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Are Fund Investors Treated Fairly? An Investigation of Taiwan Fund Company Strategies

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Abstract

This paper aims to explore whether a corporate-level strategy exists among fund companies that drives them to maximize the company's interest at the expense of fiduciary duties to stakeholders. The results show a significant difference between high-value and low-value fund returns within the same fund company. In addition, this difference is significantly bigger in domestic fund companies than in foreign-capital fund companies, especially in high-tech funds. Our study suggests that a fund company's self-discipline, internal control and audit regulation, as well as on-site examination of governmental authority and functional enhancement of custodian banks become increasingly important in the asset management industry.

Keywords

Mutual Fund, Fund Family Strategy, Favoritism, Opposite Trade, Initial Public Offering

1. Introduction

Over the last two decades, mutual funds have been among the fastest-growing investment vehicles in the Taiwan financial industry. From 2000 to 2014, the total net management assets of mutual fund companies rose from NTD $316 billion to NTD $3244 billion, according to the Securities Investment Trust & Consulting Association of the TAIWAN (SITCA). Although the flow of new money has levelled off in recent years for onshore funds, the mutual fund industry remains important in the Taiwan economy. According to SITCA, at the end of 2014, there were 672 various types of onshore, open-end mutual funds, with a

total net management asset of NTD $1974 billion. Mutual funds offer several advantages such as diversified portfolios, better research quality, good liquidity, and various product choices that make them indispensable financial instruments for the public. Since 2001, when the public-service pension fund was entrusted to Taiwan or foreign-capital mutual fund companies to conduct discretionary investment business, such investments have been among the main methods of managing pension funds for the Taiwan officials. Given the importance of mutual funds in the economy, a key issue for academics, regulators, practitioners, and individual investors is determining the possibility of conflicts of interest or agency problems within the industry.

Although mutual fund companies may be a valuable source for financially sophisticated investors who count on the management expertise, some managers might have questionable objectives that do not necessarily benefit their clients. Lowenstein (2008) indicates that "there is a profound conflict of interest built into the fund industry's structure" and that, "the management companies are independently owned, separate from the funds themselves, and fund managers profit by maximizing the assets under management because their fees are based on assets, not performance" (Lowenstein, 2008: preface p. 2).

"Mutual fund managers face various incentives that have an impact on their risk taking" (Kempf, Ruenzi, and Thiele, 2009: p. 106). Ma, Tang, and Gomez (2019) suggest that explicit performance-based incentives and deferred compensation are more prevalent when the intensity of potential agency conflicts is higher. Therefore, in addition to the possibility that fund managers might be engaged in behaviour to benefit themselves (Grinblatt, Titman, and Wermers, 1995; Chevalier and Ellison, 1997; Hong, Kubik, and Stein, 2005; Carhart, Kaniel, Musto, and Reed, 2002; Agarwal, Gay, and Ling, 2014), fund companies might also coordinate their actions to pursue certain strategies that maximize fund assets at investor expense (Gaspar, Massa, and Matos, 2006). Previous literature has found evidence of fund families' conflict of interest strategies (Bhattacharya, Lee, and Pool, 2013; Casavecchia and Tiwari, 2016; Chuprinin, Massa, and Schumacher, 2015; Eisele, Nefedova, and Parise, 2016; Evans, 2010; Ferris and Yan, 2007; Verbeek and Huij, 2007; Massa, 2003; Nanda, Wang, and Zheng, 2004; Zhao, 2004). Given the well-documented relationship between fund flows and performance in prior literature (Chevalier and Ellision, 1997; Del Guercio and Tkac, 2002; Goetzmann and Peles, 1997; Gruber, 1996; Shu, Yeh, and Yamada, 2002; Sirri and Tufano, 1998), it is evident that fund families would like to increase performance in order to increase fund flows. Gaspar et al. (2006) find that fund families use family-level strategies to enhance better-performing funds at the expense of worse-performing funds. Based on findings from related foreign literature, mutual fund families adopt family-level strategies that are detrimental to their investors. Is this also the case in Taiwan's fund companies? Heretofore, little has been known about the layer of corporate-level strategies that may more directly impact fund performances in the fund industry.

The scandalous behaviour by fund families and managers that occurred in the U.S. asset management industry in 2003 has intensified the need for mutual fund governance and information disclosure. A more recent stock trading scandal in 2010 (Ablerex Electronics' stock price manipulation), as well as the findings of related literature, also provides a warning for us. Could Taiwan fund companies engage in the same kind of misconduct? As Taiwan's mutual fund business model is similar to that of the U.S. in many ways, it is theoretically possible. For instance, fund management companies charge fees based on assets under management, thus a fund's performance does not necessarily affect a manager's compensation. Several fund companies were penalized by the Financial Supervisory Commission for engaging in collective swindles defrauding the government (the Labour Insurance and the Labour Pension funds) and other open-end funds (Chu, 2013). Has Taiwan learned lessons from related foreign literature and practitioners? Do fund companies treat investors—that is, one of their stakeholders—fairly? This work seeks to answer the question: Do fund management companies treat investors fairly or does a conflict of interest exist between fund shareholders and fund companies?

