

# Quantitative Study on the Existence and Determinants of Liquidity Premium in the Stock Market

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**Abstract.** Market liquidity is one of the key factors influencing asset pricing and investor behavior, while liquidity premium refers to the cost investors pay for obtaining liquidity in stock markets. This study uses historical data from China's A-share market and selects multiple liquidity measures—such as the Amihud illiquidity measure, bid-ask spread, and turnover ratio—to conduct an empirical investigation into the existence and determinants of liquidity premium in the Chinese stock market. First, we construct a liquidity factor and incorporate it into the Fama-French three-factor model to examine whether liquidity premium can exist independently of market risk, size effect, and value effect. Then, using panel regression and grouped tests, we analyze the determinants of liquidity premium from both macro-level perspectives (e.g., overall market volatility and macroeconomic cycles) and micro-level perspectives (e.g., firm size, ownership concentration, and information disclosure). The results show that there is a significant liquidity premium in the Chinese stock market, which exhibits strong time variation—particularly higher during periods of high market volatility or liquidity stress. Moreover, smaller firms and stocks with higher degrees of information asymmetry face greater liquidity premiums. Additionally, the study finds that investor heterogeneity and asymmetric transaction costs are among the contributing factors to liquidity premium. This research enriches the empirical understanding of liquidity premium theory in emerging markets such as China and provides practical guidance for investors in asset allocation and for regulators in improving market liquidity.

**Keywords:** Liquidity premium, Stock market, Quantitative research, Influencing factors, Asset pricing.

## 1. Introduction

Market liquidity is the foundation of modern financial market operations, playing a crucial role in market pricing and resource allocation, as well as holding significant importance in asset pricing. With the continuous internationalization of China's financial markets and the deepening reform of its capital markets, liquidity risk and its associated return compensation—liquidity premium—have increasingly drawn attention from both academia and industry. According to data released by the China Securities Regulatory Commission, by the end of 2023, the total market value of China's A-share market exceeded 80 trillion RMB, with average daily trading volume remaining above one trillion RMB, ranking among the world's largest markets. However, as market size continues to expand, differences in liquidity across individual stocks have also widened, and liquidity challenges remain severe for many small- and mid-cap stocks. From 2020 to 2024, influenced by factors such as the impact of the COVID-19 pandemic, changes in global liquidity conditions, and domestic economic restructuring, the A-share market experienced multiple significant liquidity fluctuations. The turnover rate of A-shares on the Shanghai Stock Exchange declined from 214.30% in 2020 to 235.51% in 2021, then dropped to 204.27% in 2022, and further decreased to 183.10% in 2023. These temporal changes in liquidity hold strong practical significance for studying liquidity premiums.

In this context, studying whether a liquidity premium exists in the Chinese stock market and identifying its influencing factors is significant for enriching and refining asset pricing theories under emerging market conditions. It also benefits investors in making rational asset allocations to maximize returns and helps regulators better fulfill their oversight roles. Based on the characteristics and trading dynamics of China's A-share market, this paper conducts an empirical investigation into the existence of a liquidity premium using multiple approaches to measure liquidity and econometric methods. Building upon this analysis, it further examines the determinants of the liquidity premium

from perspectives including macroeconomic environment, market microstructure, and firm-specific characteristics. Finally, the paper develops an extended asset pricing model incorporating a liquidity factor to explore how liquidity risk receives market compensation independently of traditional risk factors, thereby offering new insights into the pricing mechanism of the Chinese stock market and providing valuable reference for market participants.

