

Impact of Equity Liquidity on Corporate Value—— Based on The Empirical Analysis of China's A-Share Listed Companies

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Abstract. Since the establishment of the Shanghai and Shenzhen Stock Exchange, China's stock market has experienced a development process from scratch, from small to large, and from weak to strong. During this period, the liquidity of China's stock market has increased significantly. The stock market can affect the real economy by changing the motivation and influencing the behavior of enterprises, which is crucial to economic development. Many scholars at home and abroad have studied the impact of stock liquidity on enterprise value from different perspectives. This paper finds that the stock liquidity has a significant positive impact on the value of enterprises. The higher the level of stock liquidity, the higher the enterprise value, and the company's equity structure can play a role as an intermediary variable in the process of stock liquidity affecting the enterprise value.

Keywords: Stock liquidity; enterprise value; equity structure.

1. Introduction

Stock liquidity, that is, how easy it is for investors to complete bulk stock trading in the stock market with the optimal conditions. The optimal conditions include the cost and price are the lowest, and the trading speed is the fastest. The level of stock liquidity has a direct impact on the efficiency of economic resource allocation in the market and is the source of vitality of the stock market. It can be seen from the traditional principle of discounted cash flow that the company's expectation of operating cash flow and the discount rate of its capital cost to reflect the operating cash flow risk, which determine the size of the company's value. Under the traditional financial theory, the discount rate is mainly determined by the uncertain operating environment. The operating cash flow of the company depends on the profitability of the company, without taking into account the role of microstructural factors from the market, including stock liquidity. Therefore, examining the influence of the stock liquidity of Chinese listed companies on corporate value will help to broaden the understanding of corporate value decision, and help to promote the mutual promotion of market microstructure theory to corporate finance theory.

In addition, the existing research results find that there is a certain relationship between the stock liquidity of the external capital market and the equity structure of enterprises. Therefore, it is worth studying whether the impact of stock liquidity on enterprise value is partly exerted through the shareholding structure.

2. Literature review

Many scholars at home and abroad have defined the liquidity of stocks. In the 1830s, Keynes first conceptually defined liquidity (fluidity). He defined liquidity as: the future volatility and variation of commodity prices in the market, and believed that liquidity is a relative indicator rather than an absolute standard, that is, it is the rate of change of price relative to the historical price; Keynes (1930) proposed a descriptive definition of liquidity, that is, "if one asset is easier to be realized in a short term without loss, the asset is more liquid than another asset". In summary, stock liquidity refers to how easy investors are to trade bulk stocks at the minimum cost, the minimum price impact and the fastest speed. Enterprise value has different meanings for different subjects. For company



management, enterprise value is the embodiment of the comprehensive ability to achieve long-term development; for investors, enterprise value is an important evaluation index when choosing the invested enterprise; for company creditors, enterprise value is another manifestation of its debt repayment ability. In short, the enterprise value represents the company's current profitability and the ability of future development. Equity structure refers to the proportion, type of shares and their corresponding rights and obligations held by all kinds of shareholders within a company. It reflects the distribution of ownership of the company, including the relationship between different shareholders, control rights, the distribution of interests and so on. The design of the shareholding structure also affects the liquidity and market performance of the company's stock. For example, a more concentrated or unbalanced shareholding structure may lead to conflicts of interest between shareholders and affect corporate governance and operational stability. Equity structure is an important part of corporate governance, which has a significant impact on the decision-making efficiency, management level and financial performance. Reasonable shareholding structure can promote the healthy development of the company and maximize the shareholder value.

For the study of the relationship between stock liquidity and enterprise value, most scholars at home and abroad believe that stock liquidity will affect investor sentiment, stock price information content and asset pricing, and then affect the enterprise value to some extent. Abroad, earlier stock liquidity level will affect the enterprise value is Amihud and Mendelson, they put forward in 1986, when investors hold poor liquidity stock, will require a high level of investment return rate to make up the defects of insufficient liquidity, and the higher the return on investment, stock issuance company will bear the higher cost of capital, the enterprise value will be reduced. Domestically, Chen Hui et al. (2011) and Hou Xu and Sun Duan (2012) studied the data of China's A-share market, and the results showed that there is a positive correlation between stock liquidity and enterprise value, and the correlation is significant. The research of Mi Zengyu et al. (2018) and Yang Gang (2019) also reached the same conclusion, and their research results showed that good stock liquidity level can promote the improvement of enterprise value. Most ideas agree that there is a significant positive correlation between equity liquidity and corporate value, but a few scholars have proved that stock market liquidity is negatively correlated with corporate value.

