

Short-term Impact of Social Security Fund Investment Operations on the Stock Market

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Abstract: The National Social Security Fund (hereinafter referred to as the Social Security Fund) is a long-term fund for the A-share market. The Social Security Fund uses value investment, long-term investment, and responsible investment as its investment philosophy. It is based on the principles of safety, profitability and liquidity. The excellent investment performance and the special nature of its funds are regarded by many investors as an investment vane. This paper conducts an empirical study on the short-term impact of the national social security fund's increase and decrease of warehouse investment operations on the stock market. It aims to explore whether the social security fund has the role of market investment vane in the short term by processing the A-share market transaction data.

1. National Social Security Fund Overview and Research Background

1.1. The Concept of the National Social Security Fund

The National Social Security Fund is an important strategic reserve fund of the state. It is operated by the National Social Security Fund Council and selected by the public bidding. Under the economic situation of increasing inflationary pressures, through the investment operation, the value of the pensions, annuities, etc., will be preserved and increased, so as to meet the needs of the future and safeguard the welfare benefits that the people should enjoy. In 2003, the National Social Security Fund officially entered the securities market. As a relatively special institutional group of institutional investors, the investment behavior of social security funds has received much attention.

1.2. Research Significance

This paper analyzes the impact of the social security fund on the market by increasing or decreasing the position of the investment operation. If the statistical analysis proves that the social security fund does have the role of investment vane, investors can use this as a reference for investment. Due to the investment philosophy of the social security fund and the particularity of its funds, the requirements for investment security are high. Therefore, social security fund investment will be more cautious and more sensitive to risks. If we can correctly guide other investors, it will reduce stock volatility and thus stabilize the capital market. It also has a radiation effect on other institutional investors and individual investors.

2. Empirical Analysis of the Impact of Social Security Fund Investment Operations on the Stock Market

This paper mainly uses the statistical law analysis method to analyze the situation in which the social security fund invests in increases and reduces the position of the stock in the next one to four quarters (short term) relative to the large-cap stocks. Among them, the statistical rule is that, through the statistics of the social security fund increasing (lightening) of the stock, in the next one to four quarters (short-term) relative to the market's rise (or relative to the market's decline) in the proportion of all Masukura(lightening)stocks

2.1. The Short-Term Impact of the Social Security Fund's Masukura Operation on the Market

2.1.1. Data Selection and Description

(1) Data selection and Data sources

The data used in this paper for the empirical study of the impact of the social security fund's Masukura operation on the market is panel data and cross-sectional data, that is, the overall increase in the social security fund from January 1, 2015 to December 31, 2017 and in quarters, with a time span of 12 quarters. During this period, a total of 2,087 records were added to the same or different stocks. The data in this article is all from the Wind database.

In addition, the Individual stocks return rate is selected as the two time nodes corresponding to the rise and fall of the stock after reinstatement. For stocks listed on the Shanghai Stock Exchange, the broad market index is selected as the Shanghai Composite Index (000001); if it is listed on the Shenzhen Stock Exchange, the broad market index is selected as the Shenzhen Component Index (399001). The definition of this article is less than one year (including one year).

(2) Time node selection

Compared with public funds, the specific operational data of social security funds will not be announced. Therefore, for the vast majority of investors in the market, only the information of the positions of the social security fund can be obtained through the information of the top ten stockholders announced in the quarterly, interim and annual reports of the listed company. Therefore, the time node before and after Masukura chooses the time when the social security fund publishes the report of each Masukura stock, so that it can most accurately count the reaction of the market after obtaining the information of the Masukura fund.

(3) Determine the Masukura operation

Because the data obtained from Wind database is only the shares of the social security fund holding shares in the current period, the proportion of the shareholding changes in the current period to the total number of current shares, the change in the stock market value and the proportion of the total market capitalization of the outstanding shares, etc. Therefore, it is necessary to manually calculate the Masukura fund's Masukura operation based on this data. If the social security fund's shareholding changes in the current period is greater than zero and the shareholding changes in the current period account for more than zero of the outstanding shares (excluding the increase in the number of shares due to the allotment or dividend distribution), it is determined to be Masukura.

