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Mutual Fund Company Mergers and Their Impact on Investment Flows

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Abstract: The involvement of funds management companies in recent mergers and acquisitions raises the question of whether or not investors discern value in the transactions. This paper examines the response of mutual fund investors to mergers of mutual fund companies occurring in Australia between 1995 and 1999. Findings from a matching-control technique employed to analyse the impact of mergers on excess money in and out of open and closed funds involved in the transactions suggest that mergers lead investors to withdraw from the target funds prior to and after the merger. An alternative method confirms that funds acquired in mergers do not experience improved money and shareholder account flows relative to a control sample. Cross-sectional analyses show that despite the lack of statistically significant revenue synergistic gains from mergers, funds belonging to specialist mutual fund companies record more gains in assets under management than declines following mergers, and that money inflow gains at competing funds seem to induce reductions of management expense ratios at target funds.

Keywords: Fundmanagers; Investment flows

1. INTRODUCTION

This paper analyses the response of Australian mutual fund investors to the acquisition of fund management companies in whose units they are invested.

Using a control sample constructed on the basis of sharing the same investment objective, comparable past returns and similar size as a fund subject to a merger and another control sample based on fund size growth prior to mergers, we examine the following issues in respect of funds that are open to new investors. (a) Do cumulative excess money inflows into target funds improve significantly following mergers? (b) Do shareholder account numbers increase significantly? We find that mergers seem to lead investors to withdraw from acquired funds prior to and after the merger.

Cross-sectional analyses reveal that mutual funds that belong to specialist fund management companies post more gains than declines of assets under management following mergers of their parent companies compared to funds within financial services conglomerates. We also find that increases in assets under management at funds in direct competition to the target funds are related to downward adjustments of management expense ratios at the target funds.

The rest of the paper is arranged as follows. Section 2 provides a background to the consolidation of the managed fund industry and the predictions of merger theories. The data, samples and methodology are discussed in Section 3. Section 4 outlines the findings of this study whilst Section 5 summarises and concludes.

2. BACKGROUND AND MERGER THEORIES

There are suggestions in empirical literature that 'size' is 'bad' for fund investors. Grinblatt and Titman [1989] document that positive abnormal performance exists in growth funds and low net asset value funds. However, expenses wipe out the gains from return performance. Perold and Salomon [1991] show that the economic value added by fund managers diminishes once a fund's size exceeds a certain optimal level due to diseconomies of scale in research and trading costs. Zheng [1999] confirms that it is new money flowing into small funds rather than large ones that earns superior returns.

A substantial literature proving persistence in the performance ability of fund managers¹ suggests

¹ See for example Hendricks et al. [1993]; Grinblatt et al. [1995]; Gruber [1996]; Elton et al. [1996]; Chevalier and Ellison [1999]; and Allen and Tan [1999].

that investors should flock to past high performers, see: Gruber [1996] and Zheng [1999]. Investors respond asymmetrically towards poor performers [see for example, Ippolito, 1992; and Sirri and Tufano, 1998].

We analyse retail funds because retail mutual fund investor behaviour is fundamentally different from that of institutional investors. [see for example Sirri and Tufano, 1998; and Sawicki, 2000].

3. DATA AND METHODOLOGY

We study funds involved in the merger of their holding companies split into two event samples – funds that are open to investors and funds that have been closed to new investors around the time of the merger. The largest sample, of which all other samples of merging funds are subsets, consists of 201 open funds and 131 closed funds. We examine money inflows (outflows) and movements in shareholder numbers before and after 17 mergers that occurred between 1995 and 1999. The sample spans different types of financial undertakings and covers mergers between investment management firms, transactions involving the acquisition of boutique fund management companies by larger financial institutions and deals between financial holding companies with managed fund divisions. The event date is defined as the quarter in which the merger takes effect as disclosed in publicly available company and news articles.

For each fund we utilise two sets of matched control funds both based initially on fund investment objective and then on performance, and asset growth and size, respectively. The first matching sample, also used by Fernando et al. [1999] is the investment – category – return – size – matched sample, (henceforth “the return-size-matched sample”) that controls for the effects of past performance and fund size on new money flows. Such control is necessary because there is evidence that funds posting higher returns tend to attract more investors on average than poorer performing funds. [See Patel et al. 1992 for proof on equity mutual funds and Lakonishok et al. 1992 for the case of money market funds].

