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QFII Shareholding, the Performance of Listed Companies and the Quality of Stock Market: An Empirical Test on the Data of China from 2009 to 2017

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Abstract: By selecting the shares on Shanghai Stock Exchange of China held by QFII from 2009 to 2017 as the research sample and by using Stata12, Excel software, this paper studies the effect on the quality of the stock market caused by QFII holdings, scale of listed companies, their performance, and etc. through descriptive statistics, regression, and dummy variable regression methods. Empirical studies have found that QFII investment behavior is more rational and the ability of stock selection is stronger. Most of the stocks they hold have excellent performance and large market values; QFII holdings enhanced liquidity of the stock and reduced the volatility of stock prices, which tends to stabilize the stock price; QFII stock ownership has the biggest impact on the market quality of large and medium-sized stocks, but has a weak impact on small-cap stocks. The listed company who has better performance and larger current market value can achieve better stock liquidity and stability. China should continue to expand the QFII team, encouraging it to participate in the corporate governance activities of listed companies and tap the potential small-cap growth stocks, and allows excellent QFII to issue funds or other financial products at home and abroad. Chinese listed companies should actively improve their performance, strengthen cooperation with QFII to optimize corporate governance and strengthen market value management.

Keywords: Stock Liquidity, Share Price Volatility, Market Capitalization, The Performance of Listed Companies

1. The Introduction

Since China formally introduced the qualified foreign institutional investor (hereinafter referred to as QFII) system in 2002, QFII has grown rapidly. According to statistics from the State Administration of Foreign Exchange, China has had 287 QFIIs by July 30, 2018, with a total approved quota of US $100.459 billion. This obviously strengthened the ranks of institutional investors in China, promoted the governance level of listed companies and optimized resource allocation by drawing on the foreign mature investment concept. While promoting the internationalization of capital market, it can restrain the impact of foreign speculative hot money on Chinese stock market and economy.

There is not much literature in China about the effect of QFII on the stock market. According to empirical analysis by Zhang Youhui et al. [1] and Shang Jingbo [2], QFII shareholding ratio is positively correlated with stock price volatility, which indicates that QFII shareholding exacerbates stock price volatility and is not conducive to stock market stability. However, another empirical study by Rao Yulei et al. [3] found that QFII's long-term investment behavior can improve the information content of stock prices and reduce the synchronization of stock prices, especially in a bear market, while short-term speculation has the opposite effect. Peng Ying [4] studied the QFII shareholding and found that QFII inhibited the speculation in the Chinese stock market, and the increase of its shareholding ratio was conducive to the return of stock prices to the intrinsic value of stocks. In terms of QFII shareholding and corporate performance, Huang Bin [5] has shown that QFII shareholding ratio is positively correlated with the size of listed companies, net asset per share, earnings per share and profit margin of main business. The empirical research of Wang Xiong et al. [6] shows that QFII shareholding ratio is positively correlated with the performance of listed companies, and QFII has a strong ability

of value selection and is good at discovering listed companies with good performance. Ma Chaoqun and Chen Rui [7] also confirmed that QFII shareholding ratio and QFII shareholding checks and balances are positively correlated with the performance of the listed companies, and have a stronger impact on the performance of state-owned listed companies. In general, the above studies have a small sample size and some of the researches only studied stocks with a high ratio of QFII shareholding. There is less research combining QFII shareholding, listed company performance with market capitalization.

Internationally, the research of Cho-min Lin et al. [8] shows that the trading behaviors of foreign institutional investors have a very important influence on domestic investors. The buying and selling activities of domestic and foreign institutional investors are completed based on different investment judgments. The information transmission effect between institutional investors is significantly faster. In terms of QFII investment preferences, Yang-Cheng Lu et al. [9] found that foreign institutional investors in the Taiwan stock market of China tend to hold shares of large listed companies. They bought large-cap stocks in batches, of which the subsequent excess yields increased significantly, and their shareholding changes would help to reflect the effect of asset restructuring. Miao Luo et al. [10] studied the data of institutional holdings in Japanese stock market and found that the existence of institutional investors, especially foreign institutions, increased the information content of stock prices and improved the effectiveness of the stock market. Thus, the investment preferences of foreign institutional investors and their information transmission also affect the stock market quality in other countries or regions.

