The Influence of Institutional Investors' Position on Stock Momentum Phenomenon

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Abstract. Momentum phenomenon is one of the most classic anomalies in the field of securities investment. This paper investigates the influence of institutional investors' opening behavior on stock return momentum phenomenon by using the annual investor shareholding data publicly disclosed by listed companies. The findings are as follows: First, there is a positive correlation between institutional investors' opening behavior and stock excess return in one year; Second, if there is an obvious momentum phenomenon in the stock return in the first two years, then the stock return in the next year still depends on the institutional investor's position behavior, and has nothing to do with the investor's momentum strategy. Under the condition that other conditions remain unchanged, for the positive momentum group, if institutional investors buy portfolios substantially in the next year, the stock momentum phenomenon will continue; On the contrary, stock reversal occurs. A similar conclusion was found for the negative momentum group. In addition, the study also found that the momentum phenomenon is statistically significant, but because stock returns cannot be predicted in advance, it is not meaningful in the actual investment process. Therefore, this paper supports and complements the efficient market hypothesis to some extent.

Keywords: Momentum phenomenon, institutional investor, stock excess return.

1. Introduction

The original meaning of momentum is the momentum or inertia used to represent the movement of objects in physics, and in the technical analysis of securities investment practice, "momentum" has the meaning of trend. A basic assumption of technical analysis is that there is a certain trend law in stock prices, and the main purpose of technical analysis is to find the trend law, that is, to find the stock momentum phenomenon. However, according to Fama's efficient market hypothesis, stock prices tend to walk randomly without any trend, and investors cannot use existing information to predict stock returns. However, in the empirical study, it is found that the time price series of stock is different from the traditional random walk, and does follow a certain trend law. Therefore, as one of the most classic financial anomalies in the field of securities investment, whether momentum phenomenon exists a trend rule is still the focus of scholars in the field of securities investment at home and abroad. Jegadeesh and Titman found that the rate of return on assets had a trend of continuous rise or decline, and named this financial anomaly by "momentum" for the first time. Subsequently, most scholars began to follow the trend

In this way of interpretation and naming. The momentum phenomenon means that the portfolio that has performed better (poor) in the past period of time will still perform better (poor) in the future period of time, and the return of the portfolio has an inertial tendency to continue the previous direction of movement. Investors often gain excess returns by buying momentum strategies with good (poor) early returns and selling momentum strategies with poor (good) early returns, which is similar to technical analysis. As for the explanation of stock momentum phenomenon, traditional financial theory holds that the existence of momentum phenomenon is not the evidence of market inefficiency from the perspective of rational risk compensation. Behavioral finance theory holds that investors' irrational behavior and insufficient response to market information lead to the occurrence of momentum phenomenon. Although traditional finance and behavioral finance theories have laid a solid foundation for the research of stock momentum phenomenon, the existing research literature

has not investigated whether the position opening behavior of institutional investors has an impact on the stock return momentum phenomenon.

As a unique trading behavior of institutional investors, Position Building can be generally described as investors gradually increasing (or reducing) their holdings of a certain stock, especially in order to accumulate a large position in a specific stock without pushing the stock price up. The process of buying (selling) a stock in steps over a period of time. Because the liquidity of the stock market will restrict institutional investors to hoard a certain stock in large quantities, and from the perspective of rational economic men to avoid risks, investors will not buy a large number of stocks at one time, but will choose to reduce investment risks by building positions step by step. Therefore, there is a close relationship between the market power generated by institutional investors' opening behavior and the stock price shock, and the trading behavior of institutional investors has a significant impact on the stock returns in various time periods. Therefore, it is of great theoretical and practical significance to study the effect of institutional investors' opening behavior on stock return momentum.

The possible contributions of this paper are as follows: First, using the publicly disclosed annual shareholding data of listed company investors, it verifies the positive correlation between institutional investors' position opening behavior and stock excess return in one year. Secondly, the paper divides the stock excess return of listed company investors into positive and negative groups, and then designs positive momentum group and negative momentum group. The research finds that the stock return momentum of the next year depends on the opening behavior of institutional investors. For the positive momentum group, if other conditions remain unchanged, if institutional investors start to increase their positions significantly in the next year, the momentum phenomenon will continue; otherwise, the stock reversal phenomenon will occur. The negative momentum group has a similar conclusion. Third, since stock prices, returns and institutional investors' position building behavior cannot be predicted in advance, this paper finds that the momentum phenomenon is statistically significant, but not in the actual investment process. Therefore, the conclusion of this paper also supports and complements the efficient market hypothesis.

