

Peer Effect and Foreign Investor Shareholding —Evidence From the Sample of Mainland -Hong Kong Stock Connect Program

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ABSTRACT

Based on the dataset of Chinese listed firms from the first season 2017 to the first season 2020 as the research object, using the sample of Mainland-Hong Kong Stock Connect Program, this paper applies the two-way fixed effect model to analyze the peer effect on foreign investor stockholding and embedded internal mechanism. The results are as follows: firstly, peer effect has increased significantly foreign investor stockholding; secondly, the peer effect of foreign ownership is more significant for the subordinate enterprises in the industry.

Keywords: *Peer effect, Mainland-Hong Kong Stock Connect program, foreign investor stockholding, share-holding preference*

1. INTRODUCTION

There are two main channels for foreign investor to invest China's A-share market: QFII (The Qualified Foreign Institutional Investor System)/RQFII (RMB Qualified Foreign Institutional Investor) and Mainland (Shanghai/Shenzhen)-Hong Kong Stock Connect program. QFII/RQFII is an intermediary agent mode, which mainly targets at overseas institutional investors and entrusts domestic intermediary institutions to invest in Shanghai and Shenzhen exchanges. Shanghai/Shenzhen-Hong Kong Stock Connect program, on the other hand, is a "One-click on" mode, with exchanges as the main body. It allows mainland and Hong Kong customers to report their trading orders to local exchanges through local brokers, so as to realize cross-border trading.

In recent years, the channel for foreign investment into China's A-share market has gradually shifted from QFII to Mainland -Hong Kong Stock Connect program, as direct links between the two exchanges and clearing houses have eliminated a series of administrative qualifications and approvals in QFII/RQFII business and removed investment restrictions on individuals. Especially since 2017, the capital invested in the China capital market through Shanghai/Shenzhen-Hong Kong Stock Connect program has accounted for most of the increment.

The fund flows through the Shanghai-Shenzhen-Hong Kong Stock Connect show the characteristics of large scale and rapid. From April to early July 2020, the net inflow exceeded 180 billion yuan. From July 2 to 8, the net increase of over 50 billion yuan in the five trading days was followed by an unprecedented withdrawal in the following two weeks, with a cumulative net outflow of nearly 25 billion yuan from July 20 to 24.

What's behind this trend? Theories about the preference of foreign investor stockholding mostly focus on enterprise characteristics and market risk and return, etc. This paper discusses the influence of peer effect on foreign stockholding. In the second part, this paper established a two-way fixed effect model to perform an empirical study based on the data of Shanghai/Shenzhen-Hong Kong Stock Connect program to support the paper's hypothesis. Last, a brief conclusion will be made.

1.1. Theoretical Analysis and Hypothesis

The investment behavior theory on the foreign investor's shareholding preference focuses on the factors influencing QFII because it was established earlier, such as profitability, size, market risk, return and social responsibility [1]. Wang and Han[2] found in their research on QFII shareholding preference that technological innovation in companies can indeed attract QFII shareholding. QFII, as an advanced institutional investor, follows the value investment theory and prefers stocks with less risk. Teng and Huang proposed that QFII would choose companies with strong profitability as investment objects, especially the stocks of pharmaceutical industry, transportation and information industry[5]. The peer effect in the investment field has been extensively studied by scholars at home and abroad. Hong et al. found that there was a peer effect in the same region among American investors in trading decisions[3]. Li and Liu found that the investment portfolio of Chinese fund managers would be affected by the same-city fund managers[4]. However, these studies have paid little attention to the peer effect on foreign shareholdings through Mainland -Hong Kong Stock Connect.

Peer effect refers to that individual decisions are influenced by the decisions of other members in the same group. Foreign investors' investment behavior has the peer effect, that is, their investment behavior to other listed companies in the same industry strengthens their investment tendency to target companies.

As for the mechanism of industry peer effect, most scholars think it is the imitation behavior under the uncertain conditions. Under the influence of information asymmetry, foreign investor's shareholding of companies with low market status is more likely to be affected by the peer effect, that is, compared with enterprises with high market status, the market value of foreign investor's shareholding of subordinate enterprises is more easily affected by the average level of foreign investor's shareholding of enterprises in the same industry. Therefore, the hypothesis H2 is proposed in this paper.

Based on the review above, this paper puts forward the following hypothesis

H1: Industry peer effect affects foreign investor's shareholding.

H2: When other conditions are equal, the peer effect of foreign investor's shareholding is more significant for the subordinate enterprises in the industry.

