:
Equity Net Flows
$\hat{OR}$ Fitted Model



Panel B:
Equity Net Flows
Full Fitted Model



Panels A and B contain monthly average **Australian equity** aggregate fund flows as a proportion of prior-month Australian equity fund TNA, indicated with a thick solid line, and a 90 percent confidence interval around the monthly means (shown with thin dashed lines). Note that these plots start with the month of March, the first month of fall in Australia, to align the seasons relative to the plots for Canada and the U.S. The annual average flow is represented by a solid line horizontal with circles, and an x marks cases where the average return falls outside of the confidence interval. The dashed line with diamonds in Panel A represents the average fitted values implied by the onset/recovery coefficient from estimating equation (4) and in Panel B represents the average monthly fitted values implied by the full set of coefficient estimates from estimating equation (4).

Figure A-8.2
Australian Time Series of Net Flows

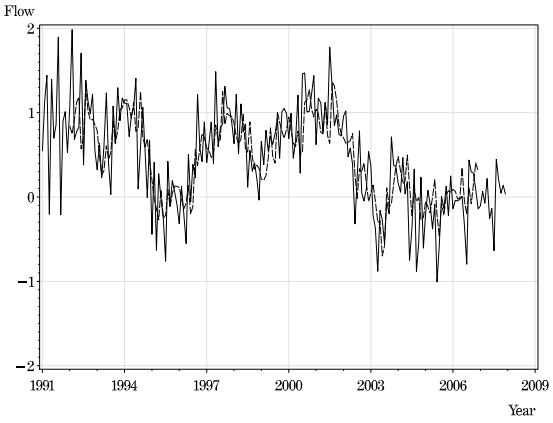


Figure 1: This plot contains the time series of monthly **Australian equity** aggregate fund flows as a proportion of equity TNA, indicated with a solid line, and the monthly fitted values from estimating equation (4) indicated with a dashed line. The data on equity fund flows, provided by Morningstar, span January 1 1991 through December 31 2007. The model is estimated over the period January 1992 through December 2006, hence the fitted series starts later and ends earlier than the realized series in the plot.

Appendix A-9: Conditional Splits of the U.S. Data

Here we perform sub-sample analysis as an alternate way to consider whether various factors such as seasonality in fund sales, fund redemptions, equity returns, or fund capital gains lead to the seasonal patters we see in U.S. fund flows. We undertake this analysis by conditioning the flows data on the basis of high versus low values of these variables and then examining whether the seasonal pattern in flows is consistent across the sub-samples. Briefly, we find evidence that the seasonality in flows is consistent across the various splits of the data. Whether sales, redemptions, equity returns, or capital gains are above or below median, we find seasonal variation in equity and money market flows that is consistent with seasonally varying investor risk aversion.

We consider first sorting the flows data on the basis of the magnitude of contemporaneous equity fund returns. Investors exhibit flight-to-quality behavior during market periods when equity returns are anomalously low (see Schmidt, Timmermann, and Wermers (2010)). Combined with the fact that most of the notable U.S. stock market crashes have been clustered in the fall season, the seasonal pattern we observe in flows may be a simple consequence of investors responding to seasonality in returns, possibly unrelated to seasonality in risk aversion. In Panel A of Figure A-9.1, we consider each of the equity and money market flows data sets sorted into two partitions on the basis of high versus low contemporaneous returns to the equity funds.[15] The top two plots in Panel A correspond to periods with equity fund returns above the 50th percentile of equity fund returns, and the bottom two plots of Panel A correspond to periods with returns below the 50th percentile. Naturally, the low-return periods include market crashes. In each plot, the thin horizontal line is the average fund-category flow across the conditional sub-set of data, and the thick dashed line is the monthly average fund-category flow across the conditional

[15]Specifically, we manipulated the data as follows. We compared a particular observation of equity returns for month i in a given year (where i=1, $\cdots$, 12, representing January through December) to all equity returns values for month i in the whole sample. Month i observations above (below) month i median returns were placed in the above (below) median sample split. (Note that our results are virtually identical if we form the high/low sample splits by comparing a particular month i observation to the entire sample of returns observations instead of comparing it only to the other returns observations for month i.) Further, because we have less than 24 years of data, we have at best 12 observations for each sample split, which can lead to noisy data. Hence our plots are based on a three-month centered moving average smooth of the monthly mean flows. This smooths away some noise in the monthly averages without smoothing away the quarterly patterns in flows we expect to observe due to seasonality in depression.