The follow-up structure of this paper is as follows: the second part is literature review, the third part is research hypothesis, the fourth part is research design, the fifth part is empirical results and analysis, the sixth part is robustness test, and the last part is the research conclusion.

2. Literature review

2.1. Stock momentum phenomenon and momentum strategy

From the perspective of the existence of stock momentum phenomenon, Jegadeesh and Titman first found that stock returns have an inertial trend in the short and medium term. Investors who buy stocks with higher returns in the past 3-12 months can still get higher returns in the future. And stocks with lower earnings over the past 3-12 months still underperform going forward. And, for the first time, they attribute the momentum phenomenon to investors' inadequate response to information. They then rediscovered that previous test of the momentum phenomenon were not the result of data mining. The existing literature has verified the universal existence of momentum phenomenon in China's stock market from the stock return data of different markets, different time frequency and different win-loss combination construction methods. Moreover, there are individual stock momentum phenomena and industry momentum phenomena in China's stock market in the ultra-short and medium term, and investors have obvious representative bias

This paper follows the definition of momentum phenomenon proposed by Wu Shinong and Wu Yuhui, that is, the phenomenon that the excess return of assets "continues to rise" or "continues to fall" is defined as momentum phenomenon. In addition, the positive and negative excess return of stocks in the past year are used as the basis for sample data grouping. If investors get positive excess return in the previous year, it is a positive momentum group. Conversely, if the investor received a negative excess return in the previous year, the negative momentum group (as shown in Figure 1). Momentum strategy is the trend analysis in technical analysis. If investors try to follow the trend only

through the traditional strategy, it is impossible for them to obtain excess returns in the stock market. Because according to the efficient market hypothesis, the use of momentum strategy by investors will not generate excess returns, and the excess return of stocks in a certain period depends more on the trading behavior of institutional investors rather than the use of momentum strategy.

From the perspective of influencing factors of stock momentum phenomenon, the existing literature has found that the stock momentum phenomenon does not entirely depend on the factors at the individual level of stocks. According to the liquidity premium theory, Song Guanghui et al. found that the overall liquidity of the market will affect the stock momentum phenomenon to a certain extent. Therefore, stock portfolios with different characteristics tend to exhibit different degrees of momentum phenomena. First of all, from the perspective of factors at the individual level of stocks, it is found that stocks with lower book-to-market ratio and stronger growth are more likely to exhibit stronger momentum phenomenon, and the return of stock momentum portfolios with higher proportion of tradable shares is higher than that of portfolios with lower proportion of tradable shares. The higher the stock price of the company, the larger the scale, and the lower the turnover rate, the easier it is for investors to obtain higher investment returns. When the market is in a bull market, the return of the portfolio of small-scale companies' stocks is higher than that of the average market level, and its performance is better than that of the portfolio of large-scale companies' stocks, and small-market companies get more excess returns than large-market companies. If the investment portfolio held by investors is concentrated in the same industry, investors can obtain significant excess returns. Further analysis shows that investors can also obtain significant excess returns if they buy high-volume stocks and sell low-volume stocks in the middle period of investment. Yin and Wei found that the stability of listed companies' profits significantly affects the stock momentum phenomenon. The more stable the profits of listed companies are, the more obvious the stock momentum phenomenon is. Secondly, financing conditions, the behavior of financial analysts and investor sentiment will affect the stock momentum phenomenon to some extent. Luis et al. Found that the financial ecological environment of a company will directly affect the stock price and the investment returns obtained by investors. The less attention financial analysts pay, the higher the momentum profit for investors.

Investor sentiment is very important to explain the abnormal stock return rate, and the difference of investor behavior is the reason for the momentum effect of stocks with different durations. The momentum phenomenon of companies with short durations is significantly stronger than that of companies with long durations.

