

THE IMPACT OF ECONOMIC POLICY UNCERTAINTY ON STOCK MARKET LIQUIDITY

YANG LIU* AND YUNXI MA

School of Economics and Management
Dalian University

No. 10, Xuefu Street, Jinzhou New District, Dalian 116622, P. R. China

*Corresponding author: liuyang3@dlu.edu.cn; mayunximyx@163.com

Received March 2021; accepted May 2021

ABSTRACT. *Since the post-financial crisis era, countries have relied on different economic policies to respond to various economic conditions. When existing economic policies change or experience emergencies, information is first transmitted to the stock market. This article uses A-share listed companies as a sample, uses the China Economic Policy Uncertainty Index jointly released by Stanford University and the University of Chicago to measure China's economic policy uncertainty, and uses a fixed effects model to study the impact of China's economic policy uncertainty on stock market liquidity. The impact of investor sentiment on the stock market has received extensive attention from academia and the industry in recent years, and changes in domestic and foreign markets have also shown that there is a certain relationship between investor sentiment and stock market liquidity. The empirical results show that the increased uncertainty of China's economic policies will reduce the liquidity of the stock market. There is a positive relationship between investor sentiment and stock market liquidity, and it can increase the impact of economic policy uncertainty.*

Keywords: Policy uncertainty, Investor sentiment, Stock market liquidity

1. Introduction. With the deepening of economic globalization, the economic development of countries around the world is getting closer, the world economic situation is unpredictable, the degree of global uncertainty is rising, and the market's dependence on economic policies is also increasing. Since the 2008 global financial crisis, the world economy has been recovering slowly, the European sovereign debt crisis, Brexit, rising geopolitical risks, and global trade frictions have been heating up. The increasing uncertainty of economic policies has become an important factor hindering the economic recovery of various countries. The Chinese government has actively adjusted its economic policies to stimulate economic recovery and avoid a serious economic recession. The frequent promulgation of these economic policies will help alleviate the impact of the global economic downturn on the one hand, and on the other hand, it will also increase the uncertainty of economic policies, thereby disturbing the market and damaging the market's self-regulating function.

In an incomplete capital market, the uncertainty of economic policies has increased the business risks of enterprises, aggravated the degree of information asymmetry, and affected the investment behavior of investors. Behavioral finance theory believes that asset prices not only depend on basic economic factors, but are also affected by non-market factors such as investor expectations or investor behavior. For investors, they make investment decisions based on market information, and their expectations for the company's future development prospects are also indirectly reflected in the company's stock prices and price fluctuations through investment behavior, and stock volatility will affect stock liquidity [1], the uncertainty of economic policy will lead to more violent stock price fluctuations,

that is, the uncertainty of economic policy affects the liquidity of the stock market through investor behavior.

In reality, investors' cognitive biases and emotional preferences will prompt investors to make a series of irrational behaviors in investment decisions. This behavior is often not in line with the expectations of classic financial theories, so it has produced some anomalies in the financial market. These financial anomalies not only affect asset prices, but also affect market efficiency and liquidity to a certain extent. If there is an extreme trend in market prices, then liquidity will follow: from surplus to contraction and finally disappear. For rational investors with a strong sense of opportunity, economic policy uncertainty will increase their trading enthusiasm, thereby increasing the level of liquidity in the stock market. So how will the level of liquidity change when economic policy uncertainty increases?

Previous studies have mainly focused on the relationship between economic policy uncertainty and corporate micro-behavior; however, there are very few studies on the impact of economic policy uncertainty on stock liquidity. This paper innovatively focuses on the impact of economic policy uncertainty on stock liquidity, and enhances the understanding of stock liquidity. Meanwhile, it investigates whether investor sentiment will affect the relationship between economic policy uncertainty and stock liquidity, which is a useful supplement to the relevant literature on stock liquidity. It is a useful supplement to the literature on stock liquidity. This article also examines the impact of investor sentiment on stock liquidity, and provides more insights into the relationship between economic policy uncertainty and stock liquidity.

