The impact of foreign institutional investors on China's capital market

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ABSTRACT. *This paper exams the effects of financial liberalization on emerging markets. We find that the qualified foreign institutional investors (QFII) of China an impact positively on market stabilization. In contrast, domestic institutional investors have the opposite effect.*

Keywords: Financial liberalization; QFII; Market Stabilization; Liquidity

1. Introduction

Since the 1980s, China has gradually opened up the capital market, especially with its accession to the WTO. The QFII system, short for qualified foreign institutional investors system, was established as a transitional arrangement to regulate the inflow of foreign investment. It is a mechanism used to qualify foreign institutional investors to invest in China's capital market and a milestone in the financial liberalization and opening-up of China's market.

Although the question of whether foreign institutional investors are stabilizers or destabilizers has long been debated, answers are far from conclusive. Some studies affirm the role of foreign institutional investors in stabilizing markets. Yang (2002) argues that a "contrarian" trading strategy employed by foreign traders promotes market stability[1]. Reducing price volatility by weakening the influence of noisy trading is another contribution of foreign institutional investors (Holmes and Wong, 2001)[2]. In addition, the market's strong adjustment ability is sufficient to resist disturbances caused by large sales of foreign traders (Choe et al., 1999)[3]. However, other observers hold the opposite view (Chen et al., 2013; Umutlu and Shackleton, 2015)[4]. Chang (2010) discerns clear herding behavior among foreign and domestic institutional investors[5].

In this paper, we first use stock return volatility and beta coefficients, which are obtained from the Capital Asset Pricing Model, as alternative measures of market stabilization. Furthermore, we use the turnover ratio as another proxy. Since stock market liquidity is related to foreign shareholding in many emerging markets (Lee and Chung, 2018)[6], we examine whether the introduction of foreign institutional investors can help stabilize China's stock market-a market characterized by excess trading and that ranks among top five in the world in terms of turnover ratio,

according to the World Bank-by reducing the turnover ratio. In the empirical analysis, we employ the instrumental variable method (IV) to avoid the endogeneity problems.

2. Econometric Specification

We study the impacts of QFIIs on stock volatility and fluctuation. The econometric specification is as Eq.(1):

$$y_{it} = \lambda_1 QFII_{it-1} + \lambda_2 Domestic_{it-1} + z_{it}^T \alpha + \mu_i + v_{it}; i = 1 \cdots\cdots N, t = 1 \cdots T \quad (1)$$

where y_{it} is the Beta coefficient, stock return volatility or turnover rato for firm i in quarter t, $QFII_{it-1}$ ($Domestic_{it-1}$) refers to the proportion of all foreign (domestic) institutional shareholding of firm i in quarter t-1, z_{it} represents the control variables (including the leverage ratio, the rate of return on total assets and quarter dummies), μ_i is the individual effect of firm i, and v_{it} is the error term.

We employ the log of total assets, the largest shareholder's shareholding ratio, and the Herfindahl-Hirschman index as instrumental variables for the shareholding ratios of foreign and domestic institutional investors to a a fixed-effects panel data model to avoid the endogenous problems.

3. Data and Descriptive Statistics

We use firm-level data from all A-share listed companies. The sample period is from the first quarter of 2007 to the first quarter of 2015. First, a split-share structure means that two classes of domestic A-shares with different characteristics, tradable and non-tradable, coexist in a listed firm in China. The Split-Share Structure Reform, completed by the end of 2006, facilitated China's privatization by transforming non-tradable shares into tradable shares-a milestone in the development of China's capital markets. In attempting to avoid the distraction of the Split-Share Structure Reform, we adopt 2007 as the beginning of our sample period. Second, during the sample period, the Chinese stock market experienced both bull and bear markets. A completed cycle ensures that our results are free of one-sided evaluations driven by a rising or a falling market. Moreover, at the beginning of the implementation of China's QFII System, the total quota granted to QFIIs was too small to make a difference. According to SAFE, the total quota went from $1.7 billion to $3.475 billion to $5.695 billion from 2003 to 2005. At the end of 2006, the quota granted to QFIIs was $3.4 billion, and the total quota granted is now $9.095 billion. We therefore choose the first quarter of 2007 as the beginning of our sample period.