In this paper, we investigate whether fund companies actively implement corporate-level strategies to boost specific funds to pursue their own interests at investor expense. Three questions are examined. First, we explore whether strategic favouritism is used to boost the performance of high-performing funds at the expense of poorly performing funds. Since Taiwan and foreign-capital fund companies both compete to tender for government funds' discretionary investment business, is there a difference in corporate-level favouritism between the fund companies? Second, we study whether fund companies execute opposite trading among their member funds to maximize firm value at the expense of investors. Third, we investigate whether fund companies execute favouritism strategies for specific funds and thereby allocate more initial public offerings (IPOs) to such funds.

The results reveal that a significantly positive difference exists between high-value and low-value net-of-style fund returns within the same fund company when the funds are classified by past performance. In addition, the difference between Taiwan and foreign-capital fund companies is significant, with a gap of approximately 0.8%. In other words, strategies that favour past high-performing funds over past low-performing funds seem to be prevalent in Taiwan fund companies, which causes higher heterogeneity in fund performances in Taiwan fund companies than in foreign-capital fund companies. Yet further empirical results do not imply reverse cross trading or preferential IPO allocations within the fund companies.

The link between type of fund companies (Taiwan and foreign-capital fund companies) and fund company strategy has never been investigated. This research conducts an empirical study of the Taiwan asset management industry to address deficiencies in the current academic literature on family-level fund

strategies. We test a sample of 194 Taiwan open-end funds—both Taiwan equity and balanced funds—from January 2001 to June 2013. Previous studies have generally analysed larger capital markets such as the U.S. asset management industry. The current work should allow for comparisons between differences in agency problems based on fund markets of various sizes and liquidity by looking at a small and thinly traded market.

2. Literature Review

Over the past decade, the study of family-level fund strategy has developed rapidly and the findings have attracted much attention. Massa (1998) argues that market segmentation and fund proliferation can be seen as marketing strategies used by the families to utilize investors' heterogeneity. Massa (2003) shows that fund families actively exploit heterogeneity among funds and that product differentiation affects performance and fund proliferation; in particular, the degree of product differentiation negatively affects performance and positively affects fund proliferation. Khorana and Servaes (1999) investigate the determinants of mutual fund initiation and find that such initiations are positively related to the ability of families to generate additional fee income. Their results indicate that families may use different methods to disguise poor performance. Nanda et al. (2004) document that fund families seek to generate star funds by increasing their cross-fund return variance, or the number of funds, since a star performance results in greater cash inflow to the focal fund and others within the same family. In addition, families with a higher variation in investment strategies across funds are more likely to generate a star performance, as well as significantly underperform when compared with low-variation families, yet investors do not seem to benefit from such strategies in terms of subsequent period returns. Guedj and Papastaikoudi (2004) show that the better-performing funds in a family have a higher probability of gaining more managers, which is a significant available resource. They argue that performance persistence is more prevalent within big fund families, consistent with the view that families allocate resources in proportion to fund performance, not to fund needs.

Zhao (2004) documents that spillover effects may drive a fund family's closing strategy; that is, such strategy is not a legitimate argument for preserving a fund's good performance claimed by fund families. He also shows that closing strategy is effective in generating higher inflow into the rest of the family and that fund families systematically supplement closed funds with new ones. Gaspar et al. (2006) provide evidence that fund families actively pursue a direct family strategy of enhancing the performance of high-value funds, which are more likely to increase overall family profits at the expense of other, low-value funds. Their empirical results also show a positive relationship between both favouritism and preferential treatment of allocating underpriced IPO deals on the one hand, and the number of opposite-sign trades among funds belonging to the

same fund families on the other. Verbeek and Huij (2007) capture a statistically significant marketing spillover effect in mutual fund families, which suggests that conflict of interest between investors and fund families has deteriorated by competition in the mutual fund industry.

Ferris and Yan (2007) study the two potential agency conflicts involving the fund management company, the fund manager, and fund shareholders for a namesake mutual fund. They find that the average expense ratio of namesake funds is more than 20 basis points higher than other equity funds, which suggests that their insider-dominated boards are less effective than independent boards. Evans (2010) finds that incubation is prevalent in the U.S. equity funds and is used by fund families to increase performance and attract flows, especially by large or broker-sold fund families. Bhattacharya et al. (2013) analyse whether affiliated funds of mutual funds (AFoMFs) play the role of insurance pools in their families. They show that although AFoMFs offset severe liquidity shortfalls of other funds in their fund complex—which reduces their own investment performance—they also improve the investment performance of mutual funds that receive such liquidity and help the family. However, these benefits come at a cost incurred by AFoMF shareholders.