Sirri and Tufano [1998] show that the persistence of mutual fund inflows is more evident in small funds. Following Rozeff [1998] we therefore create the second matching sample, the investment-category-growth-size-matched sample, (“the growth-size matched sample”) of non-merging funds. Each fund in the target sample is matched with a non-merging fund on investment objective and asset-size growth in the year preceding the merger and then on total asset value.

It is the matching process itself that controls for the persistence of inflow.

The mutual fund data are from the ASSIRT Library compiled by ASSIRT Ratings Agency.²

To facilitate the analysis, we adopt an event-time structure for all periods – thus the merger quarter (year) is designated Quarter t (Year 0). Having constructed the matched samples, we separately compute excess inflows and track shareholder movements for the return-size control and growth control matched samples.

We compute the pre- and post-merger unexpected inflow of new money for each target fund using a regression model similar to Fernando et al. [1999]. This involves first pooling the target and net-assets matched funds and then regressing the inflow of new money in Quarter $(t-1)$ on the inflow of new money in Quarter $(t-2)$. Secondly, we use the intercept and slope coefficients and the actual inflow of new money in Quarter $(t-1)$ to calculate the expected inflow in Quarter t .³ The unexpected inflow is calculated as the difference between the actual inflow in Quarter t and the expected inflow. Excess inflow is the difference in this unexpected inflow between the sample and matched funds.

For the unexpected and excess inflows of new money in the post-merger quarterly periods, the procedure is similar to the one outlined above in all respects except that the estimation of subsequent period unexpected and excess inflows regresses the expected inflow of new money in Quarter $(t-1)$ (rather than the relevant period's actual money inflows) on the inflows in Quarter $(t-2)$ and use Quarter $(t-1)$ inflows to estimate the expected returns for each post-merger quarter. This procedure avoids look-ahead bias by controlling for possible size and return effects since the return-size-matched funds have been selected on that basis.

The excess inflow for the growth-control-matched sample is calculated as the difference between the inflow of new money into the target fund and the inflow of new money into the growth-control matching fund, expressed as a percentage of the respective fund's net assets. In addition we also develop for this sample an estimate of net shareholder account numbers for the target and match funds in the year prior to the merger and the year of the merger.

² ASSIRT is the largest fund rating company in Australia.

³ EXPECTED FLOW Quarter $t = 0.5425 + (0.2247 * \text{FLOW Quarter } t-1)$ [$R^2=0.18$; F -statistic = 8.22], and for closed funds the equation is: EXPECTED FLOW Quarter $t = 0.6178 + (0.0700 * \text{FLOW Quarter } t-1)$ [$R^2=0.07$; F -statistic = 18.98].

Table 1 Summary Statistics and Analysis of Excess Inflows into Return-Size-Matched Target and Control Funds.

	Mean	Median	Sample Size	t-Statistic	Quarter	Mean	Median	Sample Size	t-Statistic
Panel A: Excess Inflow (Outflow) into Open Target Funds					Panel B: Excess Inflow (Outflow) from Closed Target Funds				
<i>t</i> -2	-0.061	0.647	201	-0.07	<i>t</i> -2	1.312	0.013	131	1.05
<i>t</i> -1	-1.558	-0.187	201	-2.74***	<i>t</i> -1	-0.172	-0.057	131	-0.32
<i>t</i> 0	0.397	0.147	201	0.82	<i>t</i> 0	-0.171	-0.012	131	-1.35
<i>t</i> +1	-0.158	-0.007	201	-0.32	<i>t</i> +1	-0.406	-0.010	131	-1.45
<i>t</i> +2	-0.833	-0.041	201	-1.98**	<i>t</i> +2	-0.439	-0.001	131	-1.59
<i>t</i> +3	-0.762	-0.026	201	-2.09**	<i>t</i> +3	-0.803	-0.035	131	-2.96***
<i>t</i> +4	1.027	0.016	201	1.42	<i>t</i> +4	-0.543	-0.010	131	-1.37
Panel C: Cumulative Excess Inflow (Outflow) into Open Target Funds Measured from Quarter (<i>t</i> 0)					Panel D: Cumulative Excess Inflow (Outflow) from Closed Target Funds Measured from Quarter (<i>t</i> 0)				
<i>t</i> +1	0.239	0.050	201	0.29	<i>T</i> +1	-0.577	0.009	131	-1.55
<i>t</i> +2	-0.594	1.164	201	-0.68	<i>t</i> +2	-1.015	0.007	131	-1.82*
<i>t</i> +3	-1.356	-0.026	201	-1.37	<i>t</i> +3	-1.818	0.005	131	-2.48***
<i>t</i> +4	-0.330	-0.044	201	-0.26	<i>t</i> +4	-2.361	0.002	131	-2.48***