In the Chinese stock market, with QFII's development and growth, their investment in stocks is gradually increasing. Have they invested rationally, chosen good listed companies, and stabilized the stock market? This paper will analyze the influence on the quality of the stock market by various factors, such as QFII shareholding, company performance and its scale. Firstly, I will make a theoretical analysis. And secondly, I will make an empirical test to study the effect of QFII on the Chinese stock market in the past ten years and then give corresponding suggestions.

2. Theoretical Analysis and Hypothesis

The theoretical analysis of the influence of factors such as QFII shareholding, company performance and its size on the stock market quality is as follows:

Firstly, QFII represents more mature foreign institutional investors, and most of them stick to rational investment. In the Chinese stock market, they tend to select blue chip stocks, large mid-cap stocks and industry leaders stocks. Therefore, the higher QFII shareholding ratio is, the easier it is to attract the attention of other investors in the market and attract funds. As the buying and selling volume rises, the depth of the stock's ten orders will increase and the bid-ask spread will decrease. As a result, its liquidity will be improved. In addition, according to the financial innovation laboratory of Shanghai Stock Exchange, the average shareholding period of all investors in Shanghai Stock Exchange was only 61.2 days in 2013, slightly shorter than in 2012, and the turnover rate was close to 200%. In 2013, the shareholding period of QFII was 92 days (in 2012, it was 103.7 days), longer than that of most other institutional investors. The turnover rate of QFII shareholding is 101.4%, far lower than the average [11]. In Shenzhen stock market, the turnover rate of QFII was lower than that of general institutions, but it is slightly higher than that of long-term strategic investors such as social security fund [12]. So comparatively speaking, QFII are prudent and rational ones among investors in China and they have been holding some blue-chip stocks like banks and brewing companies for years.

Meanwhile, QFII's holding of individual stocks also stabilizes the confidence of market investors, and reduces the frequent trading and volatility of stocks to some extent. According to the research of Zhao Xu, Lin Shu and Peng Yu [13], the impact of QFII shareholding ratio on stock price fluctuations varies with the size of stock market value. For large-cap stocks, the higher the QFII shareholding ratio, the lower the volatility of stock price. It has a weaker impact on smaller stocks. In terms of liquidity, QFII prefers large-cap stocks with good performance, followed by mid-cap stocks. For small-cap stocks, their small market value and limited liquidity are not helpful for the institutions to increase or reduce their holdings. The influence of QFII shareholdings on small-cap stocks is limited. Hence, two hypotheses are proposed as follows:

Hypothesis 1: the higher QFII shareholding ratio is, the more beneficial it is to improve the liquidity of individual stocks and reduce the volatility of stock prices.

Hypothesis 2: QFII stock ownership has a strong positive impact on the quality of large and medium-cap stocks and a weak impact on small cap stocks.

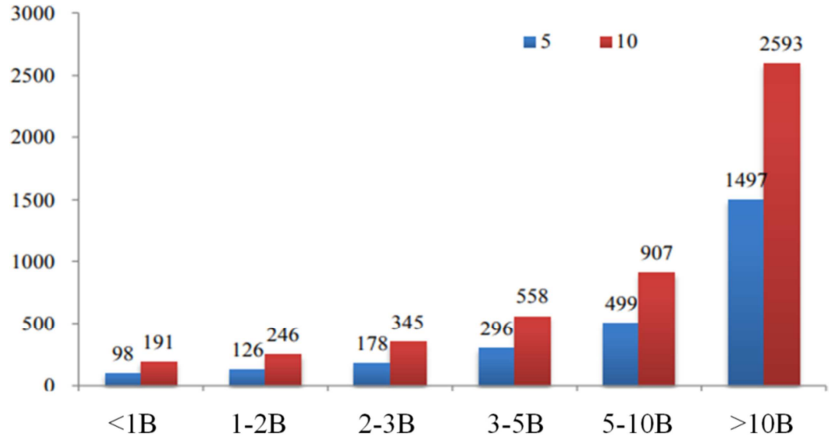
Secondly, foreign institutional investors can learn about the invested company through investigation and research, and properly participate in the management activities of the company through questioning, putting forward proposals and exercising voting rights, all of which are conducive to the improvement of the company's performance. It is more likely that QFII has consciously selected well-performing listed companies. The better the performance of listed companies, the easier it is to attract more investors' attention. Stock trading is relatively active with large volume, so the order depth of the stock gets greater and the bid-ask spread becomes smaller. In addition, to many investors including QFII, quality stocks are worth long-term holding, rather than frequent short-term trading, so the volatility of the stock price is relatively low. Hence, another hypothesis is put forward:

Hypothesis 3: The better the company's performance, the stronger the stock market liquidity and the lower the volatility.