2.2. Institutional investors take positions

Based on the microstructure theory of the securities market, liquidity is one of the main characteristics of the securities market, and large transactions of investors will have a certain impact on stock prices and returns, and large transactions of investors are more likely to occur in the securities market with high liquidity. Institutional investors' professional analysis ability, access to information and changes in shareholding can all transmit information to the market and transform this information into stock prices, thus improving the information quality of stock prices and market efficiency. However, small and medium-sized investors are greatly affected by their own ability and random factors, and their trading behavior often occurs in the portfolio with high cumulative increase and trading volume and high personal attention. Hu Yang et al. believe that stock arbitrage is a risk arbitrage rather than a risk-free "pure" arbitrage. As a unique trading behavior of institutional investors, institutional investors often do not want to buy "as many as possible" stocks instantaneously, but hope that there is a sustained period of opening process. When institutional investors generally open positions, in order to lower the purchase price, they will break up the positions they need and gradually buy. In essence, momentum effect is also the judgment of investors on the value of enterprises. When institutional investors believe that the current stock value is undervalued by the market, they will continue to buy stocks held by other investors. At this time, institutional investors began to increase their positions, resulting in an increase in the proportion of per household

shareholding and an increase in the concentration of investor shareholding. Under the condition of controlling trading volume, the more stocks held by institutional investors, the more obvious the strong momentum of stock returns will be. However, if institutional ownership is controlled, the portfolio with high volume will no longer show stock momentum. This result indicates that the trading behavior of institutional investors will produce stock momentum. Momentum trading behavior of institutional investors will aggravate stock return inertia and hinder market efficiency, but the overall trading behavior can still promote capital information dissemination and stock price discovery to a certain extent, which is conducive to improving market efficiency. As an investment group with relatively strong investment ability, institutional investors often use the momentum trading strategy that follows the price trend, that is, buying portfolios with high early returns and selling portfolios with low early returns, so as to obtain excess returns. Moreover, from the perspective of network structure, it is found that institutional investors' heavy holdings do not have significant momentum effects. When other factors are controlled, there is a significant negative correlation between momentum effect and network density.

By combing the literature, it is found that the existing studies mainly examine the changes of stock returns from the perspectives of cross section and time series, so as to verify the existence of momentum phenomenon and influencing factors. The methods of frequency selection, time window, sample selection and data collation in previous studies are not the same, which may lead to differences in research results to some extent. Existing literature has found a number of key factors affecting the stock return momentum phenomenon, but few literatures have examined the impact of institutional investors' position opening behavior on the stock return momentum phenomenon. The research results of this paper hope to prove whether this factor can be used as one of the key factors affecting the stock return momentum phenomenon.

3. Research hypothesis

Because of their information and capital advantages, institutional investors often play the role of rational arbitrageurs compared with small and medium investors. Due to the time-varying and nonlinear characteristics of China's stock momentum phenomenon, institutional investors tend to adopt the arbitrage trading strategy of buying (selling) stock portfolios with high (low) historical returns in order to obtain stable returns during a long holding period. From the perspective of rational economic man, most institutional investors in the stock market are risk-averse investors. As a result, investors are more inclined to buy a slowly rising portfolio in the course of trading than a rapidly rising stock portfolio. In the process of buying (selling) stocks, institutional investors will inevitably cause changes in stock prices and investment returns, which may lead to stock momentum phenomenon.

The main purpose of institutional investors' position is to avoid the arbitrage risk and liquidity risk in the stock market. If institutional investors quickly buy a large number of stocks in one trading day for arbitrage, it will inevitably increase the transaction price and investment cost of the stock, leading to the increase of investment risk; And under normal circumstances, small and medium-sized investors in the stock market will voluntarily choose to sell their stocks and take the initiative to provide liquidity to institutional investors with trading needs, so that the liquidity of the stock market can be maintained within a normal range. If institutional investors adopt the trading strategy of buying a lot of stocks instantaneously, it may destroy the supply and demand balance of the stock market and increase the liquidity risk of the stock market. Therefore, in the process of trading, institutional investors will adopt a slow and gradual purchase of stocks to complete the transaction behavior, that is, institutional investors will use the opening behavior to avoid the stock arbitrage risk and market liquidity risk, so as to obtain more excess returns. Accordingly, hypothesis 1 of this paper is proposed:

H1: In a year, the increase (decrease) behavior of institutional investors will lead to the increase (decrease) of the excess return of stocks.

