

Investor Sentiment, Institutional Ownership and Liquidity: Evidence from China

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Abstract: The study investigates the influence of investor sentiment (IS) on stock liquidity in the Chinese stock market. The study also examines the moderating effect of institutional investor shareholding ratio on stock liquidity. We utilized daily panel data in Chinese stock market from 2020-2022. We adopted the dynamic fixed technique to analyse the data; the study reveals a negative relationship between IS and stock liquidity. Also, our result portrays a significant interaction effect between investor sentiment (IS) and stock liquidity. However, it was further discovered that the moderating effect of institutional investor shareholding ratio and IS enhances stock liquidity. Lastly, we discuss the policy implications of our results, including how vital stock market players should bridge the communication gap between institutions and investors in other to limit the circulation of false news which raises IS in other to improve stock liquidity.

1. Introduction

The stock market in China has experienced remarkable growth and development, positioning it as one of the fastest-growing markets globally. Notably, there has been a substantial surge in institutional ownership and trading activity over the past decade. China Securities Registration and Settlement Statistical Yearbook 2021 indicates a significant rise in the presence of institutional investors. In particular, institutional investors now hold approximately 18.7% of China's A-shares market capitalization.

Additionally, institutional investors account for nearly half of the free float of shares in A-Shares companies, marking a substantial growth of over nine times since 2007. As a result, institutional investors have emerged as China's most significant minority shareholders. Moreover, the assets under management by institutional investors in China reached a noteworthy milestone of US\$16 trillion by the end of 2019. Consequently, any analysis of Chinese corporate governance that fails to consider the influence and impact of institutional investors would be incomplete. The substantial growth in institutional ownership and trading activity has sparked significant inquiries into the effects of institutional trading on stock prices. This impact can have positive and negative ramifications for the efficiency of the Chinese stock market. Institutional ownership represents the ownership of a company's shares by institutional investors, such as mutual funds, pension funds,

and insurance companies. In China, the role of institutional investors in the stock market has been growing steadily. Studies have explored the impact of institutional ownership on stock returns and volatility. Chen et al. [1] found that higher institutional ownership is associated with lower stock return volatility in China, suggesting that institutional investors can contribute to market stability.

Hence, the fluctuation of stock prices is influenced not only by the fundamental value indicated by accounting information but also by the irrational behaviour of investors. This irrational behaviour, which can be captured by investor sensitivity, plays a significant role in shaping stock price movements. Investor sensitivity refers to the overall mood of market participants, which psychological factors, market rumors, and emotional biases can influence. Also, it was defined by Baker and Wurgler [2] as encapsulating the undue and unwarranted optimism or pessimism exhibited by individuals regarding the prospects of the stock market. Investor sentiment, influenced by incorrect subjective beliefs or information disconnected from the intrinsic value of assets, can create false market expectations and contribute to market volatility.

Recent research has witnessed a significant upswing in the ongoing discourse concerning the relationship between IS and stock market liquidity. A contingent of researchers has posited the notion that IS wields a significant influence on stock market liquidity. Their argument hinges on the premise that noise traders, who lack access to critical information and are driven by emotional impulses, tend to engage in more noise-driven trading activities when investor sentiment is elevated. Consequently, this surge in noise trading can, in turn, lead to an augmentation of market liquidity. As a result, IS has been increasingly recognized as a pivotal determinant of stock market liquidity [3] [4]. Empirical evidence was established by Debata et al. [3], affirming a positive correlation between IS and stock market liquidity. Research on liquidity in China has often focused on market microstructure, trading mechanisms, and the impact of regulatory changes. Kyle [5] elucidated that an increase in stock liquidity inherently contributes to reducing under-pricing and enhancing market efficiency. Conversely, the dearth of liquidity is perceived as detrimental and potentially catastrophic to the stock market, particularly in a liquidity crisis. This underscores the critical role that stock liquidity plays in the functioning of financial markets.