An emerging literature has examined the influence of fund families' outsourcing. Chen, Hong, Jiang, and Kubik (2013) study the influence of managerial outsourcing on the performance and incentives of mutual funds. The results show that outsourced funds underperform compared with funds run internally by about 52 basis points per year and face higher-powered incentives (such as replacement of fund managers or fund closures). Chuprinin et al. (2015) present outsourcing relationships among international mutual fund companies and show that in-house funds outperform outsourced funds by 0.85% annually. "Compared with outsourced funds, in-house funds are allocated a greater share of IPO stocks and are more likely to purchase a stock before it appreciates, suggesting a strategic and privileged use of information" (Chuprinin et al., 2015: p. 2306).

A recent study on fund families' cross trading has received further consideration. Eisele et al. (2016) present evidence that star funds benefit from cross trading at the expense of junk funds and penalize the fund clients. Casavecchia and Tiwari (2016) investigate the effects of cross trading by fund advisers on the client fund's performance. Their results imply that "cross trading practices of fund advisers are associated with a significant performance penalty for their client mutual funds" (Casavecchia and Tiwari, 2016: p. 122).

While the evidence provided in previous studies is suggestive of the existence of favouritism strategies within fund families and potential conflict of interests in the U.S., the related literature is not able to draw how family-level fund strategy is employed in the Taiwan fund market. In this paper, we provide multiple tests on corporate-level strategies and explain different operation mechanisms within the fund industry.

3. Data

The primary data source consists of 194 open-end, balanced and Taiwan equity funds, and 38 fund companies, with up to 24,950 fund observations from January 2001 to June 2013. The fund data were originally classified into 10 categories: 1) common equity funds, 2) medium-small capital funds, 3) high-tech funds, 4) value stock funds, 5) theme funds, 6) Taiwan enterprise funds, 7) index funds, 8) over the counter (OTC) equity funds, 9) balanced funds-common stocks, and 10) balanced funds-value stocks. Index funds were deleted from the sampling data because they do not provide much flexibility to the fund company in allocating its performance. Each fund contains monthly returns, the monthly total net assets under management and the fund starting date.

All of the sampled data were collected from the Taiwan Economic Journal (TEJ) data bank. The resulting base sample has a total of 187 equity funds (representing over 98% of the total net assets [TNA] of Taiwan equity funds and balanced funds), 31 fund companies, 9 fund categories, and approximately 24,056 fund-month observations over the sample period. To minimize the survivorship bias proposed by Brown, Goetzmann, Ibbotson, and Ross (1992), all of the available funds that existed during the sampling period were included in the data set, and only the funds with less than six months of monthly data were eliminated.

Table 1 shows the summary statistics of monthly fund data for the testing period, January 2001 to June 2013. The funds in the sample period have average monthly total net assets worth NTD $1.76 billion and are 14.64 years old. Each fund company has an average of 4 funds managing monthly assets of NTD $14.16 billion and is 19.44 years old. Table 2 displays the percentage of monthly observations for each fund category in the sample data and shows that fund companies have higher product concentrations in common stock funds (46.22%) and high-tech funds (17.74%).

4. Methodology

To implement our first test—that is, to determine if corporate-level favouritism strategy is used to boost the performance of high-performing funds at the expense of poorly performing funds and if strategic favouritism exists between foreign-

Table 1. Descriptive statistics of fund monthly data from January 2001 to June 2013.

Variable	N	Mean	Std. Dev.	Minimum	Maximum
Monthly Return (%)	24,056	0.7372	7.2679	−27.7998	42.6048
TNA (NT$1000)	24,056	1,762,762	2,004,917	22,681	22,522,201
Number of Funds	24,056	4.0663	2.7832	2	14.00
Age	24,056	14.6414	4.3206	0.9166	27.4166
Fund Company Age	24,056	19.4427	4.7183	2.3333	30.4166
Company TNA (NT$1000)	24,056	14,155,480	11,955,117	118,691	79,622,207

Table 2. The percentage of monthly observations for each fund category.

Fund Category	Frequency	Percentage	Cumulative Frequency	Cumulative Percentage
(1) Common stock funds	11,531	46.22	11,531	46.22
(2) Medium-small capital funds	2779	11.14	14,310	57.35
(3) Taiwan enterprise funds	879	3.52	15,189	60.88
(4) High-tech funds	4427	17.74	19,616	78.62
(5) Theme funds	150	0.60	19,766	79.22
(6) Value stocks funds	878	3.52	20,644	82.74
(7) OTC equity funds	900	3.61	21,544	86.35
(8) Balanced funds-common stocks	2657	10.65	24,201	97.00
(9) Balanced funds-value stocks	749	3.00	24,950	100.00

capital and Taiwan fund companies—we follow the methodology of Gaspar et al. (2006) and amend the testing model as shown in Equation (1). The year-to-date return is used as a fund performance measure. Following Brown, Harlow, and Starks (1996), Chevalier and Ellison (1997), and Gaspar et al. (2006), we adopt a year-to-date return (the return of the fund since January of the current year), and eliminate the funds with less than six months of return history. We use the fund's rudimentary return because influential fund-listing providers such as Morningstar, as well as most of the financial press, usually report and rank fund performance in terms of year-to-date returns.