Thirdly, for the stocks with larger market value in circulation, compared with the stocks with smaller market cap, their rise and fall of the same range corresponds to a larger trading volume. A sharp rise and fall is not easy to achieve,

and thus the bid-ask spread is relatively small. Take the order depth of five grades and ten grades in 2017 as an example. It can be seen from figure 1 below that the larger the market value of circulation is, the higher the order depth is, and sufficient supply and demand makes stock trading easier. In addition, the larger the number of stock transactions, the less susceptible to manipulation by informed traders or bankers. Stock prices, in the short term, are difficult to fluctuate sharply. Thus, volatility is relatively small. Therefore, the fourth hypothesis is proposed as follows:

Hypothesis 4: The greater the stock market value, the stronger the stock market liquidity and the lower the volatility.



Data source: Shanghai Stock Exchange market quality report (2018)

Figure 1. *The order depth of 5 grades and 10 grades in Shanghai stock market of China grouped by circulation market value in 2017 (vertical axis - order depth unit: 10,000 RMB yuan, horizontal axis - circulation market value unit: 1 billion RMB yuan).*

3. The Empirical Analysis

3.1. Research Design

In this paper, Shanghai stocks held by QFII from 2009 to the end of 2017 are selected as research samples. In the 9 years, bull markets (2009, 2014-2015), bear markets (2010-2011, 2016) and volatile markets (2012-2013, 2017) were included, and each type of market accounted for 3 years. Some stocks without relevant statistical data were excluded. Stocks with both earnings per share and net asset per share being negative (net asset return was positive and meaningless) were excluded. Samples with QFII shareholding ratio less than 0.3% were excluded and 668 samples were obtained in the nine years. The market quality of individual stocks was examined from multiple perspectives and the indicators used as the explanatory variables included: price impact index, liquidity index, 10-order depth and relatively effective spread of price used for measuring stock liquidity, and intraday volatility and earnings volatility for stock price volatility. Explanatory variables mainly include QFII shareholding ratio, listed company's performance, market value scale and the selected proxy indicators are institutional shareholding ratio, return on equity and stock circulation market value, etc. In order to examine the impact of different years and the overall stock market performance on the quality of individual stocks, this paper sets the dummy variable D_1, representing bull markets in 2009 and 2014-2015, and D_2, representing bear markets in 2010-2011 and 2016. They are compared with the other three years of market fluctuations.

In addition, in order to examine the different impact of QFII ownership on the stock market quality under different market capitalization scales, samples were grouped by market capitalization scale. All samples were divided into three groups, namely large, medium and small, respectively with a sample size of 298, 190 and 180, based on the market value of 10 billion yuan and 5 billion yuan as dividing lines. This shows that QFII relatively favors large-cap stocks, but it also holds a certain proportion of medium and small-cap stocks.

On this basis, this paper will carry out grouping regression and multiple regression analysis, and then draw corresponding conclusions and give relevant policy recommendations.

3.2. Index and Data Selection

The indicators of individual stock liquidity include liquidity index, 10-order depth, price impact index and relatively effective price spread. Because of large value of the first two indicators, this paper calculates and uses its logarithm. Indicators of stock price volatility include intraday volatility and earnings volatility. The data has been collected from the Shanghai Stock Exchange's 2010-2018 market quality report.

In terms of explanatory variables:

(1) Price impact index (liquidity cost), namely the average cost of reverse price change caused by buying and selling a certain amount of stocks. The lower the cost, the better its liquidity.

(2) Liquidity index, refers to the average amount of buying required to raise prices by 1% and selling required to lower prices by 1%. The larger the index, the stronger the liquidity, which indicates there are enough stocks for trading.

