Research on the Influence of Institutional Investors' Shareholding and Transaction on Stock Price Synchronicity

Yanliang Zhang[1,a,*] , Wenwen Wang[1,b] and Leya Zhang[2,c]

[1] School of Finance, Shandong University of Finance and Economics, Jinan, P.R.China

[2] Stirling Management School, University of Stirling, Stirling Scotland United Kingdom

[a]zhyanliang@sina.com,[b]1216811391@qq.com, [c]zhangleya@sina.com

*corresponding author

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Abstract. Chinese institutional investors have experienced rapid growth in both size and volume over the past decade, but their role in the capital market has been inconclusive. By investigating the institutional investors' shareholdings and trading behaviors from 2007 to 2017, the study found that China's stock market overall stock price synchronicity is high. The share price of stocks with high institutional shareholdings is lower, while the increase in institutional investor transactions has failed to reduce stock price synchronicity. By further examining the impact of different types of institutional investor behavior on stock price synchronicity, it is found that there are differences in the influence of various types of institutional investors, and the shareholding and trading behavior of trusts, pension funds and QFII will reduce stock price synchronicity. Therefore, in order to maintain the stability of the capital market, we should continue to vigorously develop institutional investors while improving the structure of institutional investors and optimizing the company's dividend distribution mechanism.

Introduction

Whether the stock price can effectively reflect the true information of the enterprise determines the efficiency of its resource allocation function. Compared with the mature capital market, the emerging capital market lacks effectiveness. The price formation process contains less company trait information. The degree of difference in the effectiveness of the above capital markets can be measured by the synchronicity of the company's stock prices. Roll (1988) [1] first proposed this concept, defining stock price synchronicity as the correlation between changes in the company's individual stock prices and the overall average market movement.

The decision-making behavior of different investment entities is quite different. Due to the lack of professional ability and information analysis and processing ability, individual investors are at the bottom of information asymmetry, and their trading behavior in the market is often irrational. Institutional investors have more information acquisition channels, more professional investment skills and stronger information analysis and judgment ability than individual investors. They are more likely to profit from private information and are considered as value investors in the capital market.

This paper obtains the R^2 data of China's stock market from 2007 to 2017 through the CAPM. It can be seen that China's stock price synchronicity has remained above 30%. As of 2017, R^2 is still around 30%. In view of the lack of validity of capital market resource allocation due to higher stock price synchronicity, the research of this issue not only helps to fully understand the relationship between institutional investors and stock price synchronicity, but also to improve market pricing efficiency and build future development pattern. Promoting the healthy and rapid development of China's capital market has the same theoretical and practical significance.

Literature Review

Summary of Research on Institutional Investors and Stock Price Fluctuations

There are two views on the impact of institutional investors on stock price fluctuations. First, institutional investors can mitigate stock price volatility. Lipson & Puckett (2007) [2] has found that institutional investors are more accurate in assessing the underlying value of stocks based on their professional investment capabilities.Hu Dachun and Jin Sai-nan (2007) [3] have found that the stock price volatility decreases with the increase of the fund's shareholding ratio, which proves that institutional investors can stabilize the stock price. At the same time, Yao Wei and Liu Zhiyuan (2008) [4] have found that stocks with higher proportion of institutional investors have higher yields and liquidity, and there are smaller price fluctuations. Second, institutional investors' behavior has a negative impact on the stock market and exacerbated price volatility. Dennis & Strickland (2002) [5] through the research on the trading behavior of fund managers, found that this irrational behavior will cause the price is excessively volatile. Although the existing research does not have a unified conclusion, most scholars support the previous view that institutional investor behavior can effectively reduce stock price volatility.

