

Research on the Return of Mutual Funds

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Abstract: This paper discusses the factors influencing the return of mutual funds. It takes the monthly return of mutual funds as a dependent variable, and takes three kinds of potential factors, which are characteristics of mutual funds, characteristics of managers and market factors, as the independent variables.

Keywords: Mutual; Regression; Coefficient

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1. Introduction

1.1. Research design

This paper discusses the factors influencing the return of mutual funds. A linear model is assumed, which takes the monthly return of mutual funds as a dependent variable and takes three kinds of potential factors, including characteristics of mutual funds, characteristics of managers and market factors, as the independent variables. Random effect model and fixed effect model are applied to estimate the model. Monthly data from Chinese mutual funds are collected for empirical tests.

1.2. Model

A linear model is assumed, which takes the monthly return of mutual funds as a dependent variable and takes three kinds of potential factors, including characteristics of mutual funds, characteristics of managers and market factors, as the independent variables:

$$\text{Change ratio} = \text{turnoverrate} + \text{businessduration} + \text{ifphd} + \text{ifmale} + \text{managementfee} + \text{custodianfee} + \text{isetf} + \text{isindexfund} + \text{structrued} + \text{isactive} + \text{log_inceptiontna} + \text{i.group_category}$$

Table 1. The definition of the variables are summarized in this table

Category	Variable	Note
Dependent variable	Change ratio	(The closing price this month- the closing price last month) / the closing price last month
Market factors	turnoverrate	Sum of trading volume in the month / market share of the fund on the closing date of the month
	businessduration	The managers' average length of service

Characteristics of managers	ifphd	Takes 1 if there is a phd in the team of managers, takes 0 otherwise
	ifmale	The ratio of male managers out of all managers
Characteristics of mutual funds	managementfee	Management fee (%)
	custodianfee	Custodian fee (%)
	isETF	Takes 1 if it is an ETF fund, takes 0 otherwise
	isindexfund	Takes 1 if it is an index fund, takes 0 otherwise
	isactive	Takes 1 if it is an active fund, takes 0 otherwise
	log_inceptionna	Log of the establishment scale of the fund
	i.group_category	Dummies of categories. Category includes: equity fund; bond fund; currency fund; hybrid fund; FOF; stock index futures fund; others

2. Data

2.1. Data source

Monthly data from January to December 2012 of Chinese mutual funds are collected from CSMAR database for empirical tests.

2.2. Statistics

Table 2. Descriptive statistics

stats	N	mean	sd	p50	max	min
change~o	10542	0.0179	0.0678	0.00690	0.292	-0.207
turnov~e	10286	0.560	0.907	0.211	7.510	0.000660
busine~n	5946	9.122	3.310	9	18	3
ifphd	7951	0.143	0.327	0	1	0
ifmale	7951	0.779	0.380	1	1	0
manage~e	7339	0.737	0.445	0.500	1.600	0.150
custod~e	7423	0.148	0.0727	0.100	0.300	0.0300
isETF	7471	0.491	0.500	0	1	0
isinde~d	7471	0.632	0.482	1	1	0
struct~d	7471	0.207	0.405	0	1	0
isactive	6546	0.290	0.454	0	1	0
log in~a	7315	20.48	1.044	20.30	23.49	18.34

3. Regression

3.1. Random effects

changeratio	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
turnoverrate	.0085889	.001258	6.83	0.000	.0061232	.0110545
businessduration	-.0000837	.0003227	-0.26	0.795	-.0007162	.0005488
ifphd	-.0028264	.003331	-0.85	0.396	-.0093551	.0037023
ifmale	.0047635	.0031416	1.52	0.129	-.0013939	.0109209
managementfee	.0215806	.0073527	2.94	0.003	.0071695	.0359916
custodianfee	-.1054034	.0395536	-2.66	0.008	-.182927	-.0278799
isetf	.0048105	.0044499	1.08	0.280	-.0039111	.0135322
isindexfund	-.0090629	.0123714	-0.73	0.464	-.0333105	.0151847
structrued	-.0010407	.0034952	-0.30	0.766	-.0078911	.0058098
isactive	.0063147	.0098009	0.64	0.519	-.0128947	.025524
log_inceptiontna	-.0002657	.0010797	-0.25	0.806	-.0023819	.0018505
group_category						
3	-.0158787	.0164368	-0.97	0.334	-.0480941	.0163368
4	-.0032083	.0209406	-0.15	0.878	-.0442512	.0378346
5	.0132519	.0097346	1.36	0.173	-.0058275	.0323314
6	.0184737	.0061533	3.00	0.003	.0064135	.0305339
_cons	.0087149	.0294877	0.30	0.768	-.0490799	.0665097
sigma_u	0					
sigma_e	.06851124					
rho	0	(fraction of variance due to u_i)				

Figure 1. Random-effects

In the random effects model:

The regression coefficient of turnover rate is 0.008, which is significant since the p-value is less than 1%, which means that when the turnover rate increases by 1, the change ratio increases by 0.008.

The regression coefficient of management fee is 0.021, which is significant under the significance level of 1%. It means that if the management fee increases by 1%, the change ratio will increase by 0.021.

The custodian fee has a regression coefficient of -0.1054, which is significant under the significance level of 1%. This means if the custodian fee increases by 1%, the change ratio decreases by 0.1054.

The regression coefficient of stock fund (i.category) is 0.0184, which is significant under the significance level of 1%. It means the change ratio of mutual funds is higher than that of other funds by 0.0184.

High turnover rate will bring higher trading commission, affect the income, improve the rate of change, but because of the different types of stocks or bonds to buy, it cannot be guaranteed to be a profit or loss, has a certain risk; If a trader's performance is good, the rate of return is high, then relatively more people will choose this trader, the operator's management fee will also increase, the controllable capital will increase, can make more investment, improve the rate of change of the fund, so the management fee will increase the rate of change of the fund; The increase of the storage fee increases the cost of the fund, which leads to the decrease of the number of people who choose the fund, the smaller capital pool, and the inability to carry out more investment projects, leading to the decline of the rate of change of the fund; Stock fund funds are used to buy stocks, because the rate of change of the stock is larger, so the rate of change of the fund is larger.

3.2. Fixed effect

Table 3. Fixed effect

changeratio	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]
turnoverrate	.0185699	.001966	9.45	0	.0147153 .0224244
managementfee	-.1704057	.1556328	1.09	0.274	-.4755354 .1347239
custodianfee	.7131256	1.035576	0.69	0.491	-1.317198 2.74345
isindexfund	.0422595	.0927982	0.46	0.649	-.1396783 .2241973
Structured	.0910285	.0305717	2.98	0.003	.0310905 .1509665
group_category5	.0429471	.0531842	0.81	0.419	-.0613245 .1472187
_cons	-.015315	.1632376	0.09	0.925	-.3353544 .3047245

In the fixed effect model:

The regression coefficient of turnover rate is 0.0185, which is significant under the significance level of 1%, which means that when the turnover rate increases by 1%, the change ratio increases by 0.0185

The regression coefficient of structured (i.category) is 0.091, which is significant under the significance level of 1%. It means the change ratio of a mutual funds is higher than that of other funds by 0.091.

To some extent, fund structuring is to protect the interests of fund initiators. For the institution that initiates the fund, there may be a loss and a large risk, so the fund flow will be reduced, leading to a reduction in the rate of change of the fund.

Disclosure statement

The author declares no conflict of interest.