Notes: *t*-Statistics are adjusted for heteroskedasticity (White's correction)

* Significant at 10% level ** Significant at 5% level *** Significant at 1% level

This table summarises the analysis we perform on the excess inflow computed for each target fund. We utilise a regression model to compute the pre- and post-merger unexpected inflow of new money for each target fund by firstly pooling the target and net-assets matched funds and then regressing the inflow of new money in Quarter (*t*-1) on the inflow of new money in Quarter (*t*-2). Secondly, we use the intercept and slope coefficients and the actual inflow of new money in Quarter (*t*-1) to calculate the expected inflow in Quarter (*t*0). For open funds the equation is $EXPECTED\ FLOW_{Quarter\ t} = 0.5425 + (0.2247 * FLOW_{Quarter\ t-1})$ [$R^2=0.18$; F -statistic = 88.22], and for closed funds the equation is $EXPECTED\ FLOW_{Quarter\ t} = 0.6178 + (0.0700 * FLOW_{Quarter\ t-1})$ [$R^2=0.07$; F -statistic = 18.98]. The unexpected inflow is the difference between the actual inflow in Quarter (*t*0) and the expected inflow. Excess inflow is the difference in this unexpected inflow between the sample and matched funds. For the unexpected and excess inflows of new money in the post-merger quarterly periods, the procedure is similar to the one outlined above in all respects except that the estimation of subsequent period unexpected and excess inflows regresses the expected inflow of new money in Quarter (*t*-1) (rather than the relevant period's actual money inflows) on the inflows in Quarter (*t*-2) and use Quarter (*t*-1) inflows to estimate the expected returns for each post-merger quarter. In this Table, *t*-statistics are calculated using a two way test for open funds and a one-way test for closed funds.

For each quarter of these two years we estimate the number of shareholders as the average total net assets divided by the average price. This measure serves to confirm the results of the analysis of excess inflows estimated for the growth-control-matched sample.

4. RESULTS

4.1 Return-Size-Matched Sample

Table 1 Panel A shows that for open funds there are negative average excess inflows in the two quarters preceding the merger and the three quarters following the transaction. However, the figures are only significant in Quarter (*t*-1), Quarter (*t*+2) and Quarter (*t*+3). In the merger quarter positive excess inflows are recorded even though they are not statistically significant.

Funds that are closed to new investors can only experience negative net money flows. However, the rate of the outflows could differ between merger targets and control funds owing to investors' anticipation of a merger-induced revival of fortunes for the target funds. An opposite

sentiment would be evidenced by excess outflows. This appears to be the case in this study. All the quarters except Quarter (*t*-2) post negative excess flows for the target funds. (Table 1, Panel B). The only statistically significant result is for Quarter (*t*+3) though. Perhaps consistent with the results for the open funds, the merger quarter experiences the lowest excess outflows. The fact that the results are not more decisive for closed funds is not surprising as empirical evidence suggests that funds appear to close following sustained poor performance. [See for example Brown and Goetzmann 1995; Lunde et al. 1999]. It could well be that investors do not have any reason to see upside potential in the closed funds notwithstanding the merger.

The results above are generally corroborated by the analysis of cumulative excess inflows (Table 1 Panel C and Panel D). Although the positive inflows in the merger quarter for open funds results contributes to positive cumulative excess inflows in the first post-merger quarter, this result is not statistically significant. The results for closed funds show statistically significant accelerated withdrawals by investors in the last three quarters of the post-merger year.