Summary of Research on Institutional Investors and Stock Price Synchronicity

The research on institutional investors and stock price synchronicity can be divided into the following three aspects: (1)Institutional investors are negatively correlated with stock price synchronicity: Piotroski and Roulstone (2004) [6] based on US securities market research Investors' trading behavior is conducive to the absorption of company trait information by stock prices, which in turn reduces stock price synchronicity. (2)Institutional investors are positively correlated with stock price synchronicity: Kelly (2005) [7] found that there is a positive correlation between stock price synchronicity and information environment quality, and institutional investor behavior leads to higher stock price synchronicity. (3)There is an inverted U-type relationship between institutional investors and stock price synchronicity: Zhang Yongren and Li Xiaotong (2010)[8] show that institutional investors and R^2 have inverted U-shaped relationship.

Analysis of the Influence Mechanism of Institutional Investors' Shareholdings and Transactions on Stock Price Synchronization

The Mechanism of the Influence of Institutional Investors' Shareholding Behavior on Stock Price Synchronicity

There is information asymmetry between investors. Compared with individual investors, institutional investors are in an information superior position, and will improve the rational trading degree of the entire market, and offset the irrational noise trading behavior of individual investors. In addition, individual investors in the securities market will also be aware of the information gap between themselves and institutional investors. It is likely that institutional investors will take shareholding behavior. More corporate trait information owned by institutional investors than individual investors will be gradually released through various other signal effects, improving the transparency of information and rational trading in the entire market, prompting stock prices to absorb more company trait information and surrounding the company. Real value volatility, improve stock price information, and reduce stock price synchronicity.

The Mechanism of the Influence of Institutional Investors' Trading Behavior on Stock Price Synchronicity

The rational trading of institutional investors is conducive to the reduction of stock price synchronicity. However, according to behavioral finance, institutional investors can only reach a state of limited rationality due to information asymmetry, agency costs and investors' own factors. Irrational behaviors such as herding and positive feedback transactions occur. The herd effect and positive feedback trading behavior that institutional investors are easy to show are more similar to

the noise trading behavior of individual investors, which will reduce the effective information content in stock prices, and the stock trading results produced by these behaviors are mostly homogeneous, **so** Lead to higher stock price synchronicity.

Variable Description and Model Construction

This paper proposes the following research hypotheses:

H1: Synchronization of stock prices decreases as the shareholding ratio of institutional investors increases;

H2: Increase in institutional investor transactions will reduce stock price synchronicity;

H3: There are differences in the impact of different types of institutional investor behavior on stock price synchronicity

Variable Description and Data Description

Stock Price Synchronicity.

The R^2 (the goodness of fit of the CAPM capital asset pricing model) proposed by Morck et al. is used as a measure of stock price synchronicity. The CAPM model is set to $r_{i,t} = \alpha_i + \beta_i r_{m,t} + \varepsilon_{i,t}$, Since the obtained R^2 is a value between 0 and 1, and does not obey the normal distribution, refer to Durnev & Zarowin, and make the following monotonous changes to R^2, and define RSQ as follows:

$$RSQ_{i,t} = \log[R^2/(1 - R^2)]$$

The larger the RSQ, the higher the proportion of individual stock returns that can be explained by the market and the industry. The higher the stock price synchronization.

Institutional Investors Holding Shares and Trading.

To verify the hypotheses H1, H2, and H3, the independent variables are set to institutional investor holdings and institutional investor transactions. The definition of institutional investor shareholding data is the proportion of shares held by institutional investors at the end of each quarter. The institutional transaction data is expressed as follows:

$$trade_{i,t} = \frac{|\Delta trade_{i,t}|}{VOL_{i,t}}$$

In addition, in order to eliminate the problem of heteroscedasticity, this paper treats the company size and time to market logarithmically.

Table 1. Descriptive statistics of variables

variable	mean	sd	min	max
r2	0.404	0.201	0.000	1.000
RSQ	-0.511	1.061	-4.142	1.662
trade	0.117	0.274	0.000	1.992
hold	0.179	0.197	0.000	0.827
size	22.355	0.925	19.734	25.186
BM	0.888	0.852	0.078	5.300
ROE	4.514	6.387	-20.140	25.584
turnover	2.635	2.096	0.033	21.670
lev	0.448	0.213	0.039	1.558

Based on the data of sample stocks of China's Shanghai and Shenzhen A-share listed companies from 2007 to 2017, Table1 shows the descriptive statistical indicators of each variable.