First of all, the opening behavior of institutional investors will aggravate the volatility level of the stock market and affect the current return of stocks. The net increase of institutional investors' shareholding ratio will also increase the return of investors' stocks in the next period. Compared with small and medium investors, institutional investors have significantly different trading behaviors and tend to use momentum trading strategies based on the historical performance of stocks. Stocks with better performance in the past will attract institutional investors to increase their positions, and compared with the stocks held by investors, the future performance of the stocks held by investors will be better, so investors will get more investment returns. Second, institutional investors can better capture changes in market atmosphere and investor sentiment, and their investment judgment and trading behavior are usually ahead of small and medium-sized investors. Under normal circumstances, institutional investors tend to choose the momentum trading strategy that follows the price trend, that is, to buy the stocks held by small and medium-sized investors that may be undervalued by the market, and sell the stocks that may be overvalued in the market to small and medium-sized investors, which will also promote the rise and fall of stock prices in the future.

When institutional investors increase their positions, it means that stocks flow from small and medium-sized investors to institutional investors. Active institutional investors can increase the liquidity of the stock market, improve the efficiency of information transmission, reduce the degree of information asymmetry between the two sides of the transaction, and investors can obtain more excess returns. When institutional investors buy more stocks held by small investors, investors will get more stock returns when stock prices rise in the future. The trading behavior of institutional investors' heavy holdings has a significant impact on stock prices and investment returns. The higher the proportion of shares held by institutional investors, the more willing investors are to actively participate in the operation and management of the company based on the principle of cost-effectiveness, and the greater the probability of investors to obtain high profits and reduce risks.

According to the momentum trading strategy commonly used by institutional investors, if the stock returns formed a significant momentum phenomenon in the previous year, it is likely to form a significant momentum phenomenon in the next year. In the previous year, if institutional investors have continuous position behavior, then the annual stock return momentum phenomenon will be formed. However, according to the efficient market hypothesis, the changes in stock prices, returns and the position building behavior of institutional investors cannot be accurately predicted in advance, so how to judge whether the stock return momentum phenomenon is caused by the position building behavior of institutional investors or the momentum trading strategy used by institutional investors? According to the theoretical reasoning of hypothesis 1 above, it is reasonably inferred in this paper that the annual stock return momentum phenomenon is caused by the opening behavior of institutional investors, which has little to do with the momentum trading strategy used by investors. In order to verify the impact of institutional investors' trading behavior of increasing (decreasing) positions on stock return momentum, sample data are grouped according to Figure 1. Accordingly, hypothesis 2 of this paper is proposed:

H2a: If other conditions remain unchanged, the increase of position of institutional investors is positively correlated with the degree of positive momentum of the stock market in the next year;

H2b: If other conditions remain unchanged, institutional investors' selling behavior is positively correlated with the degree of negative momentum of the stock market in the next year.

4. Research design

4.1. Sample selection and data sources

This paper takes A-share listed companies in Shanghai and Shenzhen as research samples, and selects annual data from 2011 to 2019. The sample data are processed as follows: (1) The samples in ST and *ST during the study period are deleted; (2) Delete the samples with missing main variables; (3) Delete the sample of companies belonging to the financial industry; (4) Delete samples with less

than one year of listing and negative book-to-market ratio. The sample data mainly comes from the Reece database.

4.2. Variable meaning

4.2.1.Explained variable

The explained variable AR is Abnormal Return of a stock. Referring to existing literature, the classical Capital Asset Pricing Model (CAPM) is used to calculate the expected return of individual stocks. Secondly, the excess rate of return is used as the estimate of the excess rate of return of individual stocks. When the stock excess return is larger, that is, the AR is larger, the investor will get higher investment income.

4.2.2.Explanatory variable

Explanatory variable PB is the Position Building degree of institutional investors. When institutional investors begin to increase their positions, it means that the number of small and medium-sized investors in the stock market decreases, that is, the number of shareholders of existing companies decreases, and the share ratio of each household increases. When institutional investors began to reduce their positions, the result was reversed. Referring to Hu Yang's practice, this paper uses the change rate of per household shareholding ratio as a proxy variable to measure the position opening Degree of institutional investors, and the change rate of annual excess return as a proxy variable to measure the Momentum Degree of institutional investors, so as to measure the trading behavior of institutional investors using momentum strategy.