2. Theoretical Analysis and Research Hypotheses.

Hypothesis 2.1. From the perspective of information asymmetry, economic policy uncertainty will exacerbate the level of information asymmetry, thereby reducing stock liquidity. Information is one of the main factors affecting stock liquidity. Verrecchia and Leuz [2] researched that in the stock exchange market, traders' buying and selling intentions are negatively related to the degree of information asymmetry. Uncertainty in economic policies may increase market investors' perception of losses during stock trading, curb their enthusiasm, thereby reduce stock trading volume and reduce stock liquidity. However, economic policy uncertainty may also increase stock liquidity. Although from the perspective of loss aversion, economic policy uncertainty may force some risk-averse market investors to reduce their willingness to trade stocks, leading to weaker stock liquidity, as the investment growth theory emphasizes, uncertainty may be containing "good news", many investment opportunities may also arise in an environment of uncertain economic policies [3]. Considering that there may be an opportunity factor in the uncertainty of economic policy, market investors with a strong sense of opportunity may hold the opposite attitude, and are more willing to seize opportunities when economic policy is uncertain, and are more willing to trade stocks in order to learn from it. Get higher returns. Therefore, this article infers that the impact of economic policy uncertainty on stock liquidity may depend on the degree of risk aversion by market investors, so how does uncertainty in economic policy uncertainty affect stock liquidity? Based on the above analysis, this article proposes two competing hypotheses.

H1a: Under the same conditions, the uncertainty of economic policy will reduce stock liquidity.

H1b: Under other conditions unchanged, economic policy uncertainty will increase stock liquidity.

Hypothesis 2.2. Since the emergence of behavioral finance theory, the research on investor sentiment and stock market volatility has always been a hot issue in academic circles, and the research results are also relatively rich. After conducting a survey of 125

members of the American Association of Individual Investors (AAII). Lee et al. [4] used the empirical study of the Investor Intelligence Sentiment Index to find that investors' excess returns in the stock market are positively correlated with investor sentiment. Optimistic investor sentiment will lead to a decline in stock market volatility and increase future excess returns in the stock market, and vice versa. Yin [5] believed that investors' expectations of the future stock market, namely their emotions, will affect their investment decisions and behaviors, and also have an impact on market liquidity. Investor sentiment has a significant promoting effect on stock liquidity, and it can only affect stock liquidity in one direction, but not in the other direction. Based on the above analysis, this article proposes the following hypothesis.

H2: Under the circumstance of the same conditions, when investor sentiment is high, it will increase the liquidity of the stock market.

Hypothesis 2.3. In the capital market, individual investors are the main force, so their investment decisions will play an important role in the stability of the market. Under the limitations of knowledge system and technical conditions, investors' emotions will have a significant impact on investment behavior, especially when there is a sharp rise and fall in the market, investor sentiment has played a role in fueling the flames. Based on the above analysis, this article proposes the following hypothesis.

H3: Under the same conditions, investor sentiment can enhance the impact of economic policy uncertainty on stock liquidity.

3. Research Design.

3.1. Research samples and data sources. This article selects 321 Chinese A-share listed companies from 2007 to 2017 as the research sample. In order to ensure the accuracy and representativeness of the research data, this article also selects the samples according to the following conditions: 1) exclude financial and insurance listed companies; 2) exclude PT and ST listed companies; 3) eliminate the observations with missing data in relevant empirical variables. Finally, 3531 sample observations are obtained. The data needed in this article mainly comes from the CSMAR database and the RESSET database. Descriptive statistics, correlation analysis and regression analysis used STATA15.0 software.

3.2. Variable definition and model construction. In this paper, referring to the method of Li et al. [6], the stock liquidity (ILLIQ) is measured by the non-current index, and the calculation method of the non-current index (ILLIQ) is as follows:

$$ILLIQ_{i,t} = \frac{1}{D_{i,t}} \sum_{d=1}^{D_{i,t}} \frac{|R_{i,t,d}|}{VOL_{i,t,d}}$$

$D_{i,t}$ is the number of trading days of company i in year t , $R_{i,t,d}$ is the stock return rate of company i on day d in year t , and $VOL_{i,t,d}$ is the transaction amount of company i on day d in year t (unit: 100 million yuan). The Illiq Index (ILLIQ) measures the degree of change in stock prices caused by unit trading volume. The larger the value of ILLIQ, the lower the liquidity of the stock.

Regarding the measurement index of economic policy uncertainty (EPU), this article refers to the economic policy uncertainty (EPU) index constructed by Baker et al. [7] to measure the degree of uncertainty in China's economic policy. According to the monthly arithmetic average, this paper obtains the annual economic policy uncertainty data. In order to eliminate the magnitude difference, this paper divides the annual economic uncertainty data by 100. The larger the value of EPU, the higher the economic policy uncertainty. For the measure of investor sentiment, this article refers to the CICI Index to measure investor sentiment.

Investor sentiment is considered to be another potential pricing factor in addition to market factors, scale factors, book-to-market value ratio factors, and momentum factors. Refer to existing literature [8,9] and the Fama-French three-factor model. Combined with the research objects of this article, the following company characteristic variables are introduced as control variables: market value factor (SMB), book-to-market value ratio factor (HML), profitability (ROA), capital structure (LEV), company size (SIZE), book-to-market value ratio (BM), and this article also controls the influence of individual variables. Both the market value factor and the book-to-market value ratio factor are selected from the weighted market value factor of the circulating market value.