## **2. Theoretical Foundation of Stock Market Liquidity Premium**

### **2.1 The Concept and Measurement Methods of Liquidity**

Liquidity refers to the ability of an asset to be quickly converted into cash at a low cost without causing significant price fluctuations, and is an important criterion for evaluating the efficiency of financial markets and the tradability of assets. For stocks, liquidity reflects how easily investors can buy or sell shares and the extent to which such transactions affect prices. High liquidity means investors can trade at market-appropriate prices within a short time, whereas low liquidity implies higher transaction costs and greater risk of price volatility. Because liquidity is multidimensional and cannot be fully captured by a single indicator, scholars have proposed various methods to measure it. The transaction cost dimension is primarily measured by the bid-ask spread—the compensation demanded by market makers for providing immediate liquidity—making it the most direct way to assess liquidity costs. The trading speed dimension is typically represented by the turnover rate, defined as the ratio of trading volume over a given period to the stock's outstanding shares; a higher value indicates more active market trading. An important measure of price impact is the illiquidity ratio introduced by Amihud (2002), which calculates the absolute value of daily stock returns divided by trading volume, reflecting the degree to which each unit of trading affects price. This metric combines practical relevance with theoretical rigor and is widely used in empirical research. Additional measures such as the proportion of zero-trading days and depth indicators complement liquidity analysis from different perspectives, helping to provide a more comprehensive understanding of stock market liquidity.

### **2.2 Theoretical Models of Liquidity Premium**

The liquidity premium theory model is built upon measuring liquidity risk within the asset pricing framework. The classic liquidity premium model proposed by Amihud and Mendelson in 1986 forms the foundation of liquidity premium research, arguing that different investors have varying investment horizon preferences. In a perfectly competitive market, the expected return on an asset should compensate investors for the additional transaction costs incurred due to illiquidity, with this compensation increasing in a concave manner as transaction costs rise. This theory suggests that less liquid stocks require higher expected returns to attract investors, thereby generating a liquidity premium. Subsequently, Acharya and Pedersen extended the Capital Asset Pricing Model (CAPM) by incorporating a liquidity adjustment term, proposing the Liquidity-Adjusted CAPM (LCAPM), which states that an asset's expected return consists of both market risk premium and liquidity risk premium. This implies that stock returns are influenced not only by systematic market risk but also by the asset's own liquidity level and its correlation with market liquidity. Pastor and Stambaugh conducted dynamic pricing studies on liquidity risk, pointing out that overall market liquidity is time-varying and exerts systematic effects on asset prices. They emphasized that liquidity risk is non-diversifiable and thus requires appropriate risk compensation. These theoretical models provide a solid theoretical foundation and methodological guidance for empirical investigations into the existence of liquidity premiums and the factors influencing their magnitude.