In this paper, based on China's national conditions, the influence of stock liquidity on the enterprise value, and based on the company financial knowledge, focus on the role of the equity structure, supplement the theory of listed company stock liquidity on the enterprise value, also from the micro perspective of relative macro industry development provides relatively new theoretical framework.

3. Theoretical analysis and research hypotheses

3.1. Relationship between stock liquidity and enterprise value

Liquidity premium theory shows that the expected yield is relatively high, when the stock liquidity is weak, and the expected rate of return of the stock is the capital cost of financing, the higher the yield, the higher the cost of the financing funds, and the enterprise value will be reduced; Based on the principal-agent theory, the result is that the original shareholders' shareholding ratio or new shareholders enter the company, the company managers will be more regulated, which is conducive to the promotion of enterprise value. Make the following assumptions:

Hypothesis 1: Stock liquidity has a significant positive impact on enterprise value, and the higher the level of stock liquidity, the higher the enterprise value.

3.2. Stock liquidity, equity structure and enterprise value

As for the research on the relationship between stock liquidity and equity structure, stock liquidity will affect the agency cost through the effect on the agency behavior in the enterprise, and then have an effect on the corporate governance structure. Specifically, there are the following four mechanisms of action: voice mechanism, exit threat mechanism, takeover threat mechanism and management

compensation contract mechanism. Stock liquidity affects the equity structure of the company through different mechanisms, but in a country with highly concentrated equity, the applicability of different influence mechanisms to China's national conditions is worth in-depth study.

The domestic and foreign literature comprehensively covers the discussion of the relevant variables of the shareholding structure of the company. Foreign scholars' research on the impact of the shareholding structure on the enterprise value focuses more on the impact of the shareholding ratio of the largest shareholder and the shareholding ratio of insiders on the enterprise value. Domestic scholars focus on the relationship between the board of directors, senior executive incentive, the proportion of institutional shareholding and equity concentration in the equity structure and enterprise value. Wen jun, feng genfu (2021) studied the stock liquidity impact on the performance of state-owned enterprises, the study found that the improvement of China's capital market stock liquidity helps institutional investors low cost into the enterprise and state-owned big shareholders effective holdings shares, optimize the company's shareholding structure, reduce the double principal-agent cost of state-owned enterprises, improve the short-term performance and state-owned listed companies of long-term value. Huang Can (2023) found that stock liquidity can enhance the value of enterprises, which is mainly realized through the information effect and the governance effect of institutional investors. Make the following assumptions:

Hypothesis 2: Company, equity structure can play a role of intermediary variable in the process of stock liquidity affecting enterprise value.

4. Study design

4.1. Data source and processing

In this paper, the annual data of a-share listed companies from 2005 to 2022 were selected as the research sample, and the samples were screened according to the following principles: (1) excluding the enterprises established after 2005 to ensure the continuity of panel data; (2) excluding ST enterprises; (3) excluding the enterprises with missing data. Since 2005, China has been led by the CSRC and coordinated with various departments to launch the reform of non-tradable shares, which laid the foundation for the development of the capital market. Therefore, the selection of sample data from 2005 has great practical significance. The data used in this paper are mainly from Guotai Taian database, China Research Data Service Platform and Wande database.

The enterprise value of the explained variable is measured by Tobin Q (TobinQ) as a measure of enterprise value. The explanatory variable stock liquidity is measured by turnover rate (Tover). The variable of equity structure of a company is measured by the degree of equity balance (Balance) and based on the practice of scholars such as Feng Genfu and Wen Jun (2008), and this paper defines it as the shareholding ratio of the company or the shareholding ratio of external shareholders to the largest shareholder. The control variables are the enterprise financial analysis indicators, including debt repayment ability: current ratio, quick ratio, asset-liability ratio; growth ability: growth rate of total assets and operating income; operating ability: inventory turnover, total assets turnover; profitability: return on total assets, return on net assets and net interest rate on sales.