Table 1 presents the descriptive statistics. Volatility is measured as the standard

deviation of daily logarithmic returns (based on the closing prices obtained from the CSMAR Database (http://www.gtarsc.com)) over the quarter. Beta, another measure of stock volatility, is obtained from RESSET. The mean Turnover (obtained from the RESSET Database (http://www.resset.cn)) is 2.59. China's stock market, whose turnover rate is among the world's top five, according to the World Bank, is characterized by excessive and noisy trading. The other variables are downloaded from the WIND Database (http://www.wind.com.cn). Domestic refers to domestic institutional investors' shareholding ratio, QFII refers to foreign institutional investors' shareholding ratio.

Table 1 Descriptive statistics of variables

Variables	Interpretation	Mean	Standard Deviation	Median	Observation
Volatility	Standard deviation of return ratio	0.03	0.01	0.03	44185
Beta	*Beta* coefficient	1.10	0.63	1.07	44061
Turnover	Turnover ratio	2.59	2.13	1.98	44250
Domestic	Proportion of domestic institutional ownership	7.07	11.07	2.28	45342
QFII	Proportion of foreign institutional ownership	0.18	0.86	0.00	45342
LEV	Leverage ratio	53.52	20.88	54.25	45329
ROA	Rate of return on total assets	2.29	4.00	1.41	45336
First	Proportion of the first largest shareholder	34.99	15.60	32.72	45342
HHI3	Herfindahl-Hirschman index	1597	1234	1240	45342
Asset	Total assets	8.36e+09	1.57e+10	2.92e+09	45328
Profit	Amount of profit	2.29e+08	4.98e+08	5.16e+07	45341

Note: Turnover, Institution, Domestic, QFII, LEV, ROA, First are expanded 100 times and HHI3 is expanded 10000 times.

4. Empirical Results

In this section, we examine the influence of QFIIs on volatility. We assume that the increase in price informativeness leads to an improvement in market transparency and reduces noise trading. Consequently, price volatility is reduced. Finally, we employ the turnover ratio to retest the results. Excess trading prevails in China's capital markets, whose turnover ratio is in the top five around the world, according to the World Bank. We assume that the decrease in excess trading reflects the reduction in stock return volatility.

Table 2 shows the causal relationship between institutional investor shareholding and stock return volatility. Foreign institutional investors help stabilize the market

by reducing stock return volatility. By contrast, domestic institutional investors play a destabilizing role. All the regression models control for fixed effects. Columns 1 to 3 present the regression results for institutional investor shareholding and stock return volatility. Columns 4 to 8 present results of classification tests, results that are robust. In Columns 4 to 8, for every quarter, we calculate the mean profit and R^2 for all sample firms as group boundaries. The former is lower than the mean, and the latter is higher. From Column 1 to Column 3, quarter dummies, the leverage ratio, and the return ratio on total asset are successively added as control variables, raising both the magnitude and significance level of the coefficient for QFII shareholding. These results indicate that the omitted variables cause downward bias. In Column 3, one percentage overweight of shareholding by all foreign institutional investors causes stock return volatility to decrease by 0.668%. In Columns 4 and 5, QFII reduces the price volatility of low-profit firms insignificantly. Comparing Columns 6 and 7, the effect of QFII on companies with higher volatility is greater than on companies with lower volatility. In Column 8, during the crisis period (2007: Q4 – 2014) in China's capital markets, QFII significantly reduced stock return volatility. Khan and Reinhart (1995) argue that for developing countries, large-scale capital inflows usually result in problems with the real exchange rate, inflation and so on and that foreign investors adversely affect stock market volatility. However, our results differ in the context of China, owing to the Chinese government's strict controls over capital flows into and out of China. Retaining only companies invested in by QFIIs during the sample period, the results remain robust. From Column 2 to Column 4, the coefficients for QFII are significantly negative: -0.00262, -0.00307, and -0.00350, respectively.

While all of the underidentification tests reject the null hypothesis at the 1% level, none of the overidentification tests reject the null hypothesis. This means that the instrumental variables are strongly related to the endogenous variables, and none of the instrumental variables is strongly correlated with the error term. This guarantees the validity of the instrumental variables in these models.

