

A. Online Appendix

A. Change in Fees Collected by Fund Families after Mergers

In this section, I calculate and discuss the change in fees that collected by fund families after mergers. Previous studies show that the poor performance of target funds is the determinant of mergers (Jayaraman, Khorana, and Nelling (2002), Zhao (2005), Ding (2006), and Khorana, Wedge, and Tufano (2007)). After a merger, the fund management firm can eliminate the performance history of target funds from advertisements and other publications to attract new investors and money inflows (IDC (2006)). Table 1 shows that target funds charge a significantly higher expense ratio than acquiring funds before mergers. Table 2 shows that, on average, the size of the target fund is about one-third of the acquiring fund in across-family mergers. Figure 3 and Table 8 show that the expense ratio of acquiring funds drops by about 0.03% after acquisition. Based on these empirical findings, I have two expectations on the fees collected by families from merging funds. First, fees collected by families from the within-family merging funds decrease post-event. Second, families collect more fees from the acquiring funds after across-family mergers since the increase in size is more likely to counter-balance the decline in expense ratio.

I test these two expectations using panel regression models. I calculate the fees (in \$ Millions) charged by acquiring funds over the three years before and after mergers, and charged by the target funds over the three years before mergers. I sum up the fees of target and acquiring funds before acquisition and regress the monthly fees on a constant and EVENT_PERIOD_DUMMY, clustering either by month or by strategy \times month. EVENT_PERIOD_DUMMY takes a value of one after a merger and zero before. Thus, the parameter estimate for EVENT_PERIOD_DUMMY (β_1) is a measure of the average change in fees. I find that $\beta_1 = -0.35$ (t -stat $=-4.45$ clustered by month, t -stat $=-4.67$ clustered by strategy \times month) for within-family mergers. On average, fees collected by

families of within-family mergers decrease by about \$350,000 after the event. I also find that $\beta_1=0.11$ (t -stat=2.31 clustered by month, t -stat=2.10 clustered by strategy \times month) for across-family mergers. Acquiring fund families collect \$110,000 more in fees after across-family mergers.

In sum, fund families benefit from fund acquisitions either from eliminating funds with worse past performance to attract new inflows (within-family mergers) or from increases in fee collection (across-family mergers). In effect, the decrease in fees for within-family mergers may be a cost that the family is willing to pay in order to remove the evidence of poor performance, while the across-family mergers tend to lead to higher income from fees.

Table A1. Change in Size and Fund Performance - Small-Cap Funds

Table A1 reports the results of tests on whether larger increases in fund size result in larger decreases in performance using panel regression models. The dependent variable is the four-factor adjusted monthly returns. Independent variables include a constant, EVENT_PERIOD_DUMMY, CHANGE_IN_SIZE_DUMMY, and EVENT_PERIOD_DUMMY \times CHANGE_IN_SIZE_DUMMY. CHANGE_IN_SIZE_DUMMY is a dummy variable that takes a value of one if the SIZE_RATIO is above the mean and zero otherwise. SIZE_RATIO is calculated using equation (2). Independent variables also include fund characteristics in Columns (2) and (4). AGE is the logarithm of fund age in months. EXPENSE_RATIO is the fund expense ratio. 12B-1_FEE measures the marketing and distribution fee. I include fund contemporaneous and twelve-month lagged turnover in the model, where TURNOVER measures the percentage of a fund's holdings that have changed over the previous 12 months. FLOW is calculated using equation (1). FAMILY_SIZE measures the number of investment objectives in a fund family. SPILLOVER_EFFECT is a dummy variable that takes a value of one if the fund is from a family having star funds and takes a value of zero otherwise. A star fund has performance in the top five percent of all funds with the same investment objective. I report Δ CHANGE_IN_PERFORMANCE in this table to be consistent with previous performance tests. The parameter estimates for the other independent variables are not reported for brevity. Δ CHANGE_IN_PERFORMANCE is the difference of changes in annualized Carhart alpha between funds with larger change in size (SIZE_RATIO>mean) and those with smaller change in size (SIZE_RATIO \leq mean). Panel A uses gross fund returns and Panel B uses net fund returns. Columns (1) and (2) cluster by month and Columns (3) and (4) cluster by strategy \times month. *t*-statistics are in parentheses.