4.2.3.Control variables

Based on the existing literature, this paper also controls the following variables: turnover rate (Turn), turnover volume (Vol), return on equity (Roe), company Size (Size), price/earnings ratio (PE), book-to-market ratio (HML), financial leverage coefficient (Lev), asset turnover ratio (ATR) and operating profit growth rate (GOP). In order to eliminate the effects of year and industry, annual and industry virtual variables are introduced, and annual and industry fixed effects are controlled for regression analysis. The specific definitions of variables are shown in Table 1.

Table 1. Main variable definitions

Variable name	Variable symbol	Variable definition
Excess return	AR	Actual return on stocks minus expected return on stocks
institutional investor position opening behavior	PB	(Average holding ratio at the beginning of the period - average holding ratio at the end of the period) / average holding ratio at the beginning of the period
Momentum amplitude	MD	(End value of annual Excess return - Initial value of Annual Excess return period) / Initial value of annual excess return period
turnover rate	Turn	Turnover / total number of shares outstanding
Volume	Vol	Natural logarithm of stock volume
Return on equity	Roe	Net profit / average net assets
P/E Ratio	PE	stock price / earnings per share
Book-to-market ratio of HML	HML	Assets / total outstanding market value
Size	Size	The natural logarithm of a company's circulating market value
Financial leverage factor	Lev	Total ending liabilities / total ending assets
Asset turnover	ATR	Sales revenue / assets
Growth rate of operating profit	GOP	(Final value of annual operating profit - Initial value of annual operating profit period) / Initial value of annual operating profit for the current period
Year	Year	Year dummy variable
Industry	Ind	Industry dummy variable

4.3. Regression model

To test hypothesis 1, model (1) is established:

$$AR_{it} = \alpha_0 + \alpha_1 PB_{it} + \alpha_2 Turn_{it} + \alpha_3 Vol_{it} + \alpha_4 ROE_{it} + \alpha_5 PE_{it} + \alpha_6 HML_{it} + \alpha_7 Size_{it} + \alpha_8 Lev_{it} + \alpha_9 ATR_{it} + \alpha_{10} GOP_{it} + \alpha_{11} Year + \alpha_{12} Ind + \varepsilon$$

To test hypothesis 2, model (2) is established:

$$AR_{it} = \alpha_0 + \alpha_1 PB_{it} + \alpha_{2} MD_{it} + \alpha_3 Turn_{it} + \alpha_4 Vol_{it} + \alpha_5 ROE_{it} + \alpha_6 PE_{it} + \alpha_7 HML_{it} + \alpha_8 Size_{it} + \alpha_9 Lev_{it} + \alpha_{10} ATR_{it} + \alpha_{11} GOP_{it} + \alpha_{12} Year + \alpha_{13} Ind + \varepsilon$$

5. Empirical results and analysis

5.1. Descriptive statistics

Table 2 shows the descriptive statistics of the main variables in the empirical test. The mean value of the excess return of stocks is 0.0962, the maximum value is 0.765, the minimum value is -1.292, the median is -0.0375, and the standard deviation is 0.765, indicating that the fluctuation degree and difference of the excess return of different enterprises are large. This can be affected by other factors such as the size of the business, turnover, turnover rate, etc. The average value of institutional investors' opening behavior is -0.00584, the maximum value is 6.792, and the minimum value is -1.00, indicating that institutional investors' opening behavior is mainly affected by the number of shareholders and the proportion of average shares held by different enterprises. The control variables showed different degrees of right-skewed distribution, and the mean and median were significantly different.