Based on the above theoretical analysis, this paper constructs the following three models to verify the hypothesis.

$$ILLIQ = \alpha_0 + \alpha_1 EPU + \alpha_2 SMB + \alpha_3 BM + \alpha_4 LEV + \alpha_5 SIZE + \alpha_6 HML + \alpha_7 ROA + v + \varepsilon \quad (1)$$

$$ILLIQ = \beta_0 + \beta_1 CICSI + \beta_2 SMB + \beta_3 BM + \beta_4 LEV + \beta_5 SIZE + \beta_6 HML + \beta_7 ROA + v + \varepsilon \quad (2)$$

$$ILLIQ = \delta_0 + \delta_1 CICSI + \delta_2 EPU + \delta_3 CICSI \times EPU + \delta_4 SMB + \delta_5 BM + \delta_4 LEV + \delta_5 SIZE + \delta_6 HML + \delta_7 ROA + v + \varepsilon \quad (3)$$

Model (1) is used to verify the hypotheses H1a and H1b. If H1a is established, the regression coefficient α_1 of EPU should be significantly positive; if H1b is established, the regression coefficient α_1 of EPU should be significantly negative. Model (2) is used to verify the assumption H2. If H2 is established, CICSI's regression coefficient β_1 should be significantly positive. Model (3) is used to verify the hypothesis H3. According to the expectations of this article, the regression coefficient δ_3 should be significantly positive.

4. Empirical Results and Analysis.

4.1. Descriptive statistics. Table 1 reports the descriptive statistics of the main variables. The mean value of ILLIQ is 0.0737, the standard deviation is 0.185, the maximum value is as high as 7.318, and the minimum value is only 0.000557, indicating that the stock liquidity of listed companies in our country is very different. The average value of EPU is 1.864, the maximum value is 3.648, and the minimum value is 0.0379, indicating that the uncertainty of our country's economic policy fluctuates greatly. The average value of CICSI is 38.37, the standard deviation is 4.221, the maximum value is 47.45, and the minimum value is 32.12, indicating that investor sentiment fluctuates greatly. The average value of ROA is 0.0379, the minimum value is -2.747 , and the maximum value is 0.442, indicating that the overall profitability of listed companies in my country is relatively low, and the profitability of different companies is quite different. The mean and standard deviation of LEV are 0.505 and 0.192, respectively, indicating that the asset-liability ratio of the sample company is relatively high. Other variables are basically consistent with existing studies.

4.2. Correlation analysis. Table 2 reports the Pearson correlation coefficient of each variable. It can be seen from Table 2 that, without controlling for other variables, the Pearson correlation coefficient of economic policy uncertainty (EPU) and illiquidity index (ILLIQ) is -0.079 , and it is significant at the 1% level, indicating that there is a very close negative correlation between economic policy uncertainty and stock liquidity. The Pearson correlation coefficient of investor sentiment (CICSI) and illiquidity index (ILLIQ) is -0.182 , and both are significant at the 1% level, indicating that there is a very close negative correlation between investor sentiment and stock liquidity. In addition, in order to prevent serious multicollinearity problems between explanatory variables, the variance inflation factor (VIF value) of each variable is also calculated. The calculation results

TABLE 1. Descriptive statistics

Variables	N	mean	sd	min	max
EPU	3,531	1.864	0.945	0.0379	3.648
ROA	3,531	0.0379	0.0858	-2.747	0.442
LEV	3,531	0.505	0.192	0.00708	2.024
EPS	3,531	0.246	0.444	-2.650	7.680
HML	3,531	0.00233	0.0104	-0.0117	0.0248
CICSI	3,531	38.37	4.221	32.12	47.45
ILLIQ	3,531	0.0737	0.185	0.000557	7.318
SIZE	3,531	22.18	1.310	18.29	26.27

TABLE 2. Correlation analysis

Variables	ILLIQ	EPU	CICSI	LEV	SIZE	EPS	HML	ROA
ILLIQ	1							
EPU	-0.079***	1						
CICSI	-0.182***	0.549***	1					
LEV	0.042**	-0.048***	-0.040**	1				
SIZE	-0.059***	0.229***	0.187***	-0.0270	1			
EPS	-0.115***	0.0250	0.054***	-0.136***	-0.0140	1		
HML	-0.116***	0.635***	0.275***	-0.0230	0.153***	0.0240	1	
ROA	-0.120***	-0.0120	0.037**	-0.310***	-0.038**	0.534***	0.0220	1

*, ** and *** respectively indicate significant at the significance level of 10%, 5% and 1%.

show that the VIF value of each variable is lower than 5, indicating that there is no serious multicollinearity problem between explanatory variables.