For the tests performed on both open and closed funds, we check whether the target funds in the smaller half of the sample (measured by asset size immediately before the merger) experienced a markedly different flow performance than the bigger half. We found that there is no meaningful difference.⁴

4.2 Growth-Size-Matched Sample

Table 2 shows summary size statistics and key statistics on the analysis of excess inflows and excess shareholder accounts for growth-matched target and control funds. Panel A shows that there is a general decline in the average amount of assets under management in open funds measured from \$39,529 million (\$67,391 million) in Quarter (t-4) through \$57,242 million (\$57,242 million) in Quarter t to \$48,539 (\$27,375 million) in Quarter (t+4) for target (match) funds. We take this apparent general correlation as the result of the matching process. Correspondingly the general trend for closed funds is an appreciation in assets under management that could indicate the general inertia in closed fund investor actions noted above.⁵

To disentangle the implications of these trends for excess inflows, in Panel B we report that there are positive average excess flows for both open and closed funds in Quarter t0 - \$0.770 million and \$1.41 million, respectively. However, as with other quarters the excess flows (outflows) are not statistically significant. We conclude that despite the mergers, the target funds' inflows neither appreciate nor decline any more rapidly than funds that are not subject to mergers. The negative flows are significant for Quarter (t+3) and Quarter (t+4) for closed funds. To confirm these results an analysis of shareholder account numbers on an annual basis shows statistically insignificant excess shareholder numbers for open funds and a statistically significant decline for closed funds.⁶

A comparison of these results with those for the return-size-matched-control sample shows that there are pre-merger negative excess flows in Quarter (t-2) and Quarter (t-1) regardless of the matching procedure. Similarly the post-merger flow performance is similar for the two samples

⁴ In results not reported here, the larger half posted slightly higher average excess returns in the merger quarter than the smaller half but this result was not statistically significant.

⁵ For closed funds, the increase in assets under management is, of course, a result of capital appreciation.

⁶ As in the case of the return-size-matched-control sample tests of whether larger funds behave differently from smaller funds in terms of excess money and shareholder account inflows do not detect any material difference.

except in Quarter (t+2) for open funds and Quarter (t+1) for closed funds. Panel C shows statistically insignificant positive cumulative excess inflows into target funds. As highlighted in Table 2 the control funds are larger on average. The analysis generally shows weakly positive excess inflows into the target funds.

In balance, the analyses presented for both the return-size and growth-size matched samples prove that funds that are part of merger transactions do not attract inflows that are comparatively better than those of control funds.

4.3 Cross-sectional Analysis of Revenue Synergistic Effects of Mergers

Some funds may try to counter the problem of investor apathy by reducing management expense ratios. And, investors may choose to move out of certain funds affected by mergers on the basis of the fund-inflow performance of competing funds (data that is readily available in Australia). Thirdly, investors may discriminate between target funds belonging to specialist fund companies and target funds belonging to larger financial services conglomerates.

To test whether the merger effects of fund inflows are conditioned on the cross-sectional factors described above, we estimate the following model for the growth-size-matched sample of open funds subject to mergers:

$$\text{NAVCHANGE}_j = \lambda_0 + \lambda_1 \text{MERCHANGE}_j + \lambda_2 \text{MATCHGROWTH}_j + \lambda_3 \text{SPECIALIST}_j$$

where

NAVCHANGE_j = percentage change in the net asset value of target fund *j* from the year preceding the merger;

MERCHANGE_j = percentage change in the management expense ratio of target fund *j* from the year preceding the merger;

MATCHGROWTH_j = percentage change in the net asset value of growth-size match for fund *j*; and

SPECIALIST_j = dummy variable that equals 1 when target fund *j* belongs to a specialist funds management company, and 0 otherwise.

The results in Table 3 show that increases in fund net asset values are positively and significantly related to the individual fund's status as part of a specialist funds management company. This finding may imply that mutual fund investors place more value on mergers involving specialist fund managers than on mergers in which the funds management operation is part of a broader financial services concern.

Table 2 Analysis of Excess Inflows into Growth-Matched Target and Control Funds.

Panel A: Descriptive Statistics of Growth-Matched Target and Control Funds									
Quarter	Sample	Open Funds (\$m)			Closed Funds (\$m)			t	t
		Mean	Median	N	Mean	Median	N		
t-4	Target	39.529	12.280	186	16.502	6.040	131		
	Match	67.391	25.872	186	32.386	5.583	131		
t0	Target	31.846	8.772	186	18.915	6.757	131		
	Match	57.242	20.307	186	38.277	6.300	131		
t+4	Target	27.375	8.033	173	22.436	7.510	131		
	Match	48.539	15.367	173	41.463	7.573	131		