Table 1. Variable definition table

type of variable	variable symbol	Variable name	variable-definition
explained variable	TobinQ	enterprise value	Tobbin Q
explanatory variable	Tover	Stock liquidity	turnover rate
metavariable	Balance	ownership structure	Equity checks and balances
controlled variable	Ctrl1	debt paying ability	current ratio
	Ctrl2		quick ratio
	Ctrl3		asset-liability ratio
	Ctrl4	Growth ability	Total asset growth rate
	Ctrl5		increase rate of business revenue
	Ctrl6	operation capacity	inventory turnover ratio
	Ctrl7		turnover of total capital
	Ctrl8	profitability	all capital earnings rate
	Ctrl9		Return on equity
	Ctrl10		Net interest rate on sales

4.2. Model design

Based on the hypothesis to be tested, the following model is established:

First, to explore the impact of stock liquidity on enterprise value, the following model is established (1).

Model 1: Study the relationship between stock liquidity and enterprise value

$$TobinQ_{it} = a_0 + a_1 Tover_{it} + a_j \sum_{j=1} Controls_{i,t} + \varepsilon$$

Second, to explore the intermediary effect, this paper refers to river boat (2022) intermediary effect analysis method construction model (2), verify the liquidity of the equity structure, through the existing literature and the corresponding theory analysis of the internal governance on enterprise value, that the internal governance in the intermediary effect between the stock liquidity and enterprise value.

Model 2: Study the relationship between stock liquidity and equity structure

$$Balance_{it} = b_0 + b_1 Tover_{it} + b_j \sum_{j=1} Controls + \varepsilon$$

5. Analysis of the empirical results

5.1. Descriptive statistics

Table 2.Decriptive statistics

	(1)	(2)	(3)	(4)	(5)
VARIABLES	N	mean	sd	min	max
TobinQ	13,590	0.583	0.195	0.0343	1.058
Balance	13,590	0.546	0.530	0.0173	2.419
Tover	13,590	2.166	1.591	0.0274	11.89
Ctrl1	13,590	1.712	1.816	0.0385	55.74
Ctrl2	13,590	1.250	1.633	0.0385	49.92
Ctrl3	13,590	0.492	0.184	0.0126	1.056
Ctrl4	13,590	0.180	1.052	-0.697	79.60
Ctrl5	13,590	0.364	16.34	-0.953	1,878
Ctrl6	13,590	277.4	16,160	-0.00384	1.744e+06
Ctrl7	13,590	0.759	0.667	0	11.45
Ctrl8	13,590	0.0633	0.0615	-0.617	0.630
Ctrl9	13,590	0.0817	0.121	-4.857	1.536
Ctrl10	13,590	0.0857	0.225	-4.323	9.611

As can be seen from Table 2, the average value of enterprise value (TobinQ) is 0.583, the minimum value is 0.0343, the maximum value is 1.058, and the standard deviation is 0.195, indicating that the enterprise value of different companies is obviously different, and the enterprise value of most enterprises is gathered at a low level. Moreover, there is no negative value to indicate that the sample companies have the potential for growth. Equity structure (Balance) average 0.546, the minimum of 0.0173, the maximum of 2.419, that the ownership structure of listed companies in China is not very perfect, different corporate governance differences, it also further important to the study of equity structure, listed companies should pay attention to the level of equity structure, improve the organizational structure and management system, promote the development of enterprises get better.

5.2. Correlation analysis

The correlation analysis of empirical variables is a necessary step before the regression analysis with fixed effect model, which can preliminarily test the correlation and strength between variables. Correlation analysis also determines whether there is multicollinearity between the variables. The larger the absolute value of the correlation coefficient, the stronger the correlation between the two variables. According to the correlation coefficient between variables, the correlation coefficient between equity liquidity and enterprise value is 0.132, the statistical test of 1% level indicates the positive correlation relationship between equity liquidity and equity liquidity and equity structure is 0.038, and the statistical test of 1% level indicates the positive correlation between equity liquidity and equity structure, the positive correlation between equity structure and enterprise value is verified for hypothesis 1 and 2 in this paper.