	1	2	3	4
<i>Panel A: Gross Returns</i>				
Δ CHANGE_IN_PERFORMANCE (%)	-4.05 (-2.32)	-4.52 (-2.02)	-4.05 (-2.21)	-4.52 (-1.96)
Number of Observations	3,822	2,623	3,822	2,623
Cluster by Month	Yes	Yes	No	No
Cluster by Strategy \times Month	No	No	Yes	Yes
Include Fund Characteristics as Controls	No	Yes	No	Yes
<i>Panel B: Net Returns</i>				
Δ CHANGE_IN_PERFORMANCE (%)	-4.04 (-2.31)	-4.55 (-2.04)	-4.04 (-2.20)	-4.55 (-1.94)
Number of Observations	3,822	2,623	3,822	2,623
Cluster by Month	Yes	Yes	No	No
Cluster by Strategy \times Month	No	No	Yes	Yes
Include Fund Characteristics as Controls	No	Yes	No	Yes

Table A2. Change in Size and Fund Performance - Large-Cap Funds

Table A2 reports the results of tests on whether larger increases in fund size result in larger decreases in performance using panel regression models. The dependent variable is the four-factor adjusted monthly returns. Independent variables include a constant, EVENT_PERIOD_DUMMY, CHANGE_IN_SIZE_DUMMY, and EVENT_PERIOD_DUMMY \times CHANGE_IN_SIZE_DUMMY. CHANGE_IN_SIZE_DUMMY is a dummy variable that takes a value of one if the SIZE_RATIO is above the mean and zero otherwise. SIZE_RATIO is calculated using equation (2). Independent variables also include fund characteristics in Columns (2) and (4). AGE is the logarithm of fund age in months. EXPENSE_RATIO is the fund expense ratio. 12B-1_FEE measures the marketing and distribution fee. I include fund contemporaneous and twelve-month lagged turnover in the model, where TURNOVER measures the percentage of a fund's holdings that have changed over the previous 12 months. FLOW is calculated using equation (1). FAMILY_SIZE measures the number of investment objectives in a fund family. SPILLOVER_EFFECT is a dummy variable that takes a value of one if the fund is from a family having star funds and takes a value of zero otherwise. A star fund has performance in the top five percent of all funds with the same investment objective. I report Δ CHANGE_IN_PERFORMANCE in this table to be consistent with previous performance tests. The parameter estimates for the other independent variables are not reported for brevity. Δ CHANGE_IN_PERFORMANCE is the difference of changes in annualized Carhart alpha between funds with larger change in size (SIZE_RATIO>mean) and those with smaller change in size (SIZE_RATIO \leq mean). Panel A uses gross fund returns and Panel B uses net fund returns. Columns (1) and (2) cluster by month and Columns (3) and (4) cluster by strategy \times month. *t*-statistics are in parentheses.

	1	2	3	4
<i>Panel A: Gross Returns</i>				
Δ CHANGE_IN_PERFORMANCE (%)	-0.58 (-0.92)	-0.36 (-0.49)	-0.58 (-0.92)	-0.36 (-0.47)
Number of Observations	804	541	804	541
Cluster by Month	Yes	Yes	No	No
Cluster by Strategy \times Month	No	No	Yes	Yes
Include Fund Characteristics as Controls	No	Yes	No	Yes
<i>Panel B: Net Returns</i>				
Δ CHANGE_IN_PERFORMANCE (%)	-0.51 (-0.81)	-0.34 (-0.46)	-0.51 (-0.81)	-0.34 (-0.45)
Number of Observations	804	541	804	541
Cluster by Month	Yes	Yes	No	No
Cluster by Strategy \times Month	No	No	Yes	Yes
Include Fund Characteristics as Controls	No	Yes	No	Yes

Table A3. Robustness: Fund Performance Declines after Mergers - Addressing Omitted-Variable Bias (Exclude 18 Months)

Table A3 reports the change in performance resulting from mergers after addressing the concern of omitted-variable bias. I exclude fund returns over the 18 months after mergers and redo the performance test. This performance test takes three steps. First, I run the time-series Carhart four-factor model with EVENT_PERIOD_DUMMY for each fund using returns over the three years before and after a merger. EVENT_PERIOD_DUMMY takes a value of one if it is after a merger and zero before. I collect the factor loadings obtained in the first step and use them to calculate the four-factor adjusted monthly returns for each fund in step two. Step three is a panel regression model, where the dependent variable is the four-factor adjusted monthly returns for each fund obtained in step two, and independent variables include a constant and EVENT_PERIOD_DUMMY. The parameter estimate for EVENT_PERIOD_DUMMY in the panel regression is the average change in Carhart alpha. CHANGE_IN_PERFORMANCE is the change in annualized Carhart alpha. Panel A uses gross fund returns and Panel B uses net fund returns. Columns (1)-(3) cluster by month running the panel regression and Columns (4)-(6) cluster by strategy×month. Columns (1) and (4) report results for all mergers, Columns (2) and (5) report results for within-family mergers, and Columns (3) and (6) for across-family mergers. *t*-statistics are in parentheses.