Panel B: Analysis of Excess Inflows into Growth-Matched Target and Control Funds									
Quarter	Open Funds (%)				Closed Funds (%)				t
	Mean	Std Dev	N	t	Mean	Std Dev	N	t	
t-4	3.94	39.40	186	1.36	5.73	55.22	119	1.13	
t-3	0.73	26.15	186	0.37	5.35	58.07	119	1.00	
t-2	-0.67	48.00	186	-0.19	-0.28	21.74	119	-0.14	
t-1	-0.21	20.40	186	-0.14	-0.87	13.29	119	-0.72	
t0	0.77	45.08	186	0.23	1.41	18.38	119	0.83	
t+1	-0.71	31.24	186	-0.31	1.65	15.58	119	1.16	
t+2	3.11	25.12	186	1.69*	-0.74	22.02	119	-0.37	
t+3	-2.82	53.39	186	-0.72	-2.25	13.85	119	-1.77**	
t+4	1.14	52.60	173	0.28	4.64	20.73	119	1.33*	

Panel C: Analysis of Cumulative Excess Inflows into Growth-Matched Target and Control Funds Measured from Quarter (t0)					Panel D: Analysis of Excess Increase(Decrease) in Number of Shareholder Accounts											
Quarter	Open Funds (%)			t	Closed Funds (%)			Year	Open Funds (%)		Closed Funds (%)					
	Mean	Std Dev	N		Mean	Std Dev	N		Mean	N	Mean	N				
t-4	0.06	49.40	173	0.02	3.01	14.93	119	1.21	-1	-2.95	153	-0.8	-	104	-0.29	
t-3	3.17	53.47	173	0.81	2.79	25.92	119	0.97	0	2.35	153	0.26	4.114	-	104	-1.92**
t-2	0.35	75.04	173	0.06	0.06	30.25	119	0.02					24.99			
t-1	3.15	89.91	173	0.46	3.11	31.85	119	1.05								

t-Statistics are adjusted for heteroscedasticity (White's correction) *Significant at 10% level ** Significant at 5% level

Descriptive statistics for the average and median dollar sizes of the target and control funds matched on historical growth and then on size are presented in Panel A of this Table. Key statistics from the analysis of excess inflows, computed as the difference in fund-size scaled percentage inflows between the target and corresponding match funds, are reported in Panel B. Panel C shows an analysis of cumulative excess inflows measured from Quarter t0. Panel D carries the analysis of excess shareholder accounts in the year prior to the merger and the merger year computed as the average total net assets divided by the average price. In Panel B, Panel C and Panel D the t-statistics are calculated using two-way and one-way tests for open and closed funds respectively.

Table 3 Cross-sectional analysis of revenue synergistic effects of mergers.

$$(Model: NAVCHANGE_j = \lambda_0 + \lambda_1.MERCHANGE_j + \lambda_2.MATCHGROWTH_j + \lambda_3.SPECIALIST_j)$$

Variable	Coefficient	t-statistic	Notes: The variables are defined as follows:
Intercept	-0.1249	-2.8784**	NAVCHANGE _j = percentage change in net asset value of target fund j from the year preceding the merger;
MERCHANGE	11.4695	0.303	MERCHANGE _j = percentage change in the management expense ratio of target fund j from the year preceding the merger;
MATCHGROWTH	0.1929	1.0142	MATCHGROWTH _j = percentage change in the net asset value of growth-size match for fund j; and
SPECIALIST	0.4441	2.3218*	SPECIALIST _j = dummy variable that equals 1 when target fund j belongs to a specialist funds management company, and 0 otherwise.
F 2.8562		Adj. R ² 0.0718	R ² 0.1105
			N 112

t-Statistics are adjusted for heteroscedasticity (White's correction) ** Significant at 5% level *** Significant at 1% level

Although the amount of assets under management is positively related to management expense ratios and the success of competing funds to attract additional money inflows, the relationship is weak.

5. CONCLUSION

In this study we sought to empirically test whether mutual fund investors react positively to the finalisation of merger transactions involving funds to which they have an exposure.

We conclude that if the methodology we adopted successfully controls, as is apparent, for factors that normally influence mutual fund inflows, investors do not reward funds for being part of merger transactions.

Using cross-sectional regression analyses we find that mutual funds that belong to specialist funds management companies post more gains than declines of assets under management following mergers of their parent companies compared to funds within merging financial services conglomerates.

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