Table 2 Regression results of institutional investors' shareholdings and return volatility

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent				*Volatility*				
Variables	Whole Sample			Lower *Profit*	Higher *Profit*	Lower *Volatility*	Higher *Volatility*	Downturn
L. *QFII*	-0.00386**	-0.00595***	-0.00668***	-0.00515	-0.00189	-0.00385*	-0.01110***	-0.00676**
	(0.00)	(0.00)	(0.00)	(0.00397)	(0.00279)	(0.00)	(0.00)	(0.00)

L. *Domestic*	0.000317***	0.000343***	0.000421**	-4.77e-05	0.000626**	0.000367	9.67e-05	0.000608**
	(0.00)	(0.00)	(0.00)	(0.000300)	(0.000262)	(0.00)	(0.00)	(0.00)
L. *LEV*		-3.01e-05***	-3.62e-05***	-2.83e-05***	-3.08e-05**	-1.39e-05***	-3.45e-05***	-4.95e-05***
		(0.00)	(0.00)	(9.92e-06)	(1.20e-05)	(0.00)	(0.00)	(0.00)
L. *ROA*			-0.000124	2.39e-06	-0.000176	-0.000120	1.57e-05	-0.000234*
			(0.00)	(5.63e-05)	(0.000113)	(0.00)	(0.00)	(0.00)
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Underidentification	78.20***	82.27***	64.30***	15.02***	30.22**	6.906***	41.41***	32.58**
Overidentification	0.735	0.520	0.765	0.109	1.683	0.407	0.993	0.175
Observations	42836	42836	42836	22,811	19,932	25024	17798	36169
R-squared	0.32	0.25	0.20	0.403	0.129	0.57	0.12	0.15
Number of company	1374	1374	1374	1,229	1,247	1371	1352	1374

Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 3 summarizes the causal relationship between institutional investors and Beta, utilizing a different measure of stock price volatility. In Columns 1 to 3, the regression results are almost identical to those of Columns 1 to 3 in Table 2. In Column 1, we first introduce quarter dummies as control variables. In Column 2, we add the leverage ratio as a control variable, and the estimation results are robust. In Column 3, we add the return ratio on total assets as a control variable, with the estimation results continuing to remain robust. When foreign institutional investors increase their shareholding ratio by 1%, Beta decreases by 0.402. Columns 4 to 8 present the results of the classification tests. In Column 6, QFII acts as a powerful stabilizer for low-volatility companies. However, in Column 7, the coefficient for L. QFII is significantly positive, which indicates that QFII intensifies stock price fluctuations among high-volatility firms. The coexistence of these two distinct phenomena implies that QFII can aggravate firms' own original trends and characteristics. In Column 8, although the coefficient for L. QFII is not significant at

the 10% level, in view of Column 7 of Table 2, we can be sure that QFII did not destabilize the capital markets during the economic crisis period. Comprehensively considering all the results, QFIIs' positive contribution to the stability of the stock market is noteworthy.

Table 3 Robust tests of QFII's impacts on Beta

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent				*Beta*				
Variables	Whole Sample			Lower *Profit*	Higher *Profit*	Lower *Beta*	Higher *Beta*	Downturn
L. *QFII*	-0.353*	-0.402**	-0.402*	-1.466***	-0.117	-1.171***	0.789***	-0.275
	(0.20)	(0.19)	(0.22)	(0.404)	(0.307)	(0.33)	(0.24)	(0.22)
L. *Domestic*	0.00982	0.0101	0.00910	0.0617	-0.0107	0.0802**	-0.0447	0.00469
	(0.02)	(0.02)	(0.02)	(0.0463)	(0.0332)	(0.04)	(0.03)	(0.02)
L. *LEV*		-0.000677	-0.000674	-0.000120	0.000858	-0.00238**	0.000243***	-0.000807
		(0.00)	(0.00)	(0.00143)	(0.000955)	(0.00)	(0.00)	(0.00)
L. *ROA*			0.000573	-0.01147	0.0111	-0.0381**	0.0250*	0.00452
			(0.01)	(0.0155)	(0.0190)	(0.02)	(0.01)	(0.01)
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Underidentification	64.64***	64.84***	68.82***	11.18***	13.38***	14.25***	32.54***	62.09***
Overidentification	2.705	2.474	2.219	0.00407	1.974	0.787	3.559*	0.984
Observations	38889	38889	38889	20,684	18,106	19865	19000	34872
R-squared	-0.15	-0.22	-0.22	-3.333	0.032	-9.64	-1.53	-0.09
Number of company	1374	1374	1374	1,217	1,226	1364	1338	1374

Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 4 shows that foreign institutional investors decrease the turnover ratio in