(3) 10-order depth, is the most direct indicator to measure the depth of China's stock market. The Shanghai Stock Exchange reported the total amount of all orders on the best ten purchase and purchase prices as the agent indicator of order depth. The higher the index, the deeper China's stock market is. The easier it is to buy and sell stocks, the stronger

the liquidity is.

(4) Relatively effective spread of price, measures the spread between the actual transaction price of the order and the mid-point of the bid-ask spread when the order is reached. The higher the effective spread, the higher the actual execution cost of the order. The lower the value, the lower the actual execution cost and the better the liquidity. P_{it} is set as the weighted average price for the stock i at time t when the order is submitted.

$$\text{Relative effective spread of price} = (2 \cdot |P_{it} - P_{Mit}|) / P_{Mit} \cdot 100\%$$

The effective spread of price over a period is weighted by time.

(5) Intraday volatility is the relative volatility of every 5 minutes in a day. Its formula is as follows:

$$R\_Volatity = \frac{1}{n}\sum_{i=1}^{n}\frac{H_i - L_i}{H_i}$$

In the formula, H_i is the highest transaction price of a security in the # i five minutes, and L_i is the lowest transaction price of a security in the # i five minutes. The greater the intraday volatility, the greater the volatility of the price within the range, and vice versa.

(6) The yield volatility is the standard deviation of the yield every 5 minutes in a day. The greater the volatility of earnings, the greater the volatility of prices.

In terms of explanatory variables:

(1) QFII shareholding ratio refers to the proportion of Shanghai-listed stocks held by QFII in total A shares from 2009 to the end of 2017. The higher the ratio, the more QFII favor the stock, the stronger the impact on its market quality.

(2) The performance of listed companies takes the return on net assets per share as the proxy indicator and the robustness test is conducted on earnings per share and net assets per share. Relatively speaking, return on equity is not an absolute index and it is more reasonable to use it as an agency index, excluding the influence of company size and history length.

(3) The stock market value at the end of the year represents the size of the listed company. Because of its large value, this paper calculates and uses its logarithm. The data of these three kinds of indicators all come from the Chinese Rui-si financial database (www.resset.cn).

3.3. Index Description

The basic statistical description of the major variables is shown in table 1. This paper focuses on the main features of QFII shareholding in China as below:

3.3.1. QFII Develops Fast, but Has Limited Influence on the Market

As shown in table 1 below, the average of QFII shareholding ratio in 2009-2017 is 1.9% and the maximum is 22.8%. The comparison with other institutions is as follows: the proportion of shareholding market value of professional institutional investors in Shanghai at the end of 2013 was 29.31%. The top three investors are investment funds, insurance companies and QFII, accounting for 12.51%, 4.86% and 4.05% respectively. Social security funds accounted for 2.70%, and other institutions accounted for 5.19% [14]. So QFII still has great potential for development.

3.3.2. The Average Circulating Market Value of QFII's Shares Is 25.532 Billion Yuan, Mainly in Large and Mid-Cap Stocks

The stocks with the highest shareholding ratio over the years include Bank of Nanjing, Bank of Beijing, Bank of Huaxia, Yonyou Software, China's International Trade, Baiyun Airport, Eurasia Group, Inner Mongolia Yili, Guizhou Moutai and Yibai Pharmaceutical, etc. It can be seen that QFII prefers joint-stock banks and industry leaders.

3.3.3. The Financial Performance of the Stocks Held by QFII Is Excellent

The average earnings per share of QFII shareholding companies was 0.78 yuan from 2009 to 2017 (the average of the Shanghai Stock Exchange was only about 0.45 yuan in the same period) and the average net asset per share was 5.83 yuan (the average of the Shanghai Stock Exchange was about 4.66 yuan in the same period). The average return on equity was 4%, slightly higher than the market average. On the whole, the excellent performance of the stocks held by QFII reflects that QFII is dominated by rational investment and good at finding blue-chip stocks, which is consistent with the conclusions of Wang Xiong, Fang Wenqian and Liu Zhenbiao [6].