Our research adds three novel contributions to the existing literature. It adds to the existing literature on IS and its findings show a negative correlation between IS and liquidity. Additionally, it contributes to the existing literature on the moderating influence of institutional investor holdings and IS on stock liquidity. We subsequently introduce an interaction term between IS and stock yield to further investigate the influence of IS on the link between IS and stock market liquidity and find that the interaction has a positive impact on liquidity. This brings in new dimensions and insights that can help researchers, practitioners, and policymakers better understand the dynamics of investor sentiment, institutional investors, and stock yield in relation to market liquidity.

2. Literature Review

Cooper, Gutierrez & Hameed [6] found that high IS can decrease market liquidity. They argued to support their claim that during periods of strong IS, trading activity can become concentrated in a smaller number of stocks, reducing liquidity in the overall market. This assertion is reaffirmed by Chordia, Roll and Subrahmanyam [7], who showed that high levels of IS can lead to higher trading activity but can also result in reduced liquidity. They believe the relationship between IS and liquidity is not one-dimensional and can be influenced by various factors, including market structure, participant behaviour, and prevailing economic conditions. Based on the above argument, we first hypothesize:

H1: The effect of investor sentiment on liquidity is negative.

Tetlock et al. [8] explored how media coverage and IS may affect stock prices and trading

activity. The study showed that when fueled by media coverage of stocks with attractive yields, positive IS can lead to increased liquidity. On the contrary, Chen, et al. [9] studied IS and stock return predictability. The study shows an abnormal return, which implies investor behaviour plays a significant role in influencing stock prices. Based on the above contradictory studies, we lastly hypothesize:

H2: The interaction effect of investor sentiment and stock yield increases liquidity.

Wang [10] examined the relationship between institutional ownership and liquidity in cross-auto correlations. They find that higher institutional ownership is associated with improved liquidity and reduced auto correlation of returns. In the study of Boehmer, Ekkehart, and Li [11], it was found that stocks with higher institutional ownership have lower information asymmetry and, consequently, better liquidity. This result is supported by the study of Hendershott and Menkveld [12], which reveals that market-making activities by institutional investors contribute positively to liquidity in financial markets. In the midst of all this revelation by these researchers, there was a counter-argument by the study of Chen et al. [1], who debated that there is a potential negative relationship between institutional ownership and liquidity in the context of emerging markets, specifically in China. Given this counter-revelation by the above researcher, we hypothesize that.

H3: The impact of institutional ownership on liquidity is positive.

3. Methodology and Data

3.1. Empirical Model

In our quest to investigate the effect of IS on the Chinese stock market, our study adopts the definition of liquidity by Amihud liquidity ratio sentiment. Also, it falls on Yin, Wu & Kong [13] definition of sentiment. The variable description and data source are given in Table 1.

The investor sentiment value of stock i on day t is:

$$IS_{i,t} = \ln \left[\frac{1 + positive_{i,t}}{1 + negative_{i,t}} \right] \quad (1)$$

We also adopted the Amihud liquidity ratio to measure stock liquidity, which is shown in Equation 2.

$$Illi_{i,t} = |RRS_{i,t}| / DTVOV_{i,t} \quad (2)$$

Where $Illi_{i,t}$, which measures the effect of trading volume on the price, $RRS_{i,t}$ represent the return of stock i on day t and $DTVOV_{i,t}$ talks about the trading volume of stock i on day t .

The following is the empirical Model that underpins this study:

$$Illi_{i,t} = \beta_0 + \beta_1 \ln IS_{i,t} + \beta_2 (\ln IS_{i,t} * SY_{i,t}) + \beta' X_{it} + \varepsilon_{it} \quad (3)$$

where $\ln IS_{i,t}$ signifies the natural logarithm of sentiment, X_{it} represent the vector of the control variables(BM , SY_{it} , ISR_{it} , MY_i , LEV_{it}), $(\ln IS * SY)_{it}$ is the interaction term between IS and stock yield, $i = 1 \dots 18$, $t = 2020 \dots 2022$, ε_{it} denotes the error term.