Table 2. Descriptive statistics of main variables

Variable	mean	Standard deviation	Minimum	Maximum	p25	Median	p75
AR	0.0962	0.765	-1.292	15.90	-0.458	-0.0375	0.509
PB	0.00584	0.337	-1.000	6.792	-0.167	0	0.158
Turn	555.0	495.1	6.619	5420	240.1	408.8	699.6
Vol	21.09	1.033	15.94	25.74	20.39	21.08	21.78
ROE	4.365	35.10	-2829	88.68	2.247	5.046	8.449
PE	59.94	711.7	-20172	60975	18.07	34.15	65.43
HML	1.403	2.079	0.0177	122.1	0.520	0.898	1.594
Size	22.21	1.009	18.97	27.82	21.55	22.18	22.81
Lev	41.75	20.57	0.708	180.6	25.24	40.75	57.02
ATR	0.664	0.543	0.00330	12.37	0.365	0.551	0.805
GOP	77.61	11107	-235275	1.398e+06	-29.58	10.39	49.27

5.2. Correlation analysis

Table 3 shows the correlation analysis of the main variables. Among them, the correlation coefficient between the excess return of stock and the opening behavior of institutional investors is 0.045, which is significantly positive at the level of 1%. At the same time, the excess return is positively correlated with turnover rate, turnover volume, P/E ratio and company size at 1%. There is a significant negative correlation with the book value ratio at 1%, and a significant negative correlation with the asset-liability ratio at 5%.

Table 3. Correlation analysis of main variables

	AR	PB	Turn	Vol	ROE	PE	HML
PB	0.045***	1					
	0.00						
Turn	0.189***	-0.047***	1				
	0.00	0.00					
Vol	0.189***	-0.180***	0.096***	1			
	0.00	0.00	0.00				
ROE	0.00900	-0.00600	-0.00300	-0.016**	1		
	0.210	0.388	0.662	0.0278			
PE	0.060***	-0.00900	0.025***	0.00	0.00600	1	
	0.0000	0.1949	0.0005	0.9475	0.4278		
HML	-0.028***	0.069***	-0.046***	0.084***	-0.00300	-0.015**	1
	0.000100	0.00	0.00	0.00	0.679	0.0330	
Size	0.076***	-0.127***	-0.375***	0.626***	0.050***	0	-0.033***
	0.00	0.00	0.00	0.00	0.00	0.953	0.00
Lev	-0.015**	0.025***	-0.152***	0.282***	-0.093***	-0.00700	0.372***
	0.0333	0.000600	0.00	0.00	0.00	0.337	0.00
ATR	-0.00200	0.017**	-0.029***	-0.040***	0.029***	0	0.00400
	0.753	0.0200	0.00	0.00	0.000100	0.976	0.533
GOP	0.00	0.00300	0.00400	0.00600	0.00600	0.00100	0.00500
	0.972	0.704	0.552	0.440	0.415	0.924	0.505
	Size	Lev	ATR	GOP			
Size	1						
Lev	0.202***	1					
	0.0000						
ATR	0.023***	0.142***	1				
	0.00140	0					
GOP	0.00600	0	-0.00200	1			
	0.393	0.995	0.794				

5.3. Regression analysis

As can be seen from the regression results in Table 4, the regression coefficient of explanatory variables in column (1) is 0.108, and the T-value is 10.34, showing a significant positive correlation at the 1% level. This indicates that within one year, the position opening behavior of institutional investors will significantly affect the excess return of stocks, that is, the increase (decrease) behavior of institutional investors will lead to the corresponding increase (decrease) of the excess return. Empirical results support hypothesis 1. Column (2) is the regression result of the positive momentum group. The regression coefficient of explanatory variable institutional investors' position opening behavior is 0.068, and the T-value is 4.25. The regression coefficient of momentum amplitude is 0.0000, and the T-value is 2.74, both of which are significantly correlated at the level of 1%. It shows that the market power of institutional investors is stronger than the market power of institutional investors using momentum strategy when the position building behavior and momentum strategy exist simultaneously. This result is also in line with the efficient market hypothesis, indicating that there is a significant positive correlation between the stock return momentum phenomenon of institutional investors' increasing positions. That is, when there is an obvious positive momentum phenomenon in the previous year, if institutional investors increase positions in the next year, the stock return will continue to have a positive momentum phenomenon. On the contrary, stock returns have reversed. The empirical results support hypothesis H2a. Column (3) is the regression result of the negative momentum group. The regression coefficient of explanatory variable institutional

investors' position opening behavior is 0.111, and the t value is 10.38. The regression coefficient of momentum amplitude is 0.0000 and the t value is 2.94. The regression results show that there is a significant positive correlation between the short-selling behavior of institutional investors and the stock return momentum phenomenon. That is, when there is an obvious negative momentum phenomenon in the previous year, if the short-selling behavior of institutional investors occurs in the next year, the stock return will continue to have a negative momentum phenomenon. On the contrary, stock returns have reversed. The empirical results support hypothesis H2b.