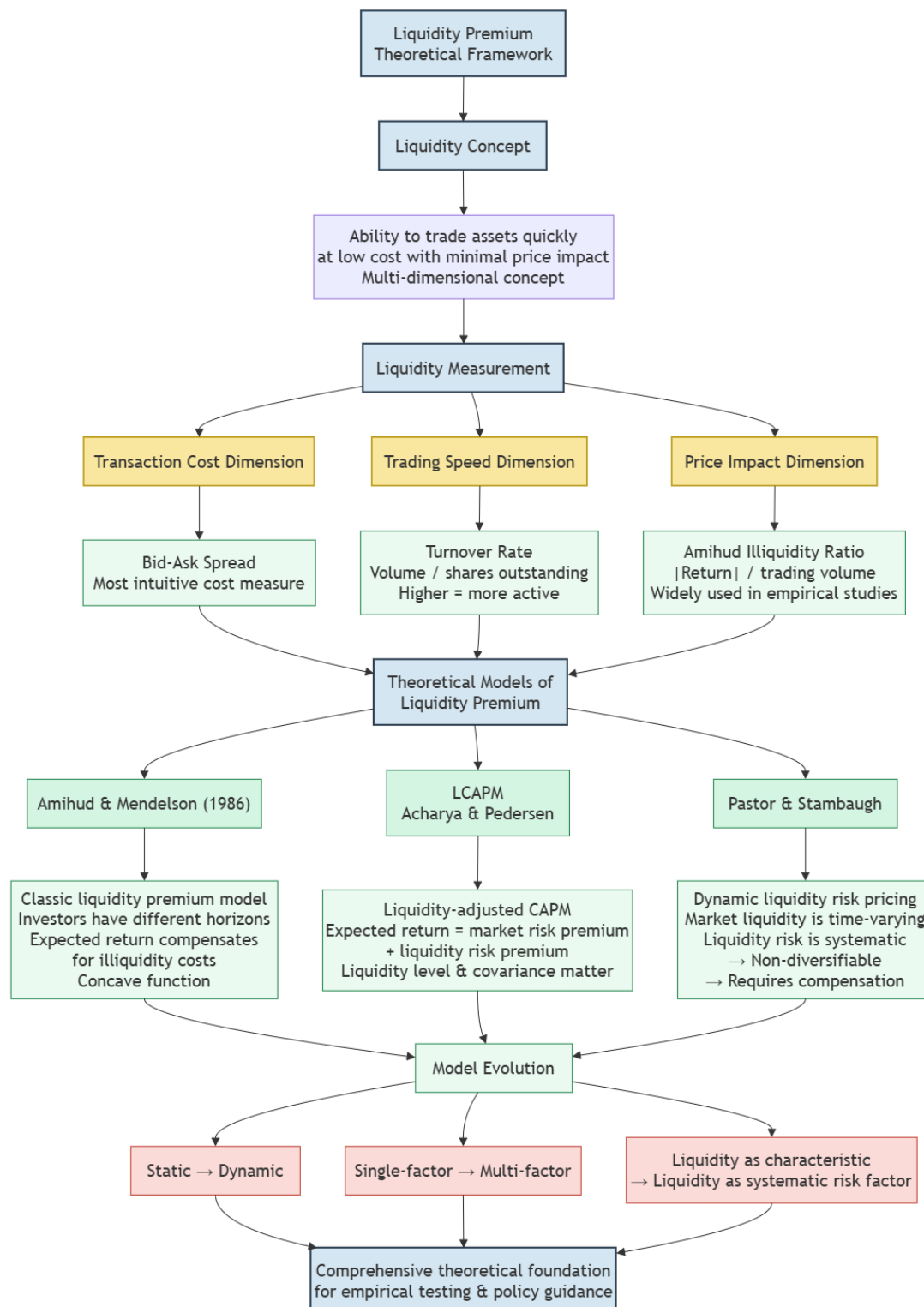


**Figure 1.** Framework of the Evolution of Liquidity Premium Theory Models

### 2.3 Current Research on Liquidity Premium

Liquidity premium is an important issue in asset pricing and has received extensive attention both within and outside China. Research on liquidity premium outside China has been relatively abundant. ALLAUDEEN HAMEED et al. (2010) examined the relationship [6] between stock market declines and liquidity, finding that liquidity decreases during market downturns, thereby increasing the liquidity premium—a significant insight for [5] understanding liquidity risk during market crises. Jiyou An et al. (2019), focusing on the Chinese stock market, analyzed which factors influence the

liquidity premium and concluded that market microstructure characteristics play a substantial role. Butt Hilal Anwar et al. (2022), from the perspective [4] of investor types, investigated whether emerging stock markets offer non-liquidity premiums to local or global investors, revealing that different investors face varying levels of liquidity risk.

In recent years, research on liquidity premium has become increasingly sophisticated. Kim Jinyong and Kim Yongsik (2023) examined how stock price components affect the Amihud illiquidity premium [3], thereby enhancing understanding of the micro-mechanisms behind liquidity premiums. Yaakoubi Soumaya (2024) analyzed the relationship [2] between investor sentiment and market liquidity pricing from a behavioral finance perspective, enriching the body of research on liquidity premiums. Jianlin Li (2024) contributed methodologically to the measurement [1] of liquidity risk by identifying and quantifying risk factors in asset pricing.

In domestic research, scholars have conducted extensive empirical studies by taking into account the unique institutional background of China's stock market. Luo Dengyue et al. (2005) were among the early researchers to employ time-series methods to empirically analyze [16] systematic risk and liquidity risk premiums in the Chinese stock market. Liang Lizhen and Kong Dongmin (2008) provided a detailed discussion [15] on the pricing of liquidity indicators in China's stock market, which significantly advanced subsequent research. Zou Xiaopeng et al. (2009) examined the relationship between liquidity risk and asset pricing from the perspective [14] of investors' liquidity demands. Zhou Fang and Zhang Wei (2011) conducted a systematic analysis [13] of the existence and mechanisms of liquidity risk premiums in the Chinese stock market. Wang Hui and Huang Jianbing (2014) further [12] explored issues related to systemic liquidity risk and systemic liquidity premiums. Li Yanjun and Shi Xiaoying (2016) compared the effectiveness [11] of different liquidity measures based on differences in returns. Chen Haiqiang and Jiang Pan (2020) constructed a comprehensive liquidity index using high-frequency A-share data and tested [10] for premium effects. Yuan Ye (2021) focused on the characteristics [9] of liquidity premiums in small- and mid-cap stock markets. Ni Xuanming et al. (2023) discussed the roles [8] of statistical and economic factors in liquidity research. Zhang Yaojun (2024) analyzed the relationship [7] between market liquidity and stock market bubbles through the mediating effect of price efficiency, offering a new theoretical perspective on understanding liquidity premiums.