Table 1: Variable Description and Data Source

Symbols	Name	Source	Definition
DEPENDENT VARIABLE			
$Illi_{i,t}$	Amihud liquidity ratio	-	Liquidity
INDEPENDENT VARIABLE			
$lnIS_{i,t}$	Investor sentiment	CNRDS	Daily investor sentiment
ISR_i	Individual stock risk	WIND	The beta of sample stocks.
$LEVT$	Asset-liability ratio	WIND	The ratio of total liabilities to total assets
SY_{it}	Stock yield	WIND	Daily return of sample stocks
BM	Book value ratio	WIND	Ratio of book value-to-market value
MY	Market yield	WIND	Daily return of the CSI 300 Index
MODERATOR			
$IISR$	Institutional investor's shareholding ratio	CNRDS database	

3.2. Data

We utilized daily panel data in Chinese stock market from 2020-2022. Table 2 below displays the descriptive statistics.

Table 2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
$Illiq$	5,506	1.928	0.082	-22.494	5.005
$lnIS$	10,332	0.694	0.330	0	0.999
BM	13,104	1.867	0.020	-4.939	1.230
ISR	13,094	0.680	0.626	-4.751	4.574
SY	6,230	1.075	1.071	-4.119	2.943
MY	6,992	1.732	1.212	-7.253	1.520
$LEVT$	13,073	58.744	20.304	10.889	92.445

We used the variance inflation factor (VIF) to check if our Model surfaces a multicollinearity problem as shown in Table 3 below. A model has a multicollinearity problem when the variance inflation factor (VIF) value is greater than 10. However, we observed that in our case, the mean value of VIF is 1.12, which is less than 10.

Table 3: Variance inflation factor (VIF)

Variable	VIF	1/VIF
$lnIS * SY$	1.35	0.740
SY	1.32	0.756
$lnIS$	1.08	0.928
ISR	1.04	0.959
BM	1.04	0.962
MY	1	0.996
$LEVT$	1	0.996
Mean VIF	1.12	

4. Empirical results and discussion

4.1. Fixed effect results

Table 4 shows the FE estimate findings on the impact of IS on liquidity in the Chinese stock market. Models 1, 2, and 3 show the results without the interaction terms, while Model 4 shows the interaction term results. Models 1 and 3 show that IS significantly hampers liquidity. Thus, any rise in IS in China reduces market liquidity in the studied institutions. Our outcome supports our Hypothesis 1 (H1), which says that there is a negative relationship between IS and liquidity and also affirms the works by Gutierrez & Hameed [6]. In column four, the study introduced the interaction of IS and stock yield into the Model. It was shown that the interaction term positively impacts market liquidity. This result supports our second hypothesis (H2) which says that the interaction effect of IS and stock yield increases liquidity. Thus, a higher stock yield mitigates the negative effect of IS on stock market liquidity.

Table 4: FE findings

	Model 1	Model 2	Model 3	Model 4
<i>lnIS</i>	-0.003*	-0.051	-0.183**	-0.265**
	(0.066)	(0.066)	(0.091)	(0.110)
<i>BM</i>	0.597***	0.550***	0.411***	0.416***
	(0.065)	(0.066)	(0.090)	(0.098)
<i>ISR</i>		0.026	0.064	0.040
		(0.036)	(0.050)	(0.055)
<i>SY</i>		0.276***	0.273***	0.326***
		(0.021)	(0.029)	(0.035)
<i>MY</i>			-0.014	-0.032
			(0.023)	(0.025)
<i>LEVT</i>			-0.001	-0.001
			(0.001)	(0.002)
<i>lnIS * SY</i>				0.123***
				(0.047)
<i>Constant</i>	-15.372***	-15.722***	-15.738***	-15.569***
	(0.079)	(0.086)	(0.144)	(0.165)
Observations	4330	3297	1692	1430
r2	0.019	0.070	0.068	0.077

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

4.2. Robustness check

In Table 5, the study utilized the RE model as an alternative model to check the robustness of our findings in Table 4. We unearth that investor sentiment is still significant and negatively associated with liquidity. The book value ratio maintained a significant and positive relationship with market liquidity, but there was a slight decrease in its coefficient. In the same vein, we unfold that Individual stock risk, Market yield and Asset-liability ratio are all not statistically significant and this revelation affirms the initial results shown in the FE output.