Table 1. *Statistical description of each variable in the model from 2009 to 2017.*

Variable code	Name and description	Obs	Mean	Std.Dev.	Min	Max
P- shocks	Price impact index (BPS)	668	11.03	4.61	2	33
Lnmobility	Liquidity index (ten thousand yuan), Logarithmic value	668	6.00	0.83	3.95	8.74
Lndepth	Level-10 order depth (ten thou-sand yuan), Logarithmic value	668	6.50	0.81	4.80	9.52
Spread-ef	Relatively effective spread of price (BPS)	668	29.10	8.26	8	55
R_Volatity	Intraday volatility (BPS)	668	45.60	12.20	18	94
RR_Volatity	Yield volatility (BPS)	668	34.89	10.15	14	75
FR	QFII shareholding ratio	668	0.019	0.03	0.003	0.228
EPS	Earnings per share (RMB /share)	668	0.78	1.52	-2.46	21.56
NAVPS	Net asset per share (RMB/share)	668	5.83	5.41	0.48	72.80
ROE	Return on equity	668	4.00	10.85	-144.60	67.02
Mv	Stock market value (million RMB)	668	25532.7	55998.9	940.5	876185.4
Lnmv	Logarithmic value of "Mv"	668	9.29	1.18	6.85	13.68
D_1	A dummy variable, 1 represents a bull market	668	0.34	0.48	0	1
D_2	A dummy variable, 1 represents a bear market	668	0.34	0.47	0	1

3.4. Correlation Analysis

Correlation test and multicollinearity test were performed on the variables of the multivariate regression model. As shown in table 2 below, most of the variables were significantly correlated at the 1% level between 2009 and 2017, but the coefficients were not high, and most of them were less than 0.5. This indicated that the above indicators could be used to explain the performance quality of individual stock market from different perspectives and there was basically no multicollinearity. In addition, the mean value of VIF was 1.11, far smaller than the critical value of VIF (5), while the tolerance value of 1/VIF was above 0.85, so it can be determined that there is no multicollinearity between several variables.

In addition, it can be obviously seen from the following table that the higher the QFII shareholding ratio, ROE and market value scale, the higher the liquidity index and the depth of orders, the lower the price impact index, the relative effective spread of price and the volatility. Therefore, it is preliminarily deemed that QFII investment can improve the liquidity and stability of stocks, which also proves the above hypothesis 1, 3 and 4.

Table 2. *Correlation coefficients of key variables such as QFII stock ownership, company performance and stock market quality in 2009-2017.*

Variable code	*P- shocks*	*Lnmobility*	*Lndepth*	*Spread-ef*	*R_Volatity*	*RR_Volatity*	*FR*	*ROE*	*Lnmv*
P- shocks	1.0000								
Lnmobility	-0.7530*	1.0000							
Lndepth	-0.4240*	0.8491*	1.0000						
Spread-ef	0.6499*	-0.3317*	0.0608	1.0000					
R_Volatity	0.0434	-0.0417	0.0198	0.6109*	1.0000				
RR_Volatity	0.1812*	-0.2508*	-0.2591*	0.5746*	0.9324*	1.0000			
FR	-0.1684*	0.2629*	0.2371*	-0.1527*	-0.1237*	-0.1685*	1.0000		
ROE	-0.2296*	0.2129*	0.0714	-0.3292*	-0.1243*	-0.1497*	0.0459	1.0000	
Lnmv	-0.5879*	0.8445*	0.6972*	-0.3879*	-0.2121*	-0.3738*	0.2771*	0.2643*	1.0000

Note: * $p < 0.01$

3.5. The Empirical Model

Based on the above theoretical analyses and empirical tests and given the influence of factors such as QFII shareholding, company performance and market size on the quality of individual stock market, a multiple linear regression model is established as follows:

$$Y_i = \alpha + \beta_1 FR + \beta_2 D_1 + \beta_3 D_2 + \varepsilon \quad (1)$$

$$Y_i = \alpha + \beta_1 FR + \beta_2 ROE + \beta_3 Lnmv + \beta_4 D_1 + \beta_5 D_2 + \varepsilon \quad (2)$$

Y refers to the quality of individual stock market defined from different perspectives. Y_i goes from Y_1 to Y_6. The corresponding Y_i represents the price impact index, liquidity index, 10-order depth, relative effective spread of price, intraday volatility and yield volatility of the explained variable respectively.

FR, ROE and Lnmv, as well as D_1 and D_2, were the explanatory variables, and the respective influence was analyzed from the perspectives of QFII shareholding ratio, ROE per share of listed companies, current market value and time dummy variables. *"α"* is the intercept term, "*β"*is the variable coefficient and "*ε"* is the random error term.