China's capital markets. Columns 1 to 3 present the regression results for institutional investor shareholding and the turnover ratio for the whole sample. Columns 4 to 8 exhibit the robust results of the classification tests. In Columns 1 to 3, we find that QFII shareholding significantly reduces the turnover ratio, while domestic institutional investors have the opposite effect. The turnover ratio in China's stock market is higher than the world average, according to the World Bank. The high turnover ratio is one factor leading to market instability. A reduction in the turnover ratio is one concrete manifestation of the stabilization of China's capital markets. In Columns 4 and 5, QFIIs' effect on low-profit firms is clearly greater than that on high-profit firms. Columns 6 and 7 present inverse regression results for institutional investor investment and the turnover ratio. For low-turnover-ratio firms, QFII decreases the turnover ratio, but for high-turnover-ratio firms, QFII has the opposite effect. These results are similar to those of Columns 6 and 7 in Table 3. In Column 8, the result is consistent with that for the whole sample. An increase in the foreign institutional ownership proportion by one percentage point results in a decrease in the turnover ratio of 0.933. Retaining only companies with QFII investment during the sample period, the results remain robust. In Column 2 to Column 4, the coefficients for QFII are significantly negative: -0.413, -0.505, and -0.538, respectively. In conclusion, foreign institutional investors generally reduce the high turnover ratio in the Chinese stock market.

Table 4 Regression results of institutional investors' shareholdings and excess trading

	(1)	(2)	(3)		(4)	(5)	(6)	(7)	(8)
Dependent					*Turnover*				
Variables	Whole Sample				Lower *Profit*	Higher *Profit*	Lower *Turnover*	Higher *Turnover*	Downturn
L. *QFII*	-0.553***	-0.732***	-0.734***		-0.801***	-0.373	-0.479***	0.554**	-0.933***
	(0.12)	(0.14)	(0.13)		(0.21)	(0.23)	(0.14)	(0.25)	(0.16)
L. *Domestic*	0.0270***	0.0292***	0.0282**		0.00176	0.0199	-0.0517***	0.00512	0.0382**
	(0.01)	(0.01)	(0.01)		(0.02)	(0.02)	(0.01)	(0.01)	(0.02)
L. *LEV*		-0.00258***	-0.00262***		-0.00271***	-0.00145**	-0.00283***	0.000274	-0.00342***
		(0.00)	(0.00)		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

L. *ROA*			0.000101		0.0129***	0.00281	0.0370***	-0.000524	-0.00294
			(0.01)		(0.00)	(0.01)	(0.01)	(0.00)	(0.01)
Firm fixed effects	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Underidentification	78.49***	82.45***	64.48***		33.27***	10.82***	18.57***	10.81***	54.09***
Overidentification	2.367	1.625	1.683		0.342	0.362	0.463	1.213	1.276
Observations	42895	42895	42895		24808	17991	26548	16297	38877
R-squared	0.08	-0.17	-0.16		0.110	0.128	-0.08	-0.02	-0.52
Number of company	1374	1374	1374		1,232	1197	1363	1252	1374

Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Conclusion

In this paper, we examine stock return volatility. There is strong evidence that QFII investment significantly decreases stock volatility and the turnover ratio simultaneously. We believe that this is a consequence of informative stock prices. Investors can make better asset allocation decisions with more information incorporated into stock prices (Wurgler, 2000; Durnev et al., 2004; Chen et al., 2007), as the latter reduces the risk associated with uninformed investors and excessive traders (Fernandes and Ferreira, 2009). During the economic crisis period, QFII acted as a market stabilizer. This conclusion is supported by Choe et al. (1999), who argue that herding is weaker among foreign investors during crises and that foreign trading does not play a destabilizing role in the Korean market, owing to built-in market-stabilizing mechanisms.

References

[1]Yang, J.J.W.,(2002). The information spillover between stock returns and institutional investors'trading behavior in Taiwan. International Review of Financial Analysis, vol.11, no.4, pp. 533
[2]Holmes, P., Wong, M.W.,(2001). "Foreign investment, regulation and price volatility in South-east Asian stock markets." Emerging Markets Review, vol.2, no.4 , pp. 371 - 386.
[3]Choe, H., Kho, B.C., Stulz, R.M., (1999). "Do foreign investors destabilize stock markets? The Korean experience in 1997." Journal of Financial Economics, vol.54, no.2, pp. 227 - 264.

[4]Chen, Z., Du, J., Li, D., Ouyang, R., (2013). "Does foreign institutional ownership increase return volatility? Evidence from China." Journal of Banking and Finance, vol.37, no.2, pp. 660 - 669.

[5]Chang, C.,(2010). "Herding and the role of foreign institutions in emerging equity markets." Pacific-Basin Finance Journal, vol.18, no.2, pp. 175 - 185.

[6]Lee, J., Chung, K.H.,(2018). Foreign ownership and stock market liquidity. International Review of Economics and Finance, vol.54, pp. 311-325.