Following the approach of Gaspar et al. (2006: p. 83), we carry out the tests by using "fund pairs" composed of one high-value fund and one low-value fund from the same company, which are formed as the "actual pair". We also construct the "matched pair", for which the low value fund is a very similar fund in the same investment style. We then calculate the net-of-style return of each fund for both the "actual pair" and the "matched pair". Then it is only necessary to calculate the difference in net returns between the high value and low value funds. In our data sample, fund companies with only one fund are eliminated from the testing sample, hence, the total number of funds managed by a fund company ranges from 2 to 14. A fund with a performance above (below) the 75th (25th) percentile of its peer funds in the same category is classified as a high- (low-) value fund. In other words, a high- (low-) performing fund is a fund that is in the top (bottom) quartile of its peer funds in terms of year-to-date return within the same fund category.

Next, we put all of the actual and the matched pairs into a column vector to investigate if a significant difference exists between the actual pair and the matched pair net-return differences. Below is the multivariate regression model:

$$Net\_return_{i,t}^{High} - Net\_return_{j,t}^{Low}$$
$$= \alpha_0 + \alpha_1 \left(Same_{company} \right) + \alpha_2 \left(Same_{category} \right) + \alpha_3 FD + \alpha_4 FD \left(Same_{company} \right) \quad (1)$$
$$+ \alpha_5 FD \left(Same_{category} \right) + controls + \varepsilon_{i,s,f,t}$$

where

$Net\_return_{i,t}^{High}$: The net-of-style performance at time t of a fund i that is a "high-value" fund;

$Net\_return_{j,t}^{Low}$: The net-of-style performance at time t of a fund j that is a "low-value" fund;

$Same_{company}$: A dummy variable that takes the value of 1 if funds i and j are members of the same fund company (i.e., an "actual pair") and the value of 0 otherwise (i.e., a "matched pair");

$Same_{category}$: A dummy variable that takes the value of 1 if funds i and j belong to the same investment category;

FD: A dummy variable that takes the value of 1 if funds i and j are members of the foreign-capital fund company and the value of 0 otherwise (i.e., the Taiwan fund company); and

$Controls$: The control variables, which include the fund age, the total net asset of a single fund, the fund company's age, and the fund company's size (i.e., the sum of total net assets of Taiwan equity funds and balanced funds belonging to the same company).

We hypothesized that the actual pair net-return differences are significantly greater than those of the matched pairs if a fund company has a favouritism strategy on high-value funds at the expense of low-value funds. If this is the case, the α_1 coefficient is expected to be significantly positive. $FD(Same_{company})$ is an interaction term between the FD and the $Same_{company}$ dummy variable. The α_4 coefficient is expected to be significantly negative if strategic favouritism is more pronounced in Taiwan fund companies than in foreign-capital fund companies.

To examine the second research question—whether the fund companies engage in opposite cross trading among funds belonging to the same companies—we use the model and the methodology employed by Gaspar et al. (2006) as follows:

$$
\begin{aligned}
Net&\_return_{i,t}^{High} - Net\_return_{i,t}^{Low} \\
&= \beta_0 + \beta_1\left(Same_{company}\right) + \beta_2\left(Same_{category}\right) + \beta_3\left(Opposite_{trades}\right) \\
&\quad + \beta_4\left(Opposite_{trades}\big|Same_{company}\right) + \beta_5 FD + \beta_6 FD\left(Same_{company}\right) \\
&\quad + \beta_7 FD\left(Opposite_{trades}\big|Same_{company}\right) + controls + \varepsilon_{i,s,ft}
\end{aligned}
\tag{2}
$$

where Net_return^{high}, Net_return^{low}, and the dummy variables $Same_{company}$ and $same_{category}$ have been previously defined here. $Opposite_{trades}$ denotes either of the two measures of opposite changes in holdings. Two measures, $opposite_{tradesSUM}$ and $opposite_{tradesMIN}$, are constructed according to the approach of Gaspar et al. (2006: p. 83). The variable ($Opposite_{trades}|Same_{company}$) is an interaction term between the $Opposite_{trades}$ measure and the dummy variable $Same_{company}$. To examine whether any difference exists in strategic opposite cross trading between Taiwan and foreign-capital fund companies, we also add a dummy variable FD, with the same definition used in Equation (1), into Equation (2).

We hypothesized that the existence of any opposite trade affects the net-return differences between actual pairs and matched pairs. In other words, such trades should enlarge the differences between those high-value and low-value net-of-style returns of two member funds of the same company if they are a potential mechanism for a cross-fund subsidy strategy. Therefore, we examine whether the coefficient β_4 is significantly positive in Equation (2).