3.6. Empirical Results

Firstly, the effects of QFII stock ownership on the quality of individual stock market under different market value and market conditions have been analyzed. Take the relative effective spread of price and yield volatility as an example. The regression results of the above model (1) are listed in table 3 below. The following conclusions have been drawn:

Without consideration of current market value and corporate performance, QFII stock holdings still have a strong influence on the stock market quality. The explanatory power of each equation is between 7% and 30%, and the P value is zero.

(2) In the small market cap group, the more QFII share ownership, the higher the yield volatility. In addition, QFII ownership reduces the relative effective spread of price and intraday volatility regardless of the market value, which is conducive to improving the liquidity and volatility of the stock market. This further proves hypothesis 1. In the large-cap group, the coefficient of FR is very significant, which indicates that QFII has a strong influence on large-cap stocks. As can be seen from the absolute value of the coefficient, the order of QFII influence is the medium market group, large market group and small market group. This proves hypothesis 2 and confirms and deepens the research results of Zhao Xu, Lin Shu and Peng Yu [13].

In the small and medium market groups, the reason why QFII shareholding has no significant impact on stock market quality may be that the shareholding ratio is obviously small and the performance of stocks held is obviously low. Grouping statistics show that in 2009-2017, the mean values of QFII shareholding percentage in large, medium and small groups were 2.53%, 1.40% and 1.38% respectively; average of earnings per share were 1.18 yuan, 0.55 yuan and 0.35 yuan; net assets per share of the mean value of 7.39 yuan, 4.94 yuan and 4.17 yuan respectively; average rate of return on net assets are 6.43%, 3.69% and 0.30% respectively. The statistics are significantly from high to low, consistent with groups of different size.

(3) As can be seen from the dummy variable, both in bull market and bear market, the relative effective spread of price and yield volatility mostly rise significantly, and show more intensity and significance in the bull market, which is significantly correlated with the relatively active stock price and stock market. But in a bear market, the spread of price and volatility of small-cap stocks do not change significantly. Therefore, it can be inferred that both the relative effective spread of price and the volatility in the volatile market will be low, while the stock market is inactive.

Table 3. *Regression results of QFII stock holdings and stock market quality grouped by market value.*

Variable code	***Spread-ef***			***RR_Volatity***		
Market value grouping	**large**	**medium**	**small**	**large**	**medium**	**small**
FR	-28.29**	-30.04	-20.16	-41.13***	-43.56	0.601
	(-2.27)	(-0.70)	(-0.41)	(-3.38)	(-0.82)	(0.01)
D_1	5.61***	5.93***	4.20***	10.91***	13.31***	9.44***
	(4.84)	(4.70)	(3.55)	(9.61)	(8.58)	(5.93)
D_2	3.06**	0.74	-0.04	2.40**	5.47***	2.31
	(2.59)	(0.59)	(-0.03)	(2.07)	(3.57)	(1.43)
_cons	24.10***	28.29***	31.55***	27.87***	31.40***	34.10***
	(28.28)	(24.19)	(28.62)	(33.41)	(21.86)	(22.99)
obs	298	190	180	298	190	180
F	9.38	9.82	6.04	36.42	25.94	13.09
Prob > F	0.0000	0.0000	0.0006	0.0000	0.0000	0.0000
R^2	0.0873	0.1367	0.0934	0.2709	0.2950	0.1824
Adj R^2	0.0780	0.1228	0.0780	0.2635	0.2836	0.1685

Note: 1. *t* statistics in parentheses; 2.* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Secondly, the effect of multiple factors on stock market quality was analyzed, and the regression results of model (2) from Y_1 to Y_6 were listed in table 4 below. The adjusted R^2 of the six models is between 26% and 73%, and all P values are zero. Given the numerous factors affecting the quality of the stock market, this explanatory power is quite good. Most of the variables and constants are highly statistically significant. The explanatory power of the model is stronger than that of the single-factor model mentioned above, indicating that the factors of increased circulation market value and company performance have explanatory power. Meanwhile, the coefficient direction of QFII shareholding ratio remains unchanged. Therefore, this indicates that the model is reasonably set and has strong explanatory power. The impact of various factors on the quality of the stock market is analyzed as follows:

(1) The influence of QFII shareholding on the stock market quality

The higher the QFII shareholding ratio, the weaker the price impact on the stock, the more liquidity, and the depth of ten orders, which indicates that QFII shareholding promotes the increase of the amount of trading of individual stocks, which is statistically significant. At the same time, the relative effective price spread of individual stocks was reduced and the intraday volatility and earnings volatility were also significantly reduced and highly statistically significant. This shows that QFII can help the transaction of the stock, enhance the liquidity of the stock and reduce the volatility of the stock price, thus contributing to the stability of the stock price, which proves hypothesis 1.