From the above table, we can find that it is especially important to analyze the influence of different types of institutional investors on the synchronization of stock prices. Before the multivariate linear regression, the Pearson correlation test was used to test the whole sample data and the correlation analysis of the main variables of the model. The results of the Pearson correlation test indicate that there is no multicollinearity problem between the main variables of the model. In general, the control variables we choose are explanatory. The correlation coefficient between stock price synchronization index, institutional investor index and control variable is very significant. It can be seen that our choice of variables is reasonable.

Model Setting

In order to verify the hypotheses H1, H2 and H3, the following three regression models are constructed.

$$1.\ RSQ_{i,t} = \alpha + \beta_1 hold_{i,t} + \beta_2 size_{i,t} + \beta_3 BM_{i,t} + \beta_4 ROE_{i,t} + \beta_5 lev_{i,t} + \beta_6 turnover_{i,t} + \sum year_i + \sum industry_i + \varepsilon_{i,y}$$

$$2.\ RSQ_{i,t} = \alpha + \beta_1 trade_{i,t} + \beta_2 size_{i,t} + \beta_3 BM_{i,t} + \beta_4 ROE_{i,t} + \beta_5 lev_{i,t} + \beta_6 turnover_{i,t} + \sum year_i + \sum industry_i + \varepsilon_{i,y}$$

$$3.\ RSQ_{i,t} = \alpha + \beta_1 trade_{i,t} + \beta_2 hold_{i,t} + \beta_3 size_{i,t} + \beta_4 BM_{i,t} + \beta_5 ROE_{i,t} + \beta_6 lev_{i,t} + \beta_7 turnover_{i,t} + \sum year_i + \sum industry_i + \varepsilon_{i,y}$$

Empirical Results and Analysis

The Hausman test is performed on the full sample panel data. The test result is P value of 0.000. Since the sample data is unbalanced panel data, the panel data least squares regression model with fixed effect is adopted.

The Impact of Institutional Investors' Overall Shareholdings and Transactions on Stock Price Synchronicity

Table 2. Regression results of institutional investors' shareholdings and trading and stock price synchronization

	RSQ	RSQ	RSQ	RSQ
size	-0.459***	-0.458***	-0.346***	-0.343***
	(0.000)	(0.000)	(0.000)	(0.000)
BM	0.00700**	0.00600	0.028***	0.031***
	(0.000)	(0.000)	(0.000)	(0.000)
ROE	0.014***	0.014***	0.012***	0.012***
	(0.000)	(0.000)	(0.000)	(0.000)
turnover	-0.023***	-0.023***	-0.037***	-0.036***
	(0.000)	(0.000)	(0.000)	(0.000)
lev	-0.263***	-0.268***	-0.331***	-0.323***
	(0.000)	(0.000)	(0.000)	(0.000)
trade		0.046***		0.087***
		(0.000)		(0.000)
hold			-1.108***	-1.141***
			(0.000)	(0.000)
cons	9.852***	9.856***	7.588***	7.510***
	(0.000)	(0.000)	(0.000)	(0.000)
Obser	62809	62809	62809	62809
R^2	0.4372	0.5061	0.5923	0.6301