The third test is to examine whether fund companies actively exploit the preferential treatment of allocating underpriced IPO stocks. We collected all IPO deals completed during our research period from the TEJ data bank. Following Gaspar et al. (2006), any IPO stock at the end of the quarter in which the issue took place was identified from each mutual fund's reported holdings. We than merged this information with both our sample of mutual funds and the fund-holding database. It is hypothesized that the hotter the IPO, the more these shares are allocated to high-value mutual funds.

5. Empirical Results

Table 3 presents a comparison of the characteristics of the resulting high- and low-value funds based on their year-to-date returns. On average, the mean high-value funds yield 12.95% per month since the start of the year compared with a performance of −0.93% for low-value funds.

5.1. Strategic Favouritism within a Fund Company

Table 4 shows the results of the multivariate regression analysis on strategic favouritism. The control variables (the undisplayed coefficients in Table 4) include fund size, fund age, fund company age, and fund company size (i.e., the total management assets of Taiwan equity funds and balanced funds belonging to the same fund companies).

The results of Table 4 report that the coefficient of the variable, $Same_{company}$, is positive and statistically significant when the fund performance is calculated based on the year-to-date returns, consistent with the results of Gaspar et al. (2006). This means that strategic favouritism within the company contributes to approximately 32 basis points (0.32%) of extra net-of-style performance for the funds valued highly in terms of year-to-date returns (with a t-statistic of 2.92 significant at the 1% level). This should be an additional effect to the pre-existing difference between high- and low-value funds given by the intercept term. The

Table 3. A comparison of the characteristics of the resulting high- and low-value funds.

	High Funds	Low Funds	p-val. Diff.
Fund Return[a]	1.6568	−0.3565	<0.0001
TNA[b]	1,803,643	1,648,766	<0.0001
Year-to-Date returns	12.9495	−0.9333	<0.0001

[a]Monthly returns (%). [b]Monthly fund total net asset (NT$1000).

Table 4. The regression coefficient estimates of strategic favoritism.

Variable	(1) Model 1		(2) Model 2	
	Coeff.	t-Stat.	Coeff.	t-Stat.
Intercept	0.1108	0.49	0.4805**	2.13
$Same_{company}$	0.2931***	2.90	0.3207***	2.92
$Same_{category}$	−2.3680***	−46.20	−2.3141***	−40.16
FD			−1.4998***	−25.29
$FD(Same_{company})$			−0.7948***	−2.85
$FD(Same_{category})$			−0.2185*	−1.74
Controls	-	-	-	-
N	305,632		305,632	
Adjusted R^2	0.0257		0.0286	

This table reports regression results of strategic favoritism between high past performers and low past performers in terms of year-to-date returns. Following the approach of Gaspar et al. (2006), we carry out the tests by using "fund pairs" composed of one high-value fund and one low-value fund from the same company, which are formed as the "actual pair". The "matched pair" is constructed by replacing the low-value fund within the same investment style from other fund companies. A fund with a performance above (below) the 75th (25th) percentile of its peer funds in the same category is classified as a high- (low-) value fund. All of the actual and the matched pairs are put into the following regression (Equation (1) in the text):

$$Net\_return_{i,t}^{High} - Net\_return_{j,t}^{Low}$$
$$= \alpha_0 + \alpha_1\left(Same_{company}\right) + \alpha_2\left(Same_{category}\right) + \alpha_3 FD + \alpha_4 FD\left(Same_{company}\right)$$
$$+ \alpha_5 FD\left(Same_{category}\right) + controls + \varepsilon_{i,s,f,t}$$

$Same_{company}$ is a dummy variable that takes the value of 1 if funds i and j are members of the same fund company (i.e., an "actual pair") and the value of 0 otherwise (i.e., a "matched pair"). $Same_{category}$ is a dummy variable that takes the value of 1 if funds i and j belong to the same investment category. FD is a dummy variable that takes the value of 1 if funds i and j are members of the foreign-capital fund company and the value of 0 otherwise (i.e., the Taiwan fund company). $FD(Same_{company})$ is an interaction term between the FD and the $Same_{company}$ dummy variable. $FD(Same_{category})$ is an interaction term between the FD and the $Same_{category}$ dummy variable. *, **, and *** represent the statistical significance at the 10%, 5%, and 1% levels, respectively.

coefficient of the variable, $Same_{category}$, is significant but negative. Notice that the coefficient of $FD(Same_{company})$ results in a significantly negative of −0.7948, which indicates that the difference between high-value and low-value net-of-style returns is even more narrow—around 0.8%—when the two funds are matched up from the same foreign-capital fund company. These results seem to provide a first premonition that the strategic favouritism inside fund companies and that strategic favouritism might be more pronounced in Taiwan fund companies than in foreign-capital fund companies.

To probe the differences in strategic favouritism among different fund categories, we run regression tests by sub-samples for each fund category. The results are displayed in Table 5. The regression tests yield mixed results as listed in Table 5.