2.1.2. Analysis of statistical laws

The total number of samples is 2,087, and the data is panel data. When the quarterly stocks rise and fall, the range is the quarter when the report is published. Then i quarter refers to the rise and fall between the quarters after each stock release report of the social security fund's Masukura operation, and the market index also selects the corresponding time period.

Table 1 shows the statistical results of all the Masukura operations of the Social Security Fund from January 1, 2015 to December 31, 2017. As can be seen from Table 1, the stocks of the social security fund's Masukura operation, compared with the market index, have risen below half of the Masukura. In addition to the increase of more than 50% in the first quarter after Masukura, the other three quarters after Masukura increased by less than 50%, respectively, 48.84%, 48.14%, 45.51%.

Table 1 Results of statistical rules for all Masukura operations.

	Quarter	After the quarter	After two quarters	After three quarters	After four quarters
Number of rises	1135	975	840	736	618
Total	2087	1898	1720	1529	1370
Rising ratio	54.38%	51.37%	48.84%	48.14%	45.51%

Since the number of stock Masukura accounts for different proportions of the tradable shares, it

will have different effects on the market. Therefore, this paper is divided into three grades according to the proportion of the increase in the number of tradable shares in the social security fund. The first level is greater than or equal to 5%, that is, the number of enlarged positions accounts for more than 5% of the outstanding shares; the second level is between 1% and 5%, that is, the number of enlarged positions accounts for 1% to 5% of the outstanding shares. The third level is less than 1%, that is, the number of Masukura shares accounts for less than 1% of the outstanding shares.

Table 2 Statistical analysis of the increase in the number of shares in the social security fund.

2015.1q--2017.4q Changes in the social security fund Masukura proportion of total outstanding shares	>0	>0,<1%	>=1%,<5%	>=5%
2015.1q	189	111	77	1
2015.2q	178	96	78	4
2015.3q	191	114	73	4
2015.4q	159	94	63	2
2016.1q	227	159	68	0
2016.2q	207	147	58	2
2016.3q	190	148	41	1
2016.4q	216	157	56	3
2017.1q	166	127	37	2
2017.2q	194	133	60	1
2017.3q	155	108	45	2
2017.4q	15	11	3	1
Total	2087	1405	659	23

Table 3 shows the statistical results of the ratio of the number of Masukura shares to the number of outstanding shares during the period from January 1, 2015 to December 31, 2017. It can be seen from Table 3 that in the stocks with more than 5% of the shares of the social security fund's Masukura stocks, the largest increase in the third quarter is 57.14%; and the Masukura ratio is 1%. Between 5% of the stocks, there were nearly 60% of the stocks in the second quarter, and the stocks with a change of less than 1% in the first quarter showed the largest increase in the first quarter, which was 47.99%. . This shows that in the short term, the market responds more quickly to stocks with a large proportion of social security funds.

Table 3 Statistical analysis results of the proportion of outstanding shares in the social security fund.

Change in the proportion of outstanding shares	Statistical variable	Quarter	After the quarter	After two quarters	After three quarters	After four quarters
>=5%	Number of rises	13	12	10	8	6
	Total	23	22	18	14	12
	Rising ratio	56.52%	54.54%	55.56%	57.14%	50%
>=1%,<5%	Number of rises	410	343	277	235	183
	Total	659	582	504	431	368
	Rising ratio	62.22%	58.93%	54.96%	54.52%	49.73%
<1%	Number of rises	715	621	553	493	429
	Total	1405	1294	1198	1084	990
	Rising ratio	50.89%	47.99%	46.16%	45.48%	43.33%

2.2. The short-term impact of the social security fund's lightning operations on the market

The total number of samples is 2007, and the data is panel data. When the quarterly stocks rise

and fall, the range is the quarter when the report is published. Then i quarter refers to the rise and fall between the quarters after each stock release report of the social security fund to reduce the position, and the market index also selects the corresponding time period.