1.2. Empirical studies

1.2.1 Variable, data and model

1.2.1.1 Data and source

Since the Shanghai-Stock Connect was launched on November 17, 2014, and the Shenzhen-Hong Kong Stock Connect was officially launched on December 5, 2016, this paper takes Chinese A-share listed companies of Mainland-Hong Kong Stock Connect program from the first season 2017 to the first season 2020 as the research object.

The data of sample firms are sorted out through the annual list of sample stocks of Shanghai-Hong Kong Stock Connect and Shenzhen-Hong Kong Stock Connect

published by Shanghai Stock Exchange and Shenzhen Stock Exchange.

The data used include the quarterly stock ownership information of foreign investor institutions, basic information of listed companies, transaction data, financial data and so on. The quarterly ownership information of foreign investors comes from the Eastmoney Choice financial database. This paper excluded listed companies in the financial industry, ST and other special processing companies, and industry classification shall be subject to Shenwan level 1 industry.

1.2.1.2 Variable and model

Explained variable: This essay uses the logarithm of the market value of the foreign investor's stock holdings in Shanghai and Shenzhen stocks through Mainland-Hong Kong Stock Connect program as the explained variable.

Explanatory variables: Due to the strong industry attribute of foreign shareholdings, this paper defines the peer effect as the influence of foreign shareholdings of a certain industry on foreign investor's choice of target enterprises. The explanatory variables measured as the mean of foreign investor's stock holdings for industry j (excluded firm i). Another explanatory variable is the market position of an enterprise, which will affect the strength of the peer effect. Control variables: According to Wang and Han[2], this paper uses size, Beta, turnover rate, ROA and quarterly average return as control variables, which are detailed in Table 1.

Based on the above hypothesis, this paper constructed a two-way fixed effect regression model as following form:

$$Fihold_{it} = \beta_0 + \beta_1 Fihold_peer_{it} + \beta_2 Status_i + \beta_3 eStatus * fihold_peer_i + \beta_4 Size_i + \beta_5 ROA_i + \beta_6 sReturn_i + \beta_7 Turn_i + \beta_8 beta_i + u_i + \lambda_t + \epsilon_{it} \tag{1}$$

Where i = 1,..., 13406 is the number of firms in the sample, β_0 is the intercept of the regression, $\beta_1 \dots \beta_7$ is the coefficient of independent variables, t stands for quarter T. u_i is an individual effect, λ_t is a time fixed effect. ϵ_{it} is a statistical error.

Table 1 Variable specification and data source

	variable name	Variable specification
explained variable	Fihold	representing the foreign investor's stock holdings for firm i, measured as log(market value of the foreign investor's stock holdings for firm i)
	Fihold_peer	equal to the mean of foreign investor's stock holdings for industry j (excluded firm i)
explanatory variables	Status	equal to business income divided by the mean of industry's business income
	Status*Fihold_peer	equal to business income* Fihold_peer
control variables	size	firm size. measured as the log (the market value of freely traded shares for company i)

roa	equal to private credit to GDP ratio.
return	quarterly average return
turn	turnover rate for the 6 months prior to the end of the quarter
beta	the Beta value of a stock on a weekly basis three months before the end of the quarter.
T	from the first season 2017 to the first season 2020

1.2.2 Regression analysis and discussion

After processing, a total of 13,406 samples were obtained in this paper, and Table 2 reported descriptive statistical results of the main research variables. It can be seen from

the table that the logarithm of the average market value of foreign equity holdings is 17.583934, and there is a large difference between the samples. The smallest enterprise is 2.68649, while the largest enterprise is 25.5198. The regression was performed using stata15.

Table 2 Descriptive statistics of variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Fihold	13,406	17.58393	2.576386	2.68649	25.5198
Fihold_peer	13,406	19.63052	1.035097	15.2101	22.96992
Size	13,406	22.70767	.8901829	20.1339	27.1109
ROA	13,406	7.655842	6.751674	-53.5983	62.9392
Return	13,406	.6414009	20.80937	-58.9652	245.205
Turn	13,406	208.6194	223.8634	0	3178.78
beta	13,406	1.142483	.8675768	-5.7782	8.7381
Status	13,406	.9653301	2.506481	.0001311	62.39776

The results of empirical test on the peer effect of foreign ownership are presented in Table 3. As can be seen from column (1), the coefficient of variable *Fihold_peer* is 0.2351, and it has passed the significance test of 1%. This shows that after controlling factors such as time and enterprise characteristics, it can still be found that foreign shareholding on target firm will be significantly affected by foreign shareholding in the same industry of enterprises. Therefore, it can be seen that foreign shareholding has the peer effect, and hypothesis H1 is verified.