(2) The impact of company performance on stock market quality.

The return on net assets per share increased by 1%, so the liquidity index and the depth of ten orders decreased slightly by 0.11% and 0.95%. The price impact index, relative effective spread of price, intraday volatility and earnings volatility decreased by 0.03, 0.21, 0.14 and 0.10 basis points, which was highly statistically significant. This basically proves that the better the performance of listed companies, the stronger the stock liquidity, the lower the volatility, and the stock price tends to be stable. This basically proves hypothesis 3.

(3) The influence of current market value of listed companies on stock market quality

For every 1% increase in the current market value of listed companies, their stock liquidity index and 10-order depth rose 0.60% and 0.50% respectively, while the price impact index, relative effective price spread and intraday volatility and earnings volatility all declined and were highly statistically significant. This indicates that the increase in the market value of circulation can enhance the liquidity of stocks and reduce the volatility of stock prices, which proves hypothesis 4.

Finally, the virtual variables are analyzed. D_1 represents the bull market, and D_2 represents the bear market. Compared with the volatile market, the order depth and liquidity index increase significantly in the bull and bear markets, and meanwhile the relative effective price spread also increases significantly and volatility increases. As can be seen from the coefficients of most indicators, changes in the bull market are much greater than those in the bear market. Investors have better and smoother trading opportunities in the bull market and face greater market volatility. However, the price impact index in the bear market is significantly smaller, which is probably associated with declining stock volumes and inactivity in the bear market.

Table 4. *Regression results of multiple linear models of QFII stock holdings, corporate performance, and stock market quality (full sample).*

Variable code	*P- shocks (Y_1)*	*Lnmobility (Y_2)*	*Lndepth (Y_3)*	*Spread-ef (Y_4)*	*R_Volatity (Y_5)*	*RR_Volatity (Y_6)*
FR	-1.334	0.903*	1.262*	-17.97*	-34.78**	-28.74**
	(-0.25)	(1.42)	(1.51)	(-1.78)	(-2.29)	(-2.44)
ROE	-0.0344**	-0.0011	-0.0095***	-0.211***	-0.140***	-0.0999***
	(-2.50)	(-0.67)	(-4.43)	(-8.17)	(-3.59)	(-3.31)
Lnmv	-2.244***	0.600***	0.501***	-2.016***	-1.422***	-2.639***
	(-17.07)	(38.38)	(24.49)	(-8.14)	(-3.82)	(-9.12)
D_1	-0.559	0.164***	0.145***	5.790***	13.75***	11.30***
	(-1.59)	(3.90)	(2.64)	(8.73)	(13.77)	(14.58)
D_2	-1.274***	0.194***	0.098*	1.369**	4.657***	3.129***
	(-3.61)	(4.62)	(1.79)	(2.06)	(4.65)	(4.03)
_cons	32.66***	0.293**	1.777***	46.57***	53.76***	55.43***
	(26.60)	(2.00)	(9.31)	(20.13)	(15.44)	(20.52)
obs	668	668	668	668	668	668
F	75.82	347.92	136.17	56.16	49.47	76.52
Prob>F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
R^2	0.3641	0.7243	0.5070	0.2978	0.2720	0.3663
Adj R^2	0.3593	0.7223	0.5033	0.2925	0.2665	0.3615

Note: 1. *t* statistics in parentheses; 2.* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

3.7. Robustness Test

The relative bid-ask spread replaces the relative effective spread and the relative bid-ask spread measures the difference between the best bid price and the best offer price. Excess volatility replaces intraday volatility and earnings volatility, the excess volatility is equal to the absolute value of the difference between the daily and intraday volatility. Earnings per share or net assets per share replaces ROE per share. The results obtained by regression analysis (Due to the limited space, the regression results are not listed here) are not substantially different from the above, but the significance of the coefficient and the fitting degree of the equation are slightly different. Therefore, the above model is robust and the conclusion is reliable.