Table 4. Regression results of major assumptions

	(1)	(2)	(3)
VARIABLES	AR	AR	AR
PB	0.108***	0.068***	0.111***
	(10.34)	(4.25)	(10.38)
MD		0.000***	0.000***
		(2.74)	(2.94)
Turn	0.000***	0.000***	0.000***
	(21.26)	(26.59)	(6.68)
Vol	-0.046***	-0.071***	-0.051***
	(-8.99)	(-8.96)	(-12.02)
ROE	0.000	0.000	0.000
	(1.28)	(0.67)	(1.22)
PE	0.000***	0.000***	0.000***
	(8.91)	(6.65)	(3.35)
HML	-0.001	0.000	0.002
	(-0.37)	(0.07)	(1.28)
Size	0.101***	0.172***	0.060***
	(17.81)	(20.23)	(12.74)
Lev	-0.000**	-0.000	0.000
	(-2.21)	(-0.50)	(0.70)
ATR	0.023***	0.023**	0.025***
	(3.33)	(2.20)	(4.11)
GOP	0.000*	0.000**	0.000***
	(1.72)	(1.98)	(3.45)
Constant	-2.066***	-2.793***	-0.968***
	(-20.58)	(-15.98)	(-12.05)
R-squared	0.623	0.509	0.694
adj_R2	0.622	0.507	0.693
F	920.2	293.9	485.4

6. Robustness test

In this paper, the Logit model is used to test the influence of the change of investor shareholding concentration on stock return momentum. If positive momentum occurs in stock returns in the previous year, the value is 1; Otherwise it is 0. Logit estimation using robust standard error. From the regression results of Logit model in Table 5, it is not difficult to find that there is a significant positive correlation between institutional investors' position opening behavior (PB) and stock return momentum. This also proves that institutional investors' opening behavior is an important factor affecting stock return momentum.

Table 5. Regression results of robustness test

Logit model			
PB	0.196***	HML	0.005
	(10.38)		(0.58)
Turn	0.000***	Size	-0.381***
	(6.68)		(12.74)
Vol	-0.415***	Lev	-0.03***
	(-18.95)		(0.70)
ROE	0.001	ATR	0.065***
	(1.47)		(4.11)
PE	0.000	GOP	0.000
	(3.35)		(-0.86)
_CON	0.109	N	19531
	(0.29)		
Pseudo r-squared 0.015			

7. Summary

Taking the annual data publicly disclosed by Shanghai and Shenzhen A-share listed companies from 2011 to 2019 as A research sample, this paper examines the impact of institutional investors' position opening behavior on stock return momentum. The findings of this study are as follows: First, the position opening behavior of institutional investors presents a significant positive correlation with the excess return of stocks, that is, the increase (decrease) of positions of institutional investors will lead to the increase (decrease) of the excess return of stocks. Second, by grouping stock momentum phenomena, it is found that if there is an obvious momentum phenomenon in the stock return in the previous year, the stock return in the next year still depends on the opening behavior of institutional investors. Third, this paper uses the momentum phenomenon of stock returns in the previous year, divides the sample data into positive momentum group and negative momentum group to test the impact of institutional investors' position opening behavior on portfolio returns. The results show that, if other conditions remain unchanged, for the positive momentum group, the stock momentum phenomenon will continue if institutional investors buy portfolios in the next year. On the contrary, the phenomenon of stock reversal occurs. The results of the negative momentum group and the positive momentum group were similar. Therefore, the research conclusion of this paper verifies that institutional investors have a strong market influence, and institutional investors' opening behavior will have a significant impact on stock return momentum. In addition, since stock prices and returns cannot be accurately predicted in advance, the research conclusion of this paper also validates the efficient market hypothesis and complements and improves it to a certain extent.

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