Table 5. The regression coefficient estimates of strategic favoritism by each fund category.

Variable	(1) Common Stock		(2) Medium-Small Cap		(3) Taiwan Enterprise Fund	
	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.
Intercept	0.9304***	2.74	8.0043***	10.87	−20.0285***	−15.57
$Same_{company}$	0.1875	1.18	−0.6585**	−2.03	−0.3734	−0.56
$Same_{category}$	−1.5922***	−22.69	−3.7201***	−13.48	0.9176	1.077
FD	−2.7721***	−27.22	−2.9751***	−17.14	3.5323***	9.78
$FD(Same_{company})$	−1.203***	−2.73	0.2835	0.34	0.1302	0.07
$FD(Same_{category})$	1.0314***	6.65	1.3677**	2.29	3.5660	1.49
Controls	-	-	-	-	-	-
N	123,204		43,201		8590	
Adjusted R^2	0.0316		0.0333		0.0925	

Variable	(4) High-Tech Fund		(5) Theme Fund		(6) Value Stocks	
	Coeff.	t-Stat.	Coeff.	(t-Stat.)	Coeff.	(t-Stat.)
Intercept	1.7940***	−3.24	6.2302***	(3.01)	−4.2421***	(−3.52)
$Same_{company}$	0.9393***	3.18	0.9286	(1.30)	−0.8424*	(−1.828)
$Same_{category}$	−3.6293***	−19.60	N.A.		0.1214	(0.2053)
FD	−1.4544***	−12.1	N.A.		0.5867	(1.17)
$FD(Same_{company})$	−1.8679***	−3.17	N.A.		N.A.	
$FD(Same_{category})$	−0.2145	−0.62	N.A.		−5.9886	(−0.60)
Controls	-	-	-		-	
N	59,379		3241		10,869	
Adjusted R^2	0.0349		0.0306		0.0256	

Variable	(7) OTC Equity		(8) Balanced Fund_Common Stocks		(9) Balanced Fund_Value Stocks	
	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.
Intercept	−1.9228	−0.97	9.4956***	18.84	2.3441***	3.01
$Same_{company}$	0.4316	0.56	0.3656	1.49	1.4295***	3.46
$Same_{category}$	−0.5515	−0.41	−5.3800***	−19.79	−7.2066***	−8.50
FD	2.2741***	5.87	−0.4468***	−3.41	−2.1674***	−6.64
$FD(Same_{company})$	1.3409	0.82	−1.4028**	−2.52	N.A.	-
$FD(Same_{category})$	−5.9154**	−2.32	2.6515***	4.72	−5.0608*	−1.75
Controls	-	-	-	-	-	-
N	12,738		32,132		12,278	
Adjusted R^2	0.0131		0.0319		0.0399	

This table reports regression results of strategic favoritism between high past performers and low past performers by each fund category. Please refer to Table 4 for a complete explanation of how the variables are defined. *, **, and *** represent the statistical significance at the 10%, 5%, and 1% levels, respectively. The symbol "N.A." denotes the absence of the observation.

In the category of common stock funds, the coefficient of the $Same_{company}$ is positive but not significant, while we have a significantly negative coefficient of $FD(Same_{company})$. Similar regression results appear in the category of balanced common stock funds. Notice that in the category of high-tech funds, the coefficient of the $Same_{company}$ is significantly positive (around 0.94), and the coefficient of $FD(Same_{company})$ is significantly negative (around −1.87). On the other hand, in the case of balanced value-stock funds, both coefficients of the intercept term and the $Same_{company}$ are significantly positive, while the coefficient of the interaction term $FD(Same_{company})$ is not applicable due to missing data. Combining the results of Table 4 and Table 5, we might preliminarily infer that some latent favouritism strategy exists for high past-performing funds within the same fund companies, especially in the category of high-tech funds. Furthermore, in the category of high-tech funds, the results show a significant difference between high- and low-value net-of-style fund return differences in Taiwan fund companies. In other words, this implies that Taiwan fund companies appear to have larger performance variation between high-value and low-value funds, especially in the category of high-tech funds.

5.2. Strategic Opposite-Sign Trading within a Fund Company

Table 6 shows the regression results of opposite-sign trading. Although we have positive intercept and significantly positive coefficients for the variable $Same_{company}$ (β_1) in both Model (1) and Model (2), the coefficient results of $Opposite_{tradeSUM}|$ $Same_{company}$ (β_4) do not support the testing hypothesis. The testing results do not show apparent evidence that fund companies implement opposite trading among their funds within the same company and that strategic opposite trading differs between the foreign-capital and Taiwan fund companies. We also run regression tests by sub-samples for each fund category for strategic opposite trades. Because of space limitations, the result details are not presented.