4. Brief Conclusions and Relevant Recommendations

4.1. The Conclusion

(1) QFII in China develops fast, its investment is rational and its stock selection ability is strong. The financial performance of their holdings was excellent (significantly above the market average) and dominated by large mid-cap stocks.

(2) QFII investment significantly increases the stock liquidity and reduces the volatility of the stock price, which is conducive to the stability of the stock price.

(3) QFII shareholding has the largest impact on the market quality of large-cap and medium-cap stocks, while it has a relatively weak impact on small-cap stocks.

(4) The better the performance and the larger the market value of the listed company, the stronger the stock liquidity and the better the stock price stability.

4.2. Recommendations

(1) With the successful inclusion of China's A-shares in the MSCI index in June 2018, China should continue to steadily expand its QFII team, including expanding the original QFII investment quota and bringing in new members around the world. By publicizing QFII rational investment through channels such as education and sharing its mature investment philosophy and methods, China should encourage investors' long-term investment behavior. The government will also launch a pilot program to allow good QFII to issue public funds or other wealth management products at home and abroad, providing more profit opportunities for ordinary investors. The government should encourage QFII to actively engage in the governance of listed companies and exercise their right to appoint or elect directors to listed companies, with an intent to harmoniously and practically unify the long-term shareholding of shareholders and their participation in corporate governance. For example, on May 25, 2012, Feng Jiyong, a candidate jointly nominated by Yale University Foundation and Penghua Fund, was elected as new director of the listed company Gree Electric Appliances with high votes, while the director candidate nominated by Zhuhai Gree Group (a major shareholder) failed. Such directors, representing QFII and other institutional interests, are beneficial to the interests of small and medium-sized investors. In addition, QFII can improve the level of technological innovation of Chinese enterprises through technology spillover effect and further improve the performance and competitiveness of listed companies.

(2) In the future, China will push forward the registration system. QFII should make full use of its ability to select stocks, carry out investigation and research in listed companies, and actively tap the potential of small-cap growth stocks. If a small company focuses on its unique business, it also deserves the

attention and long-term investment of the institution. Among the Small and Medium-sized Enterprises and Growth Enterprises Market (GEM) listed on Shenzhen Stock Exchange, there are plenty of companies which have gradually developed into industry leaders. For example, Hikvision, Gold Mantis, Geersonics and Opi Light in the small and medium sized market, Bishuiyuan, Huayi Brothers, Huichuan Technology, Blue Cursor, Tang Chen Bei Jian and other enterprises in the GEM have grown into enterprises with great influence and strong innovation skills. According to the statistics of Shenzhen Stock Exchange, by the beginning of March 2015, the market value of the stocks held by QFII had reached 163.4 billion yuan, accounting for 1.43 percent of the market circulation value, including 45.3 billion yuan of the Small and Medium-sized Enterprises market and 13.7 billion yuan of the GEM. So QFII should continue to expand investment in small and medium-sized companies.

(3) Listed companies should actively improve performance, continuously optimize corporate governance and actively strengthen market value management. Large and medium-sized listed companies can learn from the implementation of EVA performance evaluation system by state-owned enterprises to curb excessive investment, shift from focusing on profit creation to focusing on value creation, build an industrial chain of value creation, decompose and implement the objectives to each department to improve performance [15]. Listed companies must promote their relationship with investors, actively liaise with institutional investors, including QFII, draw on the experience of domestic and foreign investors and accept their good suggestions. While optimizing corporate governance, they should not only make their main businesses bigger and stronger, but also take advantage of the capital market to secure financing timely and merge actively. On this basis, the stability of the company's market value can be promoted through share repurchase, employee stock ownership and the increase and decrease of shareholdings.

Fund Project

The project of Jiangsu Institute of International Finance in 2015: " Research on the Influence of QFII Shareholding and Position Change on Chinese Stock Market" (SGX2015042); The key project of China Securities Industry Association in 2016: "Research on Building a Lifelong Education System for Small Investors" (SAC2016056).

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Biography

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