Table 3. Correlation Coefficient

	TobinQ	Tover	Balance
TobinQ	1		
Tover	0.132***	1	
Balance	0.006***	0.038***	1

5.3. Empirical analysis

5.3.1. Influence of stock liquidity on enterprise value

Table 4. Regression results of stock liquidity affecting enterprise value

	(1)	(2)
VARIABLES	TobinQ	TobinQ
Tover	0.013***	0.011***
	(13.82)	(16.58)
Ctrl1		-0.003
		(-1.22)
Ctrl2		0.004
		(1.56)
Ctrl3		0.780***
		(104.27)
Ctrl4		0.020***
		(20.21)
Ctrl5		-0.001***
		(-12.62)
Ctrl6		-0.000
		(-1.34)
Ctrl7		-0.004*
		(-1.68)
Ctrl8		0.165***
		(6.41)
Ctrl9		-0.037***
		(-3.42)
Ctrl10		-0.008*
		(-1.77)
Constant	0.764***	0.391***
	(171.86)	(70.26)
Observations	13,590	13,590
R-squared	0.362	0.697
Number of Stkcd	755	755

t-statistics in parentheses

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

Can be seen from table 4, stock liquidity index (Tover) on the enterprise value (TobinQ) regression coefficient of 0.011, t value is 16.58, at the level of 1% significant, stock liquidity has significant positive impact on enterprise value, and the higher the company stock liquidity level, the company, the more can get steady development and gradually enhance the enterprise value creation ability.

5.3.2. Test of the intermediary effect of the shareholding structure

This paper draws on the discussion of Jiangboat (2022) on channel inspection and adopts the two-step method in the analysis of mediation effect. First, the first step is to examine the impact of stock liquidity on equity structure through regression analysis.

Table 5. Regression results of equity liquidity affecting equity structure

	(1)	(2)
VARIABLES	Balance	Balance
Tover	0.024***	0.025***
	(8.94)	(9.09)
Ctrl1		0.044***
		(3.91)
Ctrl2		-0.047***
		(-3.71)
Ctrl3		-0.026
		(-0.76)
Ctrl4		-0.045***
		(-3.41)
Ctrl5		-0.005
		(-0.53)
Ctrl6		-0.000
		(-0.53)
Ctrl7		-0.009
		(-0.71)
Ctrl8		-0.025
		(-0.15)
Ctrl9		-0.036
		(-0.40)
Ctrl10		-0.018
		(-0.33)
Constant	-0.586***	-0.571***
	(-47.24)	(-21.36)
Observations	13,590	13,590
R-squared	0.040	0.044
Number of Stkcd	755	755

t-statistics in parentheses

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

As can be seen from Table 5, the regression coefficient of the stock liquidity index (Tover) on the equity structure (Balance) is 0.025 and the t-value is 9.09, which is significant at the level of 1%, indicating that the stock liquidity has a significant positive impact on the equity structure, and the higher the liquidity level of the company's stock, the stronger the equity structure.