Similarly, Stock yield (SY) is still significant in our alternative Model. We further probed the interacting effect of IS and stock yield on liquidity; however, the study found the interaction effect of IS and stock yield to be positive and statistically significant (see Model 4), confirming our FE results. In view of this analysis, we can suggest that a positive coefficient might minimize the adverse effects of IS on the performance of market liquidity.

Table 5: RE findings

	Model 1	Model 2	Model 3	Model 4
<i>lnIS</i>	-0.000*	-0.048	-0.179**	-0.262**
	(0.066)	(0.066)	(0.091)	(0.110)
<i>BM</i>	0.569***	0.520***	0.373***	0.379***
	(0.064)	(0.064)	(0.087)	(0.095)
<i>ISR</i>		0.031	0.069	0.045
		(0.036)	(0.050)	(0.055)
<i>SY</i>		0.276***	0.274***	0.327***
		(0.021)	(0.029)	(0.035)
<i>MY</i>			-0.014	-0.033
			(0.023)	(0.025)
<i>LEVT</i>			-0.001	-0.001
			(0.001)	(0.002)
<i>lnIS * SY</i>				0.124***
				(0.047)
Constant	-15.585***	-15.762***	-15.781***	-15.659***
	(0.370)	(0.344)	(0.396)	(0.423)
Observations	4330	3297	1692	1430
r ²				

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

4.3. Institutional investor's shareholding ratio as a new control variable and a moderator

Table 6: FE finding

	Model 1	Model 2	Model 3	Model 4
<i>lnIS</i>	-0.003*	-0.051	-0.183**	-0.257**
	(0.066)	(0.066)	(0.091)	(0.110)
<i>BM</i>	0.597***	0.550***	0.411***	0.417***
	(0.065)	(0.066)	(0.090)	(0.098)
<i>ISR</i>		0.026	0.064	0.042
		(0.036)	(0.050)	(0.055)
<i>SY</i>		0.276***	0.273***	0.325***
		(0.021)	(0.029)	(0.035)
<i>MY</i>			-0.014	-0.033
			(0.023)	(0.025)
<i>LEVT</i>			-0.001	-0.001
			(0.001)	(0.002)
<i>lnIS * SY</i>				0.124***
				(0.047)
<i>IISR</i>				0.027**
				(0.011)
Constant	-15.372***	-15.722***	-15.738***	-15.721***
	(0.079)	(0.086)	(0.144)	(0.176)
Observations	4330	3297	1692	1430
r ²	0.019	0.070	0.068	0.081

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 6 indicates that the impact of IS on liquidity is negative (-0.257 see model 4) after introducing institutional investor's shareholding ratio into the Model as a new control variable. Institutional investor's shareholding ratio has been shown to have a positive influence on liquidity.

This suggests that introducing institutional investor's shareholding ratio into the market will increase trading volumes, price discovery, stabilizing effect, corporate governance and engagement, professionalism and information flow, and diversification. This will attract a broader range of participants and contribute to a more vibrant and liquid financial market.

5. Conclusion

By using the FE estimator and data of 18 companies in Chinese stock market from 2020 to 2022, the study established that IS negatively influences liquidity. However, individual stock risk, asset-liability ratio, and market yield showed a negative association with liquidity. The study introduced interaction term between IS and stock yield and we unearth that the interaction has a positive relationship with liquidity. A random effect model was utilized to check the robustness of our model. We further employed institutional investor shareholding ratio as a new control variable and moderating factor in the model to see how it would react with liquidity which very unique to other work in this area. It was confirmed that IS negatively influences liquidity. The institutional investor shareholding ratio as a control variable has a positive relationship with liquidity.

Our research sheds light on the implications of IS on the stock market in China. However, more research is required to provide deeper insights into other factors that influence the stock market. There should be an effective communication mechanism among the market players and investors in other to limit unwarranted speculation of false information only not calm investors down but also help to stabilize the market by enhancing stock liquidity.

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