sub-set of data. For equity funds (the two left-most plots of Panel A), the annual average of the monthly flow is about 0.8 percent of TNA for the sub-sample of months with above-median equity class returns and the annual average of the monthly flow is about 0.4 percent of TNA for the sub-sample of months with below-average equity class returns. For both partitions of the equity flow data, we see the characteristic seasonal pattern with below-average flows in the fall and above-average flows in the winter/spring in both sub-samples. This suggests it is not seasonality in equity returns, per se, which drives the seasonal pattern in flows. Analogously for money market funds (the two right-most plots in Panel A), we see the opposite pattern, on balance. Flows are typically above-average in the fall and below-average in the winter/spring. On balance, the seasonal pattern in flows cannot be easily dismissed as arising from a concentration of market crashes in the fall, leading us to conclude the seasonal variation in flows does not appear to be driven in large part by flight-to-quality behavior.

As an alternate way of capturing possible seasonal differences in the way investors respond to market conditions, we also consider returns arising from capital gains. Panel B of Figure A-9.1 corresponds to sorting the flows data on the basis of contemporaneous capital gains realizations to equity funds.[16] (As shown in Table 2, money market funds realize virtually zero capital gains.) A desire to avoid pre-paying capital gains taxes associated with high equity-fund capital gains can lead investors away from equity funds and possibly into money market funds; see Appendix A-5. Seasonality in this capital gains avoidance could explain the observed opposing pattern of flows between equity and money market funds, in the fall season at least. In the plots of Panel B, however, we consistently observe the expected patterns in equity and mutual fund flows, regardless of the high/low capital gains condition. Thus seasonality in capital gains does not seem to be the driving force behind the seasonal variation in flows that we study.

We turn now to consider mutual fund sales and redemptions, both of which are important components of net flows. Considering these variables helps us evaluate whether the availability and need for liquidity may drive flows. For example, seasonal peaks in

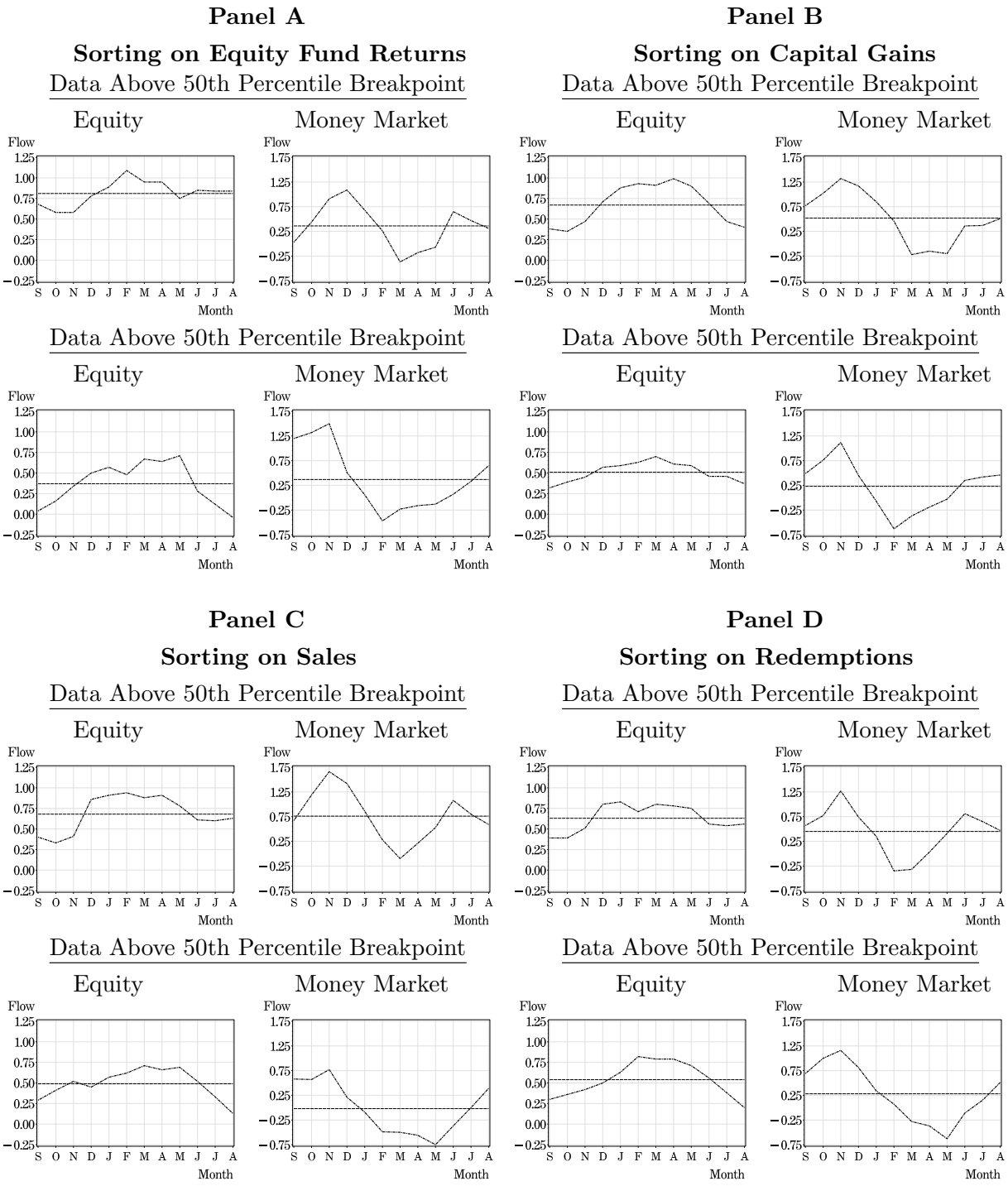
[16]We form the sorts based on capital gains analogously to the formation based on equity returns as described in footnote 15.