There are four models in the regression results. The first model only considers the control variables. The results show that except for BM and ROE, which are significantly positively correlated with stock price synchronicity, all control variables are significantly negatively correlated with stock price synchronicity, indicating that the selected control variables of the model are of good nature. The second model only considers the impact of institutional investor transactions on stock price synchronicity. The trade coefficient is 0.046, indicating that institutional investor transactions are significantly positively correlated with stock price synchronicity. The third model only considers the influence of institutional investors' shareholding on stock price synchronicity. The hold factor is -1.808, which indicates that the synchronicity of stock prices will decrease significantly with the increase of the proportion of institutional investors, which will have a positive effect on the stock market. The fourth model considers the influence of institutional investors' shareholdings and transactions on stock price synchronicity. The results show that the direction of influence of institutional investors' trading and shareholding on stock price synchronic has not changed. From the regression results, institutional transactions have intensified price volatility. In general, institutional investors' shareholding behavior will significantly reduce stock price synchronicity, improve market efficiency, and trade behavior is reversed.

The Influence of Different Types of Institutional Investor Behavior on Stock Price Synchronicity

Using the full sample data according to Model 3, the relationship between the behavior of various types of institutional investors and the stock price synchronization is empirically studied. The results are shown in Table 3.

Table 3. Effect of Different Types of Institutional Investors' Behavior on Stock Price Synchronization

	insu	QFII	fund	sec	pens	trust
trade	-0.067*	-0.245***	0.222***	0.160***	-0.333***	-0.0560**
	(0.061)	(0.000)	(0.000)	(0.000)	(0.000)	(0.010)
size	-0.544***	-0.519***	-0.371***	-0.531***	-0.457***	-0.435***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
BM	0.104***	0.172***	0.147***	0.199***	0.134***	0.205***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ROE	-0.015***	-0.014***	0.012***	-0.017***	-0.007***	0.018***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
turnover	-0.069***	-0.077***	-0.080***	-0.085***	-0.054***	-0.046***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
lev	-0.632***	-1.008***	-0.347***	-0.698***	-0.481***	-0.330**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.028)
hold	0.963***	-6.370***	-1.515***	-1.405***	-2.457***	-0.561***
	(0.000)	(0.003)	(0.000)	(0.001)	(0.005)	(0.003)
cons	12.779***	12.564***	8.455***	11.247***	9.641***	10.003***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Obser	11854	5713	48892	14308	12599	7375
R^2	0.5063	0.4798	0.6201	0.4526	0.7021	0.6230

Available from Table 3, The three types of institutional investors, such as general legal person, qualified foreign institutional investor (QFII), social security fund (Pens) and trust company (Trust), have positive influence on the market and promote the synchronization of stock price. The trading behavior of the fund and the stock holding behavior of the insurance institution will bring about a synchronous increase in the stock price, resulting in an increase in price volatility.

Endogenous Test of Institutional Shareholding and Stock Price Synchronization

In order to determine whether the model has endogeneity and whether institutional investors' shareholding behavior has a significant impact on stock price synchronicity, this paper uses the Davidson-McKinnon test method to judge whether the model is endogenous. The lag period of the

institutional investor's shareholding ratio is selected as the instrumental variable. The original hypothesis is that there is no endogenous or endogenous influence, and the test result is p=0.1331. The sample data information allows us to accept the null hypothesis, that is, institutional investors. Shareholding behavior is the Granger cause of synchronous stock price changes, and the stock price synchronization is not the decisive factor for institutional investors' shareholding behavior.

Research Conclusions

Institutional investors' shareholdings are significantly negatively correlated with stock price synchronicity, indicating that institutional investors holding certain stocks themselves transmit effective information to the market, which is conducive to the improvement of market pricing efficiency. However, institutional investor trading has led to an increase in stock price synchronicity, indicating that institutional investors are still bounded rational under certain circumstances.

There are differences in the influence of different types of institutional investor behavior on stock price synchronicity. The holdings and trading behaviors of general legal persons, qualified foreign institutional investors (QFII), social security funds (Pens) and trust companies (Trust) It is beneficial to reduce stock price synchronicity and improve the efficiency of resource allocation in the stock market, while the trading behavior of the largest and most developed securities investment fund has intensified the price volatility, resulting in higher stock price synchronicity.

Acknowledgements

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