### **3. Empirical Test of the Existence of Liquidity Premium in the Stock Market**

#### **3.1 Research Hypotheses and Sample Selection**

Based on the liquidity-based asset pricing theory, this study investigates the following research question: there is a significant liquidity premium in China's A-share market, meaning that stocks with lower liquidity should offer higher expected returns to compensate investors for the liquidity risk they face. To test this hypothesis, we use all A-shares listed on the Shanghai and Shenzhen stock exchanges from January 2019 to December 2023 as our initial sample. This period includes major market events such as the impact of the pandemic and the implementation of the registration-based IPO system, making it highly representative. The sample selection criteria include excluding ST and \*ST stocks (special treatment), removing newly listed stocks with less than one year of trading history to avoid IPO effects, and eliminating stocks with more than 20% missing trading data. After these exclusions, we retain 3,268 valid stocks, forming an unbalanced panel dataset comprising 196,080 observations. During the sample period, the average daily trading volume in China's stock market increased from 522.2 billion yuan in 2019 to 876.9 billion yuan in 2023, showing an overall upward trend in market liquidity, which provides favorable conditions for empirical analysis of the liquidity premium.

### 3.2 Construction of Liquidity Indicators and Data Processing

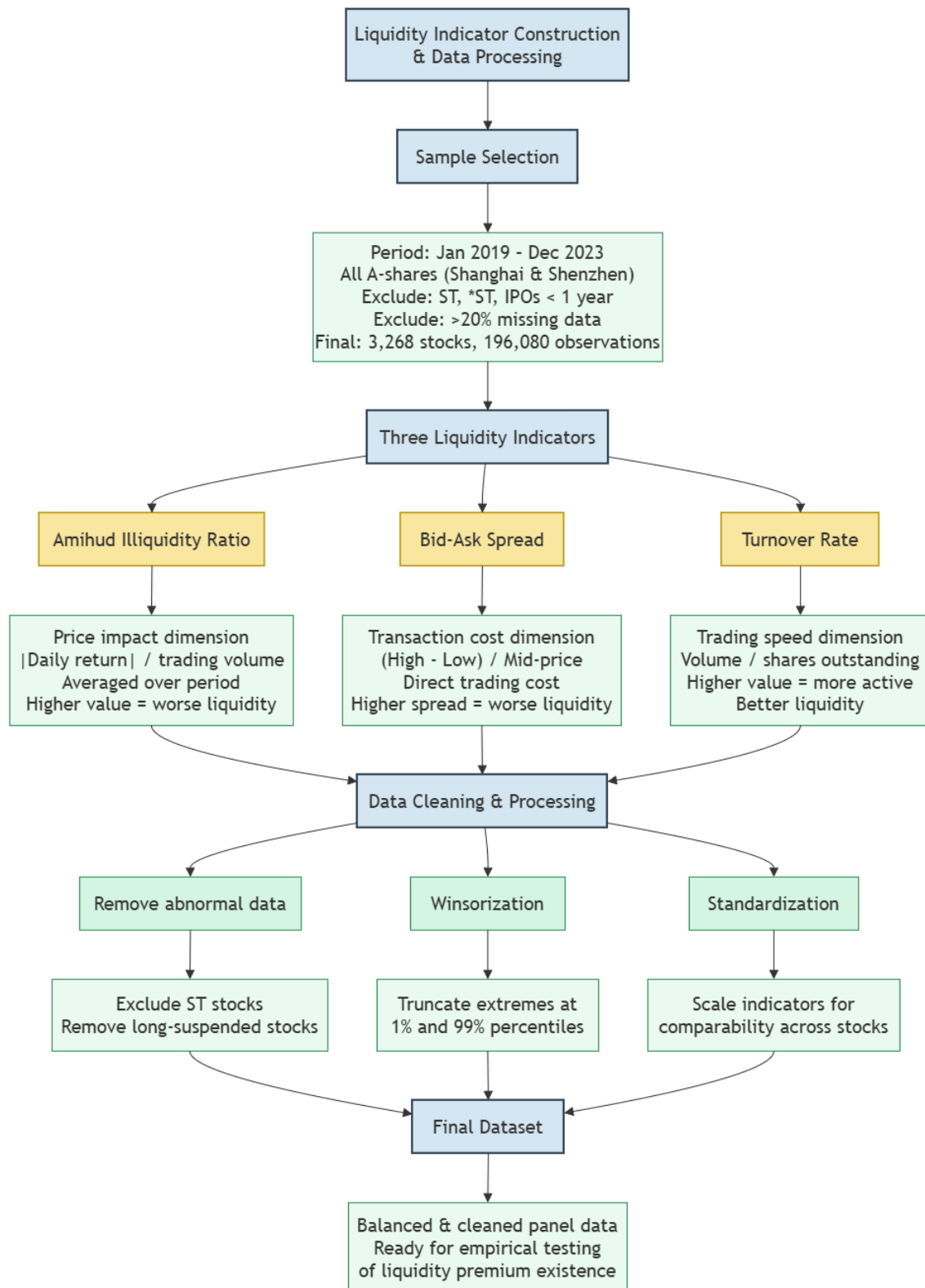


**Figure 2.** Liquidity Indicator Construction and Data Processing Workflow

Liquidity is a multidimensional market characteristic that cannot be fully captured by a single indicator. Therefore, this paper selects multiple indicators to describe the liquidity of China's A-share market. The chosen indicators fall into three main categories: First, the Amihud illiquidity measure, which calculates price impact cost as the absolute value of daily stock returns divided by trading volume on that day. This metric effectively reflects how much large trades affect prices and is defined