Table 4 shows the statistical results of all the lightning operations of the Social Security Fund from January 1, 2015 to December 31, 2017. It can be seen from Table 4 that the stocks of the social security fund that have been lightened up have fallen compared with the market index after more than half of the lightning.

Table 4 Results of all laws and regulations on the reduction of warehouse operations.

	Quarter	After the quarter	After two quarters	After three quarters	After four quarters
Falling number	1026	953	895	791	724
Total	2007	1810	1621	1448	1244
Falling ratio	51.12%	52.65%	55.21%	54.63%	58.20%

Since the number of stocks lightning accounts for different proportions of the tradable shares will have different effects on the market, this paper is divided into three grades according to the proportion of the social security fund's lightning changes in the tradable shares. The first level is greater than or equal to 5%; the second level is between 1% and 5%. The third level is less than 1%. See Table 5.

Table 5 Statistical analysis results of the reduction of the share of social security funds in the proportion of shares outstanding.

2015.1q--2017.4q Social security fund reduced the proportion of shares in circulation	>0	>0,<1%	>=1%,<5%	>=5%
2015.1q	197	133	60	4
2015.2q	189	121	66	2
2015.3q	173	115	54	4
2015.4q	204	115	83	6
2016.1q	178	116	60	2
2016.2q	159	109	47	3
2016.3q	201	141	59	1
2016.4q	180	130	48	2
2017.1q	202	129	73	0
2017.2q	135	89	43	3
2017.3q	173	123	48	2
2017.4q	16	13	3	0
Total	2007	1334	644	29

Table 6 shows the statistical results of the social security fund from January 1, 2015 to December 31, 2017, based on the proportion of the number of shares reduced. It can be seen from Table 6 that in the stocks whose social security fund reduced stocks accounted for more than 5% of the outstanding shares, the largest number of declines occurred in the second quarter, which was 73.91%; and the lightning ratio was 1% to 5%. Among the stocks, the largest number of declines occurred in the fourth quarter, which was 56.17%; stocks with less than 1% reduction in stocks, the largest decline in the fourth quarter, which was 59.06%. This shows that in the short term, the market responds more quickly to stocks with a large proportion of social security funds.

Table 6 Statistical analysis results of the proportion of shares outstanding by social security fund.

Change in the proportion of outstanding shares	Statistical variable	Quarter	After the quarter	After two quarters	After three quarters	After four quarters
≥5%	Falling number	13	12	10	8	6
	Total	23	22	18	14	12
	Falling ratio	56.52%	54.54%	55.56%	57.14%	50%
≥1%, <5%	Falling number	410	343	277	235	183
	Total	659	582	504	431	368
	Falling ratio	62.22%	58.93%	54.96%	54.52%	49.73%
<1%	Falling number	715	621	553	493	429
	Total	1405	1294	1198	1084	990
	Falling ratio	50.89%	47.99%	46.16%	45.48%	43.33%

3. Conclusion

The full text draws the following conclusions:

(1) For the Masukura operation of the social security fund, the short-term effect on the market's wind vane is not obvious, that is, the social security fund's Masukura operation does not have a clear positive effect on the market. This may be because the social security fund is based on long-term investment and pays more attention to the long-term return of investment.

(2) For the lightning operation of the social security fund, the signal effect is obvious in the short term, and its indication effect is short-term, which has a great impact on the market in the short term. The fourth quarter after lightning the position will bring a significant drop in its light-reduced stocks relative to the broader market. It may be because investors have a higher degree of aversion to losses. When the social security fund reduces the position of a stock, the investor believes that this is a suspicion of the stock's ability to generate income, and believes that the possibility of loss occurs, so as to follow suit.

(3) In the short-term, the operation of the social security fund's Masukura change accounted for a large proportion of the tradable shares has a greater impact on the market, which is the third quarter after the Masukura. The social security fund's operation of reducing the position of the tradable shares is also the same as the operation of the market. The impact is greater, the second quarter after the lightning.

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