liquidity arising from year-end bonuses and/or seasonal liquidity needs arising from tax deadlines and seasonal shopping habits could lead to seasonality in flows. Both sales and redemptions are integrated, thus we detrend each of the series by subtracting off the average sales or redemptions of the preceding 12 months. We form the partitions on the basis of the detrended data, and we present a moving average of the conditional flows in Panels C and D.[17] Panel C of Figure A-9.1 contains plots of the flows data conditional on high versus low total fund sales (where the sales are calculated across all fund categories we study). Naturally, in high fund sales months we see higher fund flows on average, more pronounced for money market funds. Regardless of the sample split, however, equity fund flows are below average in the summer and fall and above average in the winter and spring. This pattern is reversed for the money market fund category; the pronounced seasonality we see in fund flows across our entire sample and various subsamples of time is repeated in this sample split of the data. Fund sales, high or low, do not drive the seasonality we document in fund flows. Even if sales are high relative to the past year, they are below (above) average for equity (money market) in the summer and fall and this reverses in the winter/spring. Similarly, we see in Panel D that high versus low fund redemptions do not drive the seasonality pattern in flows. That is, seasonality in the need for liquidity, at least partially revealed by redemptions, seems unlikely to be the source of the seasonality we document in fund flows.

We performed a variety of additional untabulated checks, including sample splits based on total market returns (CRSP value-weighted total market returns), total NYSE (detrended) volume, total NYSE (detrended) turnover, equity fund volatility, total market equity volatility, and even cloud cover. Across these various analyses we find qualitatively identical results: the seasonal patterns we document in fund flows survives any of these high/low splits. We also performed analysis based on high/low splits based on terciles instead of above/below median, again finding qualitatively identical results.

[17]We form the sorts based on detrended sales and redemptions analogously to the formation based on equity returns as described in footnote 15.

Figure A-9.1: Plots Based on Conditional Splits of the U.S. Data



We form high/low sample splits on the basis of the 50th percentile of contemporaneous equity-fund returns (Panel A), contemporaneous equity-fund capital gains (Panel B), detrended sales (Panel C), and detrended redemptions (Panel D). The thin dashed line represents the annual average flow for the partition, and the thick dashed line represents the monthly average flow. In all cases, the plotted average monthly flows are smoothed with a three-month centered moving average. The data, provided by the Investment Company Institute, span 1985-02 through to 2006-12.

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