	1	2	3	4	5	6
	All Mergers	Within- Family Mergers	Across- Family Mergers	All Mergers	Within- Family Mergers	Across- Family Mergers
<i>Panel A: Gross Returns</i>						
CHANGE_IN_PERFORMANCE (%)	-1.47 (-3.21)	-1.44 (-3.17)	-1.50 (-2.53)	-1.47 (-4.85)	-1.44 (-4.40)	-1.50 (-3.72)
Number of Observations	52,069	29,861	22,208	52,069	29,861	22,208
Cluster by Month	Yes	Yes	Yes	No	No	No
Cluster by Strategy×Month	No	No	No	Yes	Yes	Yes
<i>Panel B: Net Returns</i>						
CHANGE_IN_PERFORMANCE (%)	-1.41 (-3.09)	-1.38 (-3.05)	-1.45 (-2.44)	-1.41 (-4.76)	-1.38 (-4.24)	-1.45 (-3.59)
Number of Observations	52,069	29,861	22,208	52,069	29,861	22,208
Cluster by Month	Yes	Yes	Yes	No	No	No
Cluster by Strategy×Month	No	No	No	Yes	Yes	Yes

Table A4. Robustness: Fund Performance Declines after Mergers - Addressing Omitted-Variable Bias (Exclude 24 Months)

Table A4 reports the change in performance resulting from mergers after addressing the concern of omitted-variable bias. I exclude fund returns over the 24 months after mergers and redo the performance test. This performance test takes three steps. First, I run the time-series Carhart four-factor model with EVENT_PERIOD_DUMMY for each fund using returns over the three years before and after a merger. EVENT_PERIOD_DUMMY takes a value of one if it is after a merger and zero before. I collect the factor loadings obtained in the first step and use them to calculate the four-factor adjusted monthly returns for each fund in step two. Step three is a panel regression model, where the dependent variable is the four-factor adjusted monthly returns for each fund obtained in step two, and independent variables include a constant and EVENT_PERIOD_DUMMY. The parameter estimate for EVENT_PERIOD_DUMMY in the panel regression is the average change in Carhart alpha. CHANGE_IN_PERFORMANCE is the change in annualized Carhart alpha. Panel A uses gross fund returns and Panel B uses net fund returns. Columns (1)-(3) cluster by month running the panel regression and Columns (4)-(6) cluster by strategy×month. Columns (1) and (4) report results for all mergers, Columns (2) and (5) report results for within-family mergers, and Columns (3) and (6) for across-family mergers. *t*-statistics are in parentheses.

	1	2	3	4	5	6
	All Mergers	Within- Family Mergers	Across- Family Mergers	All Mergers	Within- Family Mergers	Across- Family Mergers
<i>Panel A: Gross Returns</i>						
CHANGE_IN_PERFORMANCE (%)	−1.31 (−2.62)	−1.24 (−2.37)	−1.41 (−2.25)	−1.31 (−3.87)	−1.24 (−3.26)	−1.41 (−3.17)
Number of Observations	43,897	24,843	19,054	43,897	24,843	19,054
Cluster by Month	Yes	Yes	Yes	No	No	No
Cluster by Strategy×Month	No	No	No	Yes	Yes	Yes
<i>Panel B: Net Returns</i>						
CHANGE_IN_PERFORMANCE (%)	−1.26 (−2.50)	−1.18 (−2.27)	−1.35 (−2.15)	−1.26 (−3.70)	−1.18 (−3.11)	−1.35 (−3.04)
Number of Observations	43,897	24,843	19,054	43,897	24,843	19,054
Cluster by Month	Yes	Yes	Yes	No	No	No
Cluster by Strategy×Month	No	No	No	Yes	Yes	Yes