as the average over a certain period of the ratio between absolute daily return and daily trading value; higher values indicate lower liquidity. Second, the bid-ask spread indicator, expressed as the difference between the intraday high and low prices divided by the mid-price, represents the direct transaction cost incurred by market makers providing immediate liquidity services. Third, the turnover ratio, calculated as trading volume divided by outstanding shares, measures the level of trading activity and is an important aspect of assessing market depth. During data processing, the original transaction data were rigorously cleaned and standardized, excluding ST stocks, stocks with prolonged suspensions, and samples with abnormal trading data. Extreme values were trimmed so that they did not exceed the 99th percentile, ensuring data quality and maintaining the validity of subsequent empirical results, thereby guaranteeing the accuracy of liquidity premium tests.

### 3.3 Empirical Model Design for Liquidity Premium

To examine whether a liquidity premium exists in the Chinese A-share market and its economic implications, this study extends the Fama-French multifactor asset pricing model by incorporating a liquidity factor. Specifically, using individual stock monthly excess returns as the dependent variable, we introduce a liquidity risk factor as a key explanatory variable alongside the traditional market, size, and value factors. The liquidity factor is constructed through a multidimensional composite measurement approach, combining liquidity proxies such as the Amihud illiquidity measure, effective spread, and the inverse of turnover ratio via principal component analysis, resulting in a systematic risk factor that captures overall market liquidity fluctuations. In the regression model, the existence of a standalone liquidity premium is assessed based on the sign, magnitude, and statistical significance of the liquidity factor loadings. Furthermore, this study employs a dual testing method combining time-series and cross-sectional regressions: the former identifies temporal trends in the liquidity premium, while the latter uses the Fama-MacBeth two-step regression to control for cross-sectional correlation, thereby enhancing estimation reliability and laying a solid foundation for subsequent analyses of influencing factors.