Column (2) shows that the coefficient value of the interaction item *Status* Fihold_peer* is -0.0268, and it

passes the significance test of 5%. This indicates that market position variable (*Status*) negatively regulates the relationship between the average level of foreign shareholdings in the same industry (*Fihold_peer*) and the market value of foreign shareholdings in the enterprise (*Fihold*). In other words, compared with enterprises with high market position, the market value of foreign shareholdings of subordinate enterprises is more easily affected by the average level of foreign ownership of enterprises in the same industry. Therefore, when other conditions are equal, the peer effects of foreign shareholdings of subordinate enterprises in the industry is more significant. Hypothesis H2 is verified.

Table 3 Regression Result

Dependent variable	(1) Fihold	(2) Fihold
Constant	-20.0960*** (-9.56)	-20.6711*** (-9.60)
<i>Fihold_peer</i>	0.2351*** (3.19)	0.2610*** (3.38)
<i>Status</i>		0.5392* (1.85)
<i>Status*Fihold_peer</i>		-0.0268** (-2.01)
<i>Size</i>	1.4056***	1.4078***

	(17.93)	(17.98)
Return	-0.0032*** (-3.39)	-0.0033*** (-3.48)
Beta	0.0290*(1.71)	0.0294* (1.73)
ROA	0.0128** 1. (2.37)	-0.0130** (-2.40)
Turn	-0.0010*** (-4.76)	-0.0010*** (-4.77)
T	yes	yes
Number of observations	13,406	13,406
R-squared	0.5262	0.5259

T value in parentheses
***significant at 1%, **significant at 5%, *significant at 10%

1.2.3 Robust test

Like other peer effect studies, the impact of peer effect on foreign investors' shareholding is endogenous. In this

paper, robustness test is carried out by instrumental variables (2SLS) regression and Heckman selection model.

Table 4 Robust test

Dependent variable	(1) Fihold	(2) Fihold
Constant	-28.5086*** (-47.90)	-30.8496*** (-39.63)
Fihold_peer	0.1977*** (10.37)	0.1913*** (10.91)
Status	0.2059*** (2.76)	0.2249** (2.13)
Status*Fihold_peer	-0.0102*** (-2.58)	-0.0116***(-2.08)
Size	1.7939*** (98.65)	1.9021*** (62.26)
Return	-0.0032*** (-2.82)	-0.0030*** (-3.36)
Beta	0.0341* (1.72)	0.0387** (2.15)
ROA	0.0576*** 1. (20.31)	0.0553*** (23.45)
Turn	-0.0014*** (-14.62)	-0.0016*** (-19.09)
Inverse mills		0.6040*** (4.81)
T	yes	yes
Number of observations	13406	15653
Number of observations selected		
R-squared	0.5436	13406

T value in parentheses
***significant at 1%, **significant at 5%, *significant at 10%

For panel data, lag variables of endogenous explanatory variables are often used as instrumental variables[6]. Therefore, this paper uses the lagged one-phase (LFihold_peer) of the mean of foreign investors'

shareholding for the same industry (excluded company i) in the same season as instrumental variables. The estimation method uses two stage least square method.

The data of foreign ownership of some enterprises in the sample enterprises of Mainland-Hong Kong Stock Connect program is 0, and the missing data is deleted in the above basic regression analysis, which is related to the characteristics of the company. Therefore, sample selection bias is likely to occur. In order to avoid this problem, companies without foreign shareholding are added to the basic regression data and the Heckman sample selection model is used for analysis.

The regression results are shown in Table 4. From the first column and the second column in Table 4, the results obtained are basically the same as those in Table 3. The estimated coefficients of F_{ihold_peer} and $Status * F_{ihold_peer}$ are still significantly positive at 1% level, and the signs of the control variables are also consistent with Table 3, indicating that the regression results obtained are robust. The second columns in Table 4 show the Heckman selection model regression results, and the results are consistent with Table 3, again verifying that the regression results obtained are robust.

2. CONCLUSION

This essay established a two-way fixed effect regression model and analyzed the effects of the industry peer effect on foreign investor's stockholding and embedded internal mechanism based on the sample of Mainland-Hong Kong Stock Connect Program. The main conclusions are as follows. First, foreign shareholding on target firm will be significantly affected by foreign shareholding in the same industry of enterprises. Second, the market position of an enterprise has a moderating effect, that is, the peer effects of foreign shareholdings of subordinate enterprises in the industry is more significant.

Due to the late establishment of Mainland-Hong Kong Stock Connect, the data obtained are not sufficient, and the validity of the conclusion needs to be confirmed by more data. In addition, due to the industrial peer effect, large scale and rapidity of the funds entering through Mainland-Hong Kong Stock Connect, its influence on A-share market should be paid close attention to. Meanwhile, in future studies, the mutual influence between foreign funds and mainland funds is also a subject that needs further study.

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