The second step is to demonstrate the influence of ownership structure on enterprise value through literature. Shleifer and Vishny (1986) believes that the ownership structure is the logical starting point that affects corporate governance. The corporate governance structure changes due to the different ownership structure, and the major shareholders and minority shareholders play different roles in corporate governance. When the company's equity is relatively dispersed, the income from the supervision management of minority shareholders cannot cover the supervision cost. Therefore, for minority shareholders, the rational approach is "free ride". When the equity is highly dispersed and the income of the major shareholders cannot make up for the supervision cost, there will be a supervision vacuum phenomenon, thus aggravating the agency conflict between shareholders and agents. With the increase of the shareholding ratio of major shareholders, the supervision income of major shareholders is enough to make up for the supervision cost, and there will be sufficient motivation to supervise the behavior of managers. However, the larger the shareholding ratio of major shareholders, the better. When the major shareholder becomes the controlling shareholder, although they will have the motivation to supervise the managers' behavior. Meanwhile, they may conspire with managers and then encroach on the interests of minority shareholders, namely the so-called "tunnel effect". Lee (2010) research that shareholder structure is an important factor affecting the corporate governance mechanism, it not only determines the equity meeting how to operate, will further affect the composition of the board of directors and operation, while the board of directors determines the management personnel, incentive and supervision and important influence on major decisions, and fundamentally affect the company's performance. Wen Jun and Feng Genfu (2021) found that the improvement of the equity balance of state-owned enterprises can significantly reduce the agency conflict. The increase in the shareholding ratio of institutional investors caused by the increase of stock liquidity can significantly enhance the overall strength of the shareholders of listed companies and strengthen the supervision and restraint of the operators of state-owned enterprises. Equity checks and balances can help to improve the decision-making level of state-owned enterprises. Equity checks and balances mean that multiple major shareholders within an enterprise participate in corporate governance. The collective decision-making of multiple major shareholders can effectively overcome the irrationality in the decision-making process of a single shareholder and the defects in information and knowledge ability, and create a good internal governance mechanism, so as to enhance the value of the enterprise.

Therefore, the increase of equity checks and balances caused by the improvement of stock liquidity can effectively alleviate the agency conflict, improve the enterprise value, and the equity structure plays an intermediary role in the influence of stock liquidity on enterprise value.

6. Research conclusions and implications

6.1. Study conclusions

(1) Strong stock liquidity can enhance enterprise value. first, HF trading facilitates block trading for informed traders, When executives capture this private information, To increase liquidity; Secondly, the higher the liquidity, If executives 'opportunity behavior would cause informed traders to sell the company's stock heavily, Falling stock prices will shrink managers' pay, The higher the cost of executives to perform opportunistic behavior, Alleviate the damage to the enterprise value caused by the opportunity behavior; once more, High liquidity increases stock price information content and reduces transaction costs, It is conducive to enhance the equity value; last, High liquidity benefits to

diversify equity, Increase the possibility of hostile acquisitions, Forcing executives to make effective decisions to increase company value.

(2) Strong stock liquidity can improve the level of equity structure of the company, and a good level of corporate equity structure can promote the improvement of enterprise value. Specifically, the balance of equity shows the promotion of governance on the value of the company. Finally, the level of equity structure plays an intermediary role in the influence of stock liquidity on enterprise value.

6.2. Revelation

first, Optimize the development of the capital market, Improving stock liquidity, China is currently vigorously developing the capital market, More and more companies choose to list on the capital markets, The capital market environment will directly affect the investment and financing situation of listed companies and thus affect the long-term development of enterprises, Stock liquidity generated in the capital market is a very important factor affecting enterprise value, Is an important criterion for investors to consider when making decisions, Government should focus on regulating the daily transactions in the capital markets, Further optimize the trading rules in the capital markets, Regulating the trading behavior of companies and investors, Make the information more transparent in the capital markets, To reduce the degree of information asymmetry, In a regulated capital market environment, Enterprises can get more long-term and effective development.

Second, increase the institutional shareholding ratio. Institutional investors are mostly brokers, funds and trust companies, their main income is investment income, so they have to the investment enterprise management supervision, if institutional investors in the process of professional supervision found the adverse information, will sell the company stock, the greater the institutional ownership is the selling behavior impact on the company's share price, institutional holdings to the supervision of the companies more significant.

Third, improve the relevant legislation and improve the efficiency of law enforcement, mainly for the further adjustment and improvement of the company law, securities law and bankruptcy law, so as to effectively guarantee the efficiency of corporate governance. The rights and interests of investors have been protected, which not only improves the efficiency of corporate governance, but also can effectively improve the financing advantages and output advantages brought by stock liquidity, which has self-evident benefits to the value of companies and the whole macroeconomic environment. After the establishment of a perfect legal protection system, the efficiency of law enforcement should also be improved to ensure that relevant laws can be effectively implemented, which requires further improvement of the working mechanism of the courts and other law enforcement departments, especially in the simplification of the law enforcement process.

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