### 3.4 Empirical Results on the Existence of Liquidity Premium

Based on the multi-factor model and liquidity indicators established above, this study conducts an empirical analysis of Chinese A-share market data from 2019 to 2023. The results show that liquidity premium is clearly and consistently present in the Chinese stock market. After controlling for market, size, and value factors, the regression coefficient of the liquidity factor remains significantly positive at the 1% significance level, indicating that investors demand compensation for holding less liquid stocks. Specifically, using the Amihud illiquidity measure, the average monthly return of the liquidity factor is 0.68%, with an annualized return of 8.16%, which is statistically significant and non-zero. Further cross-sectional regressions reveal that even after including control variables such as book-to-market ratio, profitability, and investment style, liquidity measures still provide strong explanatory power for expected stock returns, contributing approximately 4.2 percentage points to the adjusted R-squared of the model. Portfolio tests further highlight the existence of liquidity premium: when stocks are divided into five groups based on liquidity levels, the lowest-liquidity portfolio achieves a monthly return 1.12% higher than the highest-liquidity portfolio, and the difference in Sharpe ratios remains substantial even after risk adjustment. Time-series analysis shows that liquidity premiums become more pronounced during periods of high market volatility. During the early 2020 pandemic shock and the 2022 market correction, the liquidity factor generated excess returns of 12.3% and 10.7% annually, respectively, confirming that liquidity risk is one of the systematic risks and providing strong support for the liquidity premium theory.

## **4. Analysis of Factors Affecting Liquidity Premium**

### **4.1 The Impact of Macroeconomic Factors on Liquidity Premium**

Macroeconomic changes significantly affect the liquidity premium in stock markets. An empirical study of China's A-share market from 2019 to 2023 reveals that fluctuations in the macroeconomic cycle directly influence the relationship between market liquidity supply and demand. During periods of economic expansion, market activity increases and capital supply remains ample, generally leading to a reduction in the liquidity premium. Conversely, during economic downturns or times of heightened uncertainty, investor risk aversion rises and demand for liquidity increases, resulting in higher liquidity premiums. Monetary policy is one of the key factors affecting liquidity premiums; when central banks adopt loose policies, market liquidity improves noticeably, and the average liquidity premium declines by approximately 15–25 basis points. In contrast, when monetary policy tightens, liquidity becomes constrained, and stocks with lower liquidity command higher premiums. Market volatility, as an indicator of macroeconomic uncertainty, is positively correlated with liquidity premiums—when volatility increases by one standard deviation, the liquidity premium typically rises by about 0.8–1.2 percentage points, indicating that investors place greater emphasis on liquidity protection under conditions of increased uncertainty.

### **4.2 The Impact of Company Characteristics on Liquidity Premium**

Company-level factors play a decisive role in the heterogeneity of liquidity premiums. Firm size is one of the most important company-level determinants of liquidity premiums. Empirical studies show that the average liquidity premium for the smallest market capitalization stocks is 2.5 to 3.5 percentage points higher than that of the largest stocks, with this difference being even more pronounced on the SME Board and ChiNext. Corporate ownership structure also affects liquidity premiums; when the largest shareholder holds more than 50% of shares, the proportion of tradable shares is smaller, restricting market liquidity, resulting in liquidity premiums approximately 1.8 percentage points higher compared to firms with more dispersed ownership. The quality of information disclosure serves as a key indicator of information asymmetry and shows a significant negative correlation with liquidity premiums. Companies rated A by the Shenzhen Stock Exchange have liquidity premiums 1.2 to 1.5 percentage points lower than those rated C, indicating that more comprehensive disclosure effectively reduces adverse selection costs. The impact of financial leverage on liquidity premiums is nonlinear: moderate levels of leverage have little effect, but when the debt-to-asset ratio exceeds 60%, increased financial risk raises liquidity premiums by nearly 0.9 percentage points. Industry differences also matter—high-tech industries, where information asymmetry tends to be more severe, exhibit average liquidity premiums 0.6 to 1.0 percentage points higher than traditional manufacturing sectors.

### **4.3 The Impact of Market Microstructure Factors on Liquidity Premium**

Market microstructure characteristics have a profound impact on liquidity premiums through trading mechanisms. Trading systems determine the level of market liquidity supply. Since the implementation of the market maker system in the STAR Market in 2019, liquidity premiums for related stocks have decreased by approximately 0.8% compared to similar stocks on the main board, indicating that the market maker system helps enhance market liquidity. Differences in investor structure are one of the key micro-level factors: for every 10 percentage point increase in institutional investors' shareholding ratio, the average stock liquidity premium decreases by about 0.3 to 0.5 percentage points, reflecting the positive role of institutional investors' professional trading capabilities in improving market liquidity. The price limit-up/limit-down mechanism is a unique trading restriction in China and may pose risks of liquidity exhaustion under extreme conditions; after a stock hits its price limit, liquidity premiums typically rise abnormally by 15 to 30 basis points in the following trading day. There is a positive correlation between order flow imbalance and liquidity premiums—each additional standard deviation in buy-sell order imbalance increases the liquidity

premium by approximately 0.4 percentage points, suggesting compensation for inventory risk arising from order imbalances.