4.3. **Regression analysis.** Table 3 reports the regression results of this paper.

Regression (1). Controlling individual variables, the results show that the regression coefficient of EPU is 0.001, the t value is 0.24, and the economic policy uncertainty (EPU) is positively correlated with the illiquidity index (ILLIQ), that is, the economic policy uncertainty and the stock market liquidity are negatively correlated. It indicates that the higher the economic policy uncertainty, the lower the stock liquidity. The possible reason is that the uncertainty of economic policy is higher, the degree of information asymmetry will be greater, and the information disadvantage of market investors will be more prominent. This information disadvantage may lead to higher return rate demanded by market investors in the transaction, thus increasing the cost of stock liquidity and reducing the level of liquidity. In addition, uncertainty in economic policies may also increase market investors' perception of losses in the stock trading process, inhibiting investors' enthusiasm, thereby reducing stock trading volume and reducing stock liquidity. Assume that H1a is verified.

Regression (2). Controlling individual variables, the results show that the regression coefficient of CICSI is -0.007, the t value is -9.06, and investor sentiment (CICSI) is negatively correlated with the illiquidity index (ILLIQ), that is, investor sentiment and stock market liquidity have positive correlation, verifying the hypothesis H2. When investor sentiment is high, it indicates that investors may be too optimistic about future market returns, and when investors show overconfidence, the market will be more liquid.

Regression (3). Controlling individual variables, the results show that the regression coefficient of EPU is 0.025, the t value is 5.46, the regression coefficient of EPU and CICSI is 0.005, and the t value is 3.75. The above results all indicate that investor sentiment can promote the relationship between economic policy uncertainty and stock liquidity, and thus hypothesis H3 has also been verified. This shows that the higher the investor

TABLE 3. Regression result

Variables	(1) ILLIQ	(2) ILLIQ	(3) ILLIQ
EPU	0.001 (0.24)		0.025*** (5.46)
CICSI		-0.007*** (-9.06)	-0.010*** (-11.17)
CICSI × EPU			0.005*** (3.75)
LEV	0.075** (2.51)	0.062** (2.09)	0.075** (2.53)
SIZE	-0.008*** (-3.12)	-0.004* (-1.68)	-0.005** (-2.16)
EPS	-0.028*** (-2.69)	-0.023** (-2.20)	-0.246*** (-4.08)
HML	-1.881*** (-5.14)	-1.169*** (-4.00)	-2.406*** (-6.64)
ROA	-0.146*** (-2.94)	-0.143*** (-2.93)	-0.088* (-1.79)
Constant	0.217*** (3.90)	0.398*** (6.80)	0.512*** (8.42)
Observations	3,531	3,531	3,531
Number of CODE	321	321	321
R-squared	0.032	0.056	0.068
F test	0	0	0
r2_a	-0.0670	-0.0403	-0.0272
F	17.41	31.53	29.32

t-statistics in parentheses

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

sentiment, the more it can improve the liquidity of the stock market and at the same time magnify the impact of economic policy uncertainty on the stock market.

4.4. Robustness test. In order to improve the reliability of the research conclusions, this paper conducts the following robustness tests. 1) Replace the explained variables. This article replaces the stock liquidity measurement index with the stock turnover rate. The larger the index value, the higher the stock liquidity. The results showed that the signs and significance levels of key variables did not change, indicating that the results are robust. 2) One period of data lagging behind. Lag the comprehensive investor sentiment index by one period to test the correlation between investor sentiment and stock market liquidity. The results show that no important changes have taken place, indicating that the conclusions of this paper are robust.

5. Conclusion. This article explores the relationship between economic policy uncertainty and stock liquidity from a new perspective of economic policy uncertainty. The study found that economic policy uncertainty has a negative inhibitory effect on stock liquidity. The higher the economic policy uncertainty, the lower the level of stock liquidity. Investor sentiment has a significant role in promoting the liquidity of the stock market. The higher the investor sentiment, the higher the level of stock liquidity. At the same time, it can magnify the impact of economic policy uncertainty. In addition, this article only focuses on the impact of investor sentiment on stock liquidity, and does not further discuss the impact of two different investor sentiments and stock market liquidity based

on the different characteristics of investors' rational and irrational sentiments, relying on the further deepening and discussion of follow-up research.

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