5.3. IPO Allocation

Table 7 reports the results on IPO allocations across high-value and low-value funds. Panel A shows that the 503 IPO issues for which mutual funds reported holdings at the quarter end of the issued time earned the same first-day returns (median return) on average (6.23%) as the full IPO issues from January 2001 to June 2013. This is because all of the 503 IPO issues were held at the quarter end by mutual funds in our testing sample. Panel B presents the trading results of preferential IPO allocation. We calculated the average and median first-day returns of all IPO issues for which high-value and low-value mutual funds reported positive holdings at the quarter end. A comparison of the average IPO first-day returns shows statistical insignificant, which is same as the median returns results. This shows that fund companies do not allocate relatively more underpriced IPOs to high performers (320 deals, average first-day return of 5.01%), in contrast to low performers (342 deals, 4.57%).

Table 6. Regression results of strategic opposite trades between high past performers and low past performers.

Variable	Model (1)		Model (2)		Model (3)		Model (4)	
	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.
Intercept	0.43	0.97	0.5045	1.147	0.8884**	2.02	0.9658**	2.20
FD (β_5)					−1.9311***	−18.71	−1.9348***	−18.75
$Same_{company}$ (β_1)	0.36*	1.77	0.4103**	2.045	0.3676*	1.66	0.4199*	1.93
$Same_{category}$ (β_2)	−2.87***	−28.60	−2.8747***	−28.66	−2.8574***	−28.53	−2.8632***	−28.59
$Opposite_{tradeSUM}$ (β_3)	0.1***	9.68			0.0958***	9.72		
$FD\vert Same_{company}$ (β_6)					−0.9056	−1.61		
$Opposite_{tradeSUM}\vert Same_{company}$ (β_4)	−0.02	0.60			−0.0154	−0.33		
$FD\vert Opposite_{tradeSUM}\vert Same_{company}$ (β_7)					−0.0157	−0.17		
$Opposite_{tradeMIN}$ (β_3)			0.4995***	10.65			0.5036***	10.76
$FD\vert Same_{company}$ (β_6)							−0.9009	−1.61
$Opposite_{tradeMIN}\vert Same_{company}$ (β_4)			−0.3588**	−2.14			−0.3294*	−1.78
$FD\vert Opposite_{tradeMIN}\vert Same_{company}$ (β_7)							−0.0481	−0.12
Controls	-	-	-	-	-	-	-	-
N	97,341		97,341		97,329		97,329	
Adjusted R²	0.0274		0.0276		0.0312		0.0313	

This table reports regression results of strategic opposite trades between high past performers and low past performers in terms of year-to-date returns. Please refer to Table 4 for a complete explanation of how pairs of "High" and "Low" funds are constructed. Following the approach of Gaspar et al. (2006), the first measure, $opposite_{tradesSUM}$, is the sum across both funds in the dollar-value pair of the securities for which we observe quarterly changes in the opposite direction in the number of any shares held. The second measure, $opposite_{tradesMIN}$, is the minimum across both funds in the dollar-value pair of the changes in holdings for the securities for which we observe quarterly changes in the opposite direction. Both measures are normalized by the total portfolio value of the pair of funds (as cited in Gaspar et al., 2006: p. 96). The table shows the results of the following regression (Equation (2) in the text):

$$\begin{aligned} &Net\_return_{i,t}^{High} - Net\_return_{i,t}^{Low} \\ &= \beta_0 + \beta_1\left(Same_{company}\right) + \beta_2\left(Same_{category}\right) + \beta_3\left(Opposite_{trades}\right) \\ &\quad + \beta_4\left(Opposite_{trades}\vert Same_{company}\right) + \beta_5 FD + \beta_6 FD\left(Same_{company}\right) \\ &\quad + \beta_7 FD\left(Opposite_{trades}\vert Same_{company}\right) + controls + \varepsilon_{i,s,ft} \end{aligned}$$

. FD is a dummy variable that takes the value of 1 if funds i and j are members of the foreign-capital fund company and the value of 0 otherwise (i.e., the Taiwan fund company). $FD(Same_{company})$ is an interaction term between the FD and the $Same_{company}$ dummy variable. $FD\vert Opposite_{tradesSUM}\vert Same_{company}$ is an interaction term between $Opposite_{tradeSUM}$ and $FD(Same_{company})$. $FD\vert Opposite_{tradeMIN}\vert Same_{company}$ is an interaction term between $Opposite_{tradeMIN}$ and $FD(Same_{company})$. *, **, and ***represent the statistical significance at the 10%, 5%, and 1% levels, respectively.

To further investigate different IPO allocations in high- and low-value funds, the dollar amount of the average underpricing obtained by each group of funds and the relative contribution of the underpricing to the fund returns were computed (see footnotes b and c of Table 7). Panel B of Table 7 shows that high performers were allocated higher average amounts of "underpricing dollars" (NTD $1,530,300), as opposed to NTD $1,238,400 of low performers during the sample period. However, the average contribution of such underpricing to boost a fund's TNA shows no difference between high- and low-value funds.