#### 4.4 Multivariate Regression Analysis and Robustness Check

To comprehensively examine the impact of various factors on liquidity premium, this study selects macroeconomic variables, firm characteristics, and market microstructure variables for a multivariate regression analysis. Using fixed-effects panel regression, we employ Amihud illiquidity measure, relative bid-ask spread, and the reciprocal of trading volume as proxies for liquidity premium. After controlling for systematic factors such as market returns and volatility, the regression results show a significant negative correlation between the log of firm size and liquidity premium, with a coefficient of -0.32 that is significant at the 1% level—indicating that each doubling of firm size reduces the liquidity premium by approximately 32 basis points. The coefficient for the largest shareholder's ownership ratio is 0.18, significant at the 5% level, suggesting that higher equity concentration positively affects liquidity premium. From a macroeconomic perspective, the VIX index, representing market volatility, has a highly significant coefficient of 0.45, indicating that increased market volatility amplifies the liquidity premium. The growth rate of money supply M2 has a coefficient of -0.26, showing that loose monetary policy effectively reduces liquidity premium.

Robustness checks are conducted using multiple methods to verify the research conclusions. First, we alter the liquidity measurement approach by replacing the original liquidity measure with Roll's implied spread and liquidity ratio; the coefficient magnitudes and significance levels of the key explanatory variables remain unchanged, indicating that our findings are not sensitive to the choice of liquidity measure. Second, we perform subsample analyses by dividing the full sample period into two subperiods—2019–2021 and 2022–2024—and conduct separate regressions. The main conclusions hold in both periods, demonstrating strong time robustness. Third, we address potential endogeneity issues using instrumental variable (IV) estimation, employing one-period-lagged liquidity indicators as instruments. The two-stage least squares results are largely consistent with the baseline regression. Fourth, we remove outliers by Winsorizing all continuous variables at the 1% and 99% quantiles; the economic significance and statistical significance of the regression coefficients remain largely unchanged, further confirming the robustness of our findings.

### 5. Conclusions

Based on trading data from China's A-share market between 2019 and 2023, this study empirically investigates the existence and causes of liquidity premium in the Chinese stock market using multiple liquidity measures. The results confirm that a liquidity premium does exist in the Chinese equity market and is consistently present. Even after controlling for the Fama-French three factors, the liquidity factor still demonstrates significant positive pricing power. However, there is some degree of correlation between liquidity and size and value factors. Portfolios with the lowest liquidity generate an additional annual return of 4.8 to 6.5 percentage points compared to those with the highest liquidity. Moreover, the liquidity premium exhibits strong time variation: it increases during market turbulence, liquidity stress, or heightened macroeconomic uncertainty, while it decreases during economic booms and periods of loose monetary policy. From a causal perspective, macroeconomic cycles, monetary policy direction, and market volatility are the primary drivers of liquidity premiums. Firm characteristics such as company size, ownership structure, and information transparency also play a crucial role in shaping differences in liquidity premiums—small-cap stocks, firms with high concentration of ownership, and those with insufficient disclosure tend to face higher liquidity risk premiums. From a market microstructure standpoint, investor composition, trading rules, and order flow all influence liquidity supply. Various regression methods and robustness checks validate these findings, providing strong evidence supporting the application of liquidity premium theory in the Chinese context.

Research holds significant implications for investment practices and policy-making. For investors, recognizing the pricing role of liquidity risk and incorporating a liquidity factor into asset allocation can effectively enhance risk-adjusted portfolio returns, particularly during periods of market liquidity stress, where liquidity management becomes a key avenue for generating excess returns. For regulators, it is essential to continuously improve market microstructure, develop market maker systems, increase information transparency, and foster institutional investor participation, thereby reducing the overall market liquidity risk premium through institutional reforms and enhancing market resilience and efficiency. Future research could further explore how to better forecast trends in liquidity premiums and examine the impact of liquidity risk on the transmission of systemic financial risks, aiming to better support the development and improvement of China's capital markets.

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