Table 7. IPO allocations in high-value and low-value funds.

Panel A				
All IPO issues from Jan. 2001 to June 2013 ($1000)	$N = 503$	Value: $191,365,738	Average 1st-day return[a]	2.234%
			Median 1st-day return	6.234%
IPOs held at quarter-end by funds in the sample ($1000)	$N = 503$	Value: $169,880,176	Average 1st-day return	2.234%
			Median 1st-day return	6.234%

Panel B			
	IPOs held by High Funds	IPOs held by Low Funds	*p*-Value Difference
N	320	342	
Average 1st-day return	5.01%	4.57%	0.1599
Median 1st-day return	6.42%	6.41%	0.3190[d]
Dollar amount of underpricing going to H or L funds[b] ($1000)	$1530.3	$1238.4	
Percentage contribution of underpricing go to returns of H or L funds (% of TNA)[c]	1.897×10^{-6}	2.145×10^{-6}	0.6776

[a]The average 1st-day return is defined as the percentage price increase from the offer price to the first day closing price. [b]The dollar amount of underpricing is defined as the average first-day return times number of shares held by a fund. [c]The percentage contribution of underpricing to fund returns is defined as the average ratio between the dollar amount of underpricing and the fund's previous quarter TNA, for all funds that had positive holdings in any IPO. [d]Kruskal-Wallis test.

6. Discussion

The maximization of individual fund returns may not necessarily coincide with the maximization of fund companies' profits. Our empirical results show that a significant difference exists between high-value and low-value net-of-style fund returns within the same fund companies, especially in the Taiwan fund companies. This average gap is larger in Taiwan fund companies than in foreign-capital fund companies particularly for high-tech funds, thus implying that strategic favouritism might be more pronounced in Taiwan fund companies. These favouritism strategies might involve a higher variation in investment strategies, product diversity, fund proliferation and performance differentiation, and resource-allocating differentiation (including assigning better fund managers) so that fund companies are able to create star funds and benefit from the spillover effects (see Gaspar et al., 2006; Guedj and Papastaikoudi, 2004; Verbeek and Huij, 2007; Massa, 2003; Nanda et al., 2004). On the other hand, compared with Taiwan fund companies, foreign-capital fund companies may obtain better performances because they are more capable of integrating the economic scale and operating income from the large amount of offshore fund sales. This may help foreign-capital fund companies to compete with peer companies in terms of performance rather than in non-performance-related characteristics. Another point of view or explanation regarding the higher variation across fund performances in Taiwan fund companies is that such performances might be the outcome of a performance-based incentive paid to a fund manager as presented in

Ma, Tang, and Gomez (2019). "In March 2005, the U.S. Securities and Exchange Commission (SEC) adopted a new rule requiring mutual funds to disclose the compensation structure of their portfolio managers" (Ma, Tang, and Gomez, 2019), while similar regulation is absent in the current Taiwan mutual fund industry.

Other strategies such as incubation and cross trading as documented in Evans (2010), Casavecchia and Tiwari (2016) and Eisele et al. (2016) may not occur since incubation and cross-trade are not allowed in Taiwan according to the related regulations on open-end mutual funds. Moreover, Bhattacharya et al. (2013) document that the AFoMFs' sacrifice to offset severe liquidity shortfalls of other funds in their fund complex does benefit the family. This liquidity improves the mutual funds' investment performance, because it prevents them from holding fire sales. However, such investment behaviour would not be the prevalent channel since there are only two to three AFoMFs in the testing data sample.

7. Conclusion

The structure of Taiwan mutual funds belongs to the contractual model whereby the function of the board of directors appears to engender fewer problems than the U.S. mutual funds' corporate model. However, this does not indicate that opposite trading is nonexistent in the asset management industry, though the results from the fund-holding data do not show evidence that fund companies operate reverse trading on funds under their management or perform preferential treatment on IPO allocations. Since the current Taiwan officials have not imposed any mandatory disclosure of fund quarterly holdings for entrusted fund companies (discretionary investment), incidents such as the Ablerex case might imply a lack of comprehensive information disclosure, supervision, or monitoring mechanisms by the relevant competent authorities.

With an increasing percentage of entrusted investment from government funds, the contribution of our study implies that a fund company's self-discipline, internal control and audit regulation, on-site examination of governmental authority, and functional enhancement of custodian banks become increasingly important in the mutual fund industry. We suggest that investors choose past high-performing funds and foreign-capital fund companies to avoid falling victim to higher variation of fund performances when doing fund selection and fund switching.

Although many efforts have made to insure the validity of this study, further research might focus on the individual stocks held and switched by fund managers within the same company. Secondly, the strategic favouritism might be varied over different time periods or over distinctive fund managers. The time periods are crucial to the underlying study because of changing financial environment. The investment behaviours of various fund managers might affect stock selection and thereafter affects the fund returns. Thirdly, other coordinated be-

haviour across